EJONS

INTERNATIONAL JOURNAL ON MATHEMATICS, ENGINEERING & NATURAL SCIENCES

13th. INTERNATIONAL CONGRESS ON

MATHEMATICS, ENGINEERING, NATURAL AND MEDICAL SCIENCES

October 26-27, 2021
Cappadocia, TURKEY

ABSTRACT BOOK

Edited by
Dr. Mehriban EMEK
Nurlan AKHMETOV

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ABSTRACT BOOK

13th. INTERNATIONAL CONGRESS ON MATHEMATICS, ENGINEERING, NATURAL AND MEDICAL SCIENCES

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Editors

Dr. Mehriban EMEK

Nurlan AKHMETOV

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CONGRESS ID

TITLE OF CONGRESS

13th. INTERNATIONAL CONGRESS ON MATHEMATICS, ENGINEERING, NATURAL AND MEDICAL SCIENCES

PARTICIPATION

Keynote & Invited

DATE - PLACE

October 26-27, 2021

Cappadocia, Turkey

ORGANIZATION

EJONS INTERNATIONAL JOURNAL ON MATHEMATICS, ENGINEERING & NATURAL SCIENCES

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Turkey, Ethiopia, Morocco, Algeria, Nigeria, India, Vietnam, Philippines, Saudi Arabia, Iran, Romania, Colombia, United Kingdom, Oman, Ukraine, Hungary, Bulgaria

TOTAL ABSTRACTS: 132

The number of abstracts from foreign countries: 69

The number of abstracts from Turkey: 63

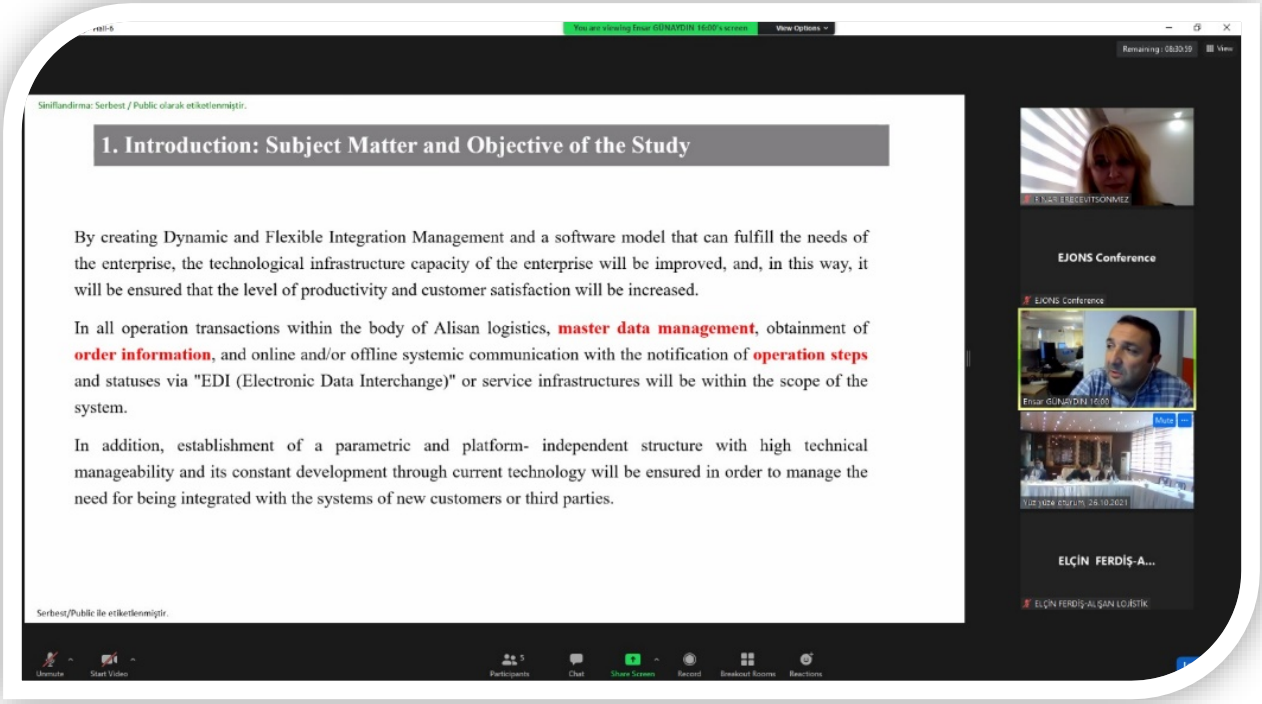
COORDINATOR

Nurlan AKHMETOV

LANGUAGES

Turkish, Russian, English

PHOTO GALERY


Sınıflandırma: Serbest / Public olarak etiketlenmiştir.
1. Introduction: Subject Matter and Objective of the Study
By creating Dynamic and Flexible Integration Management and a software model that can fulfill the needs of the enterprise, the technological infrastructure capacity of the enterprise will be improved, and, in this way, it will be ensured that the level of productivity and customer satisfaction will be increased.
In all operation transactions within the body of Alisan logistics, master data management, obtainment of order information, and online and/or offline systemic communication with the notification of operation steps and statuses via "EDI (Electronic Data Interchange)" or service infrastructures will be within the scope of the system.
In addition, establishment of a parametric and platform- independent structure with high technical manageability and its constant development through current technology will be ensured in order to manage the need for being integrated with the systems of new customers or third parties.
Serbest/Public ile etiketlenmiştir.
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ELÇİN FERDİŞ-A...


EJONS Conferen...
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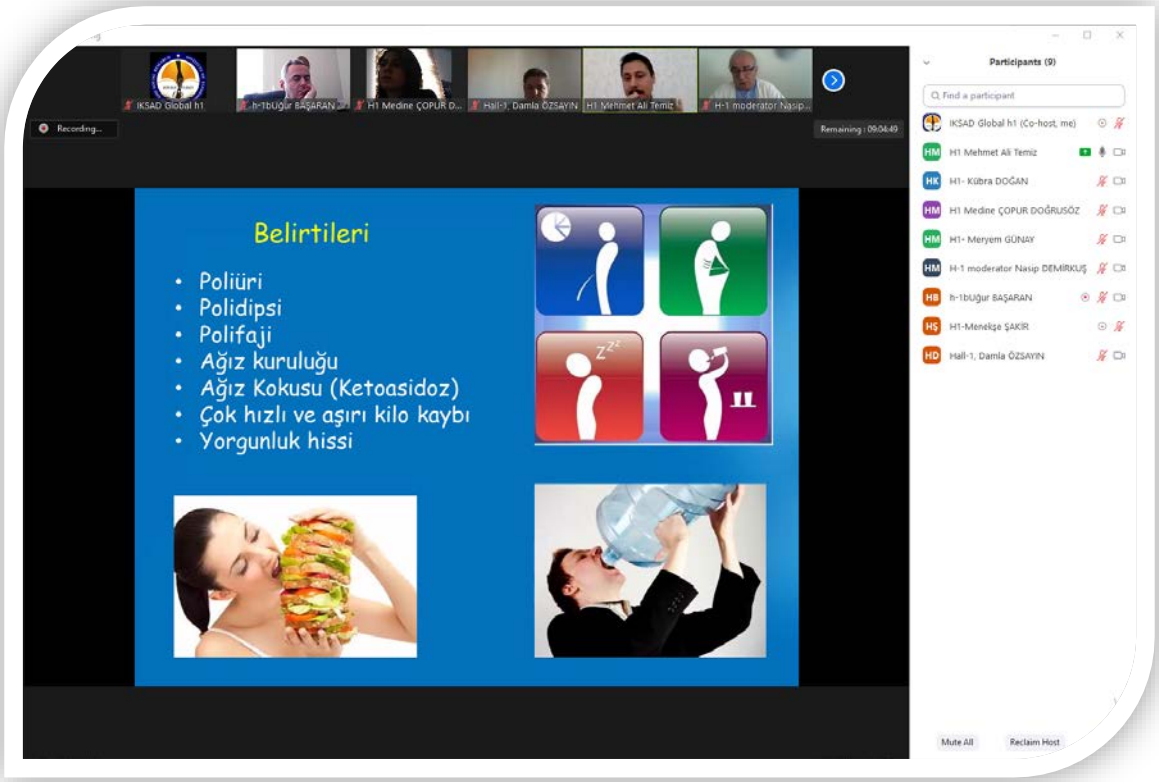
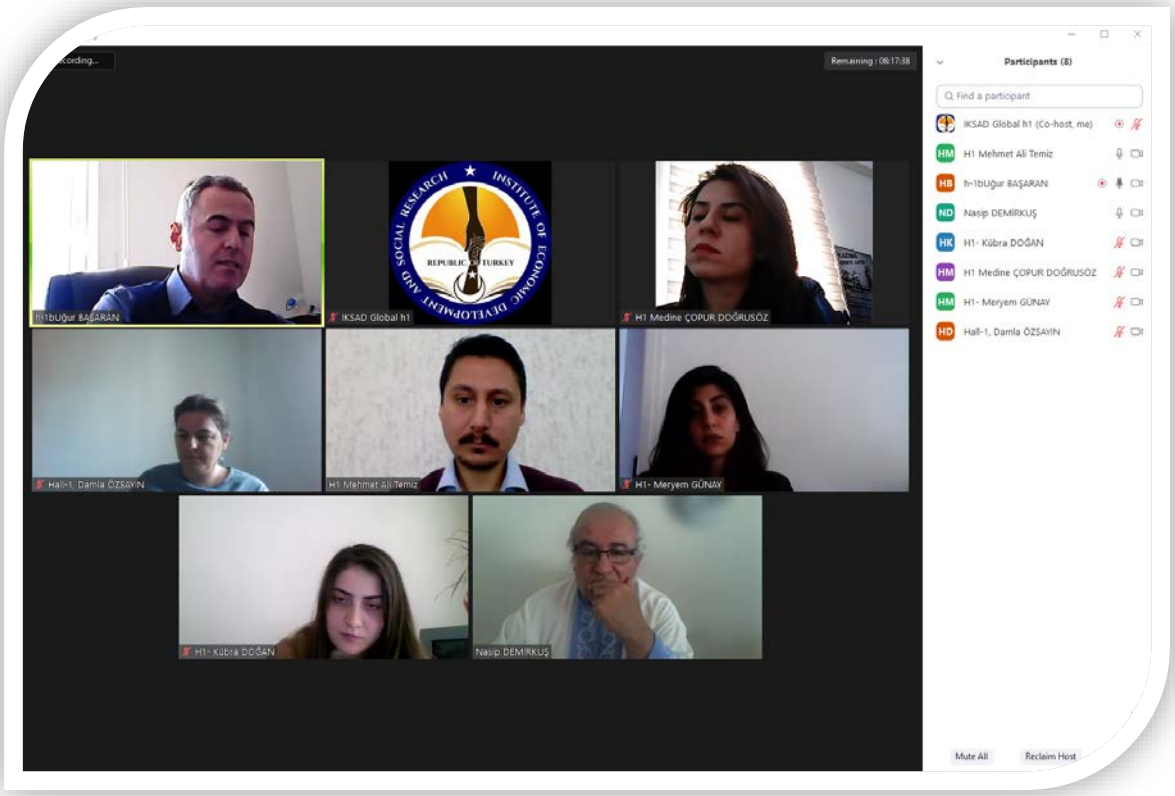

Belirtileri
Poliüri
Polidipsi
Polifaji
Ağız kuruluğu
Ağız Kokusu (Ketoasidoz)
Çok hızlı ve aşırı kilo kaybı
Yorgunluk hissi
Participants (9)
Mute All
Reclaim Host


Participants (8)
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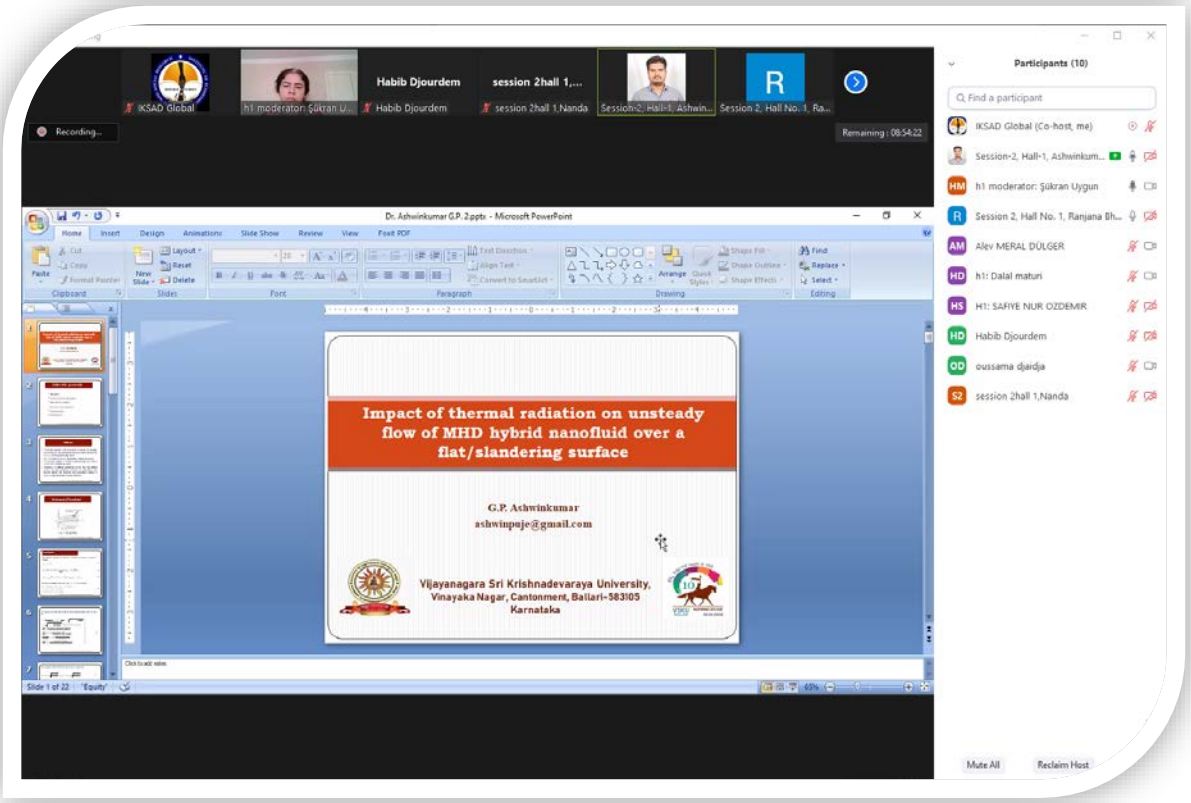
Impact of thermal radiation on unsteady flow of MHD hybrid nanofluid over a flat/slandering surface
G.P. Ashwinkumar
ashwinpuje@gmail.com
Vijayanagara Sri Krishnadevaraya University, Vinayaka Nagar, Cantonment, Ballari-583105 Karnataka
Participants (10)
Mute All
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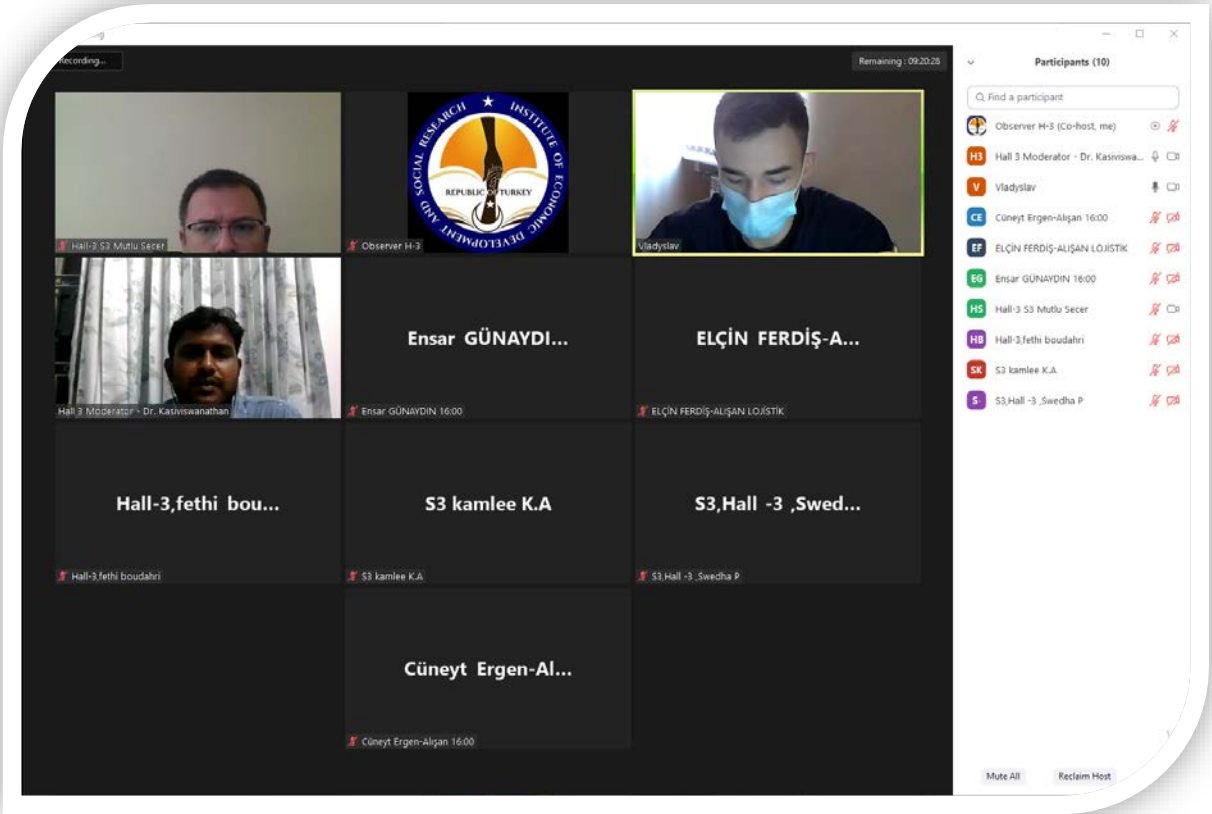
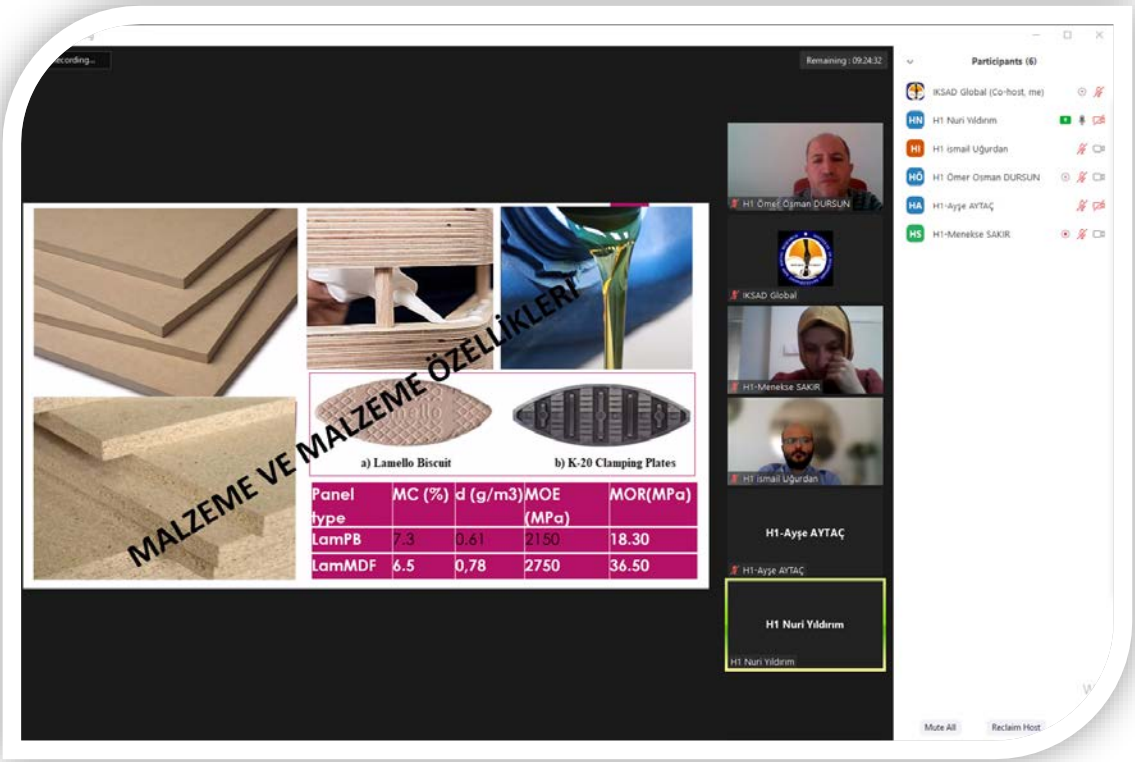
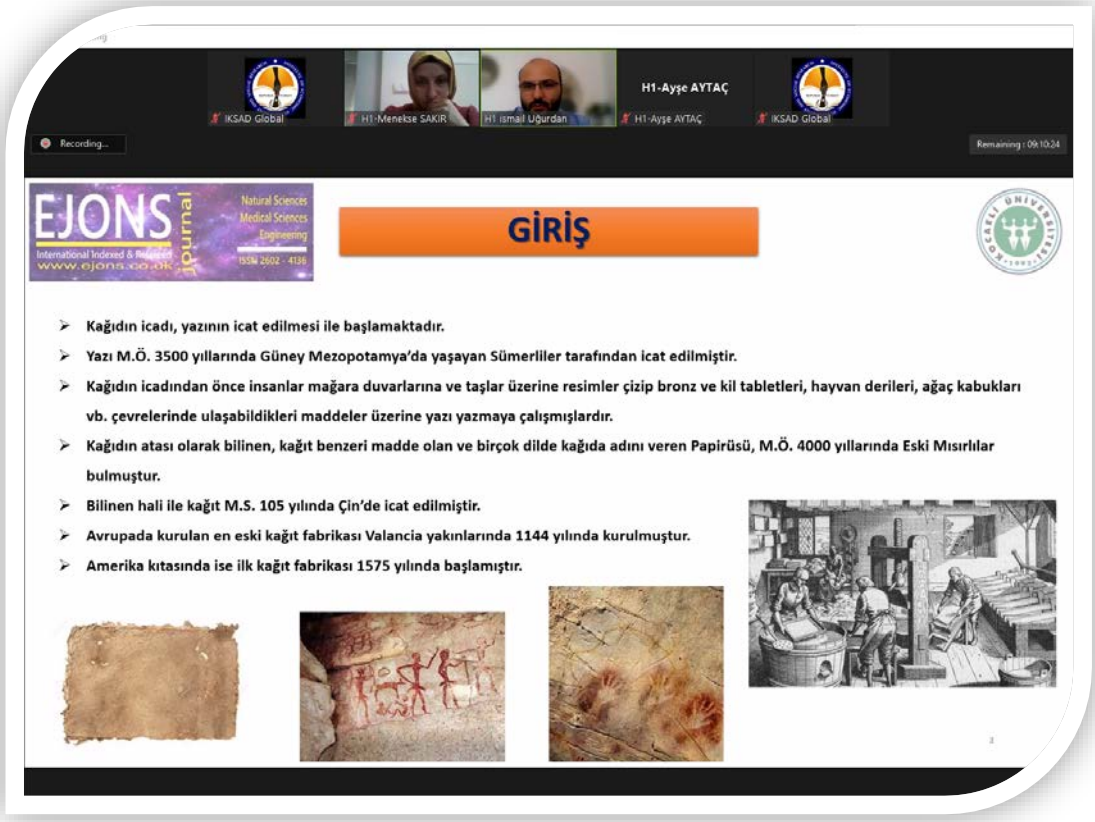
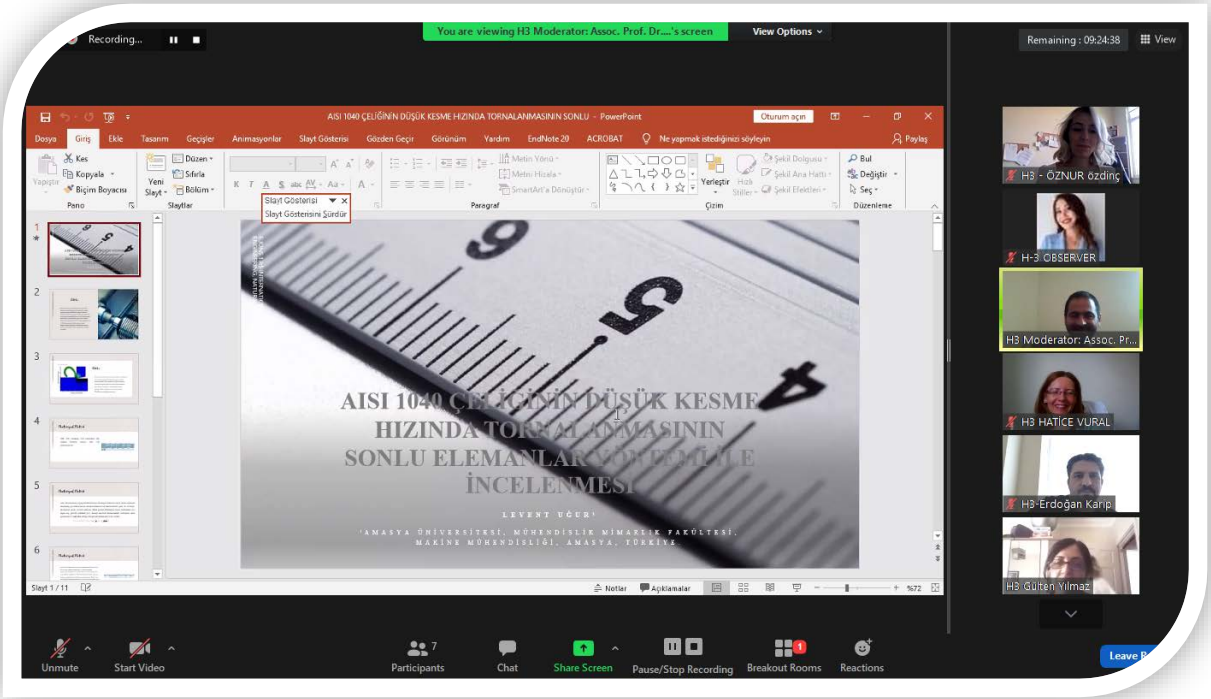
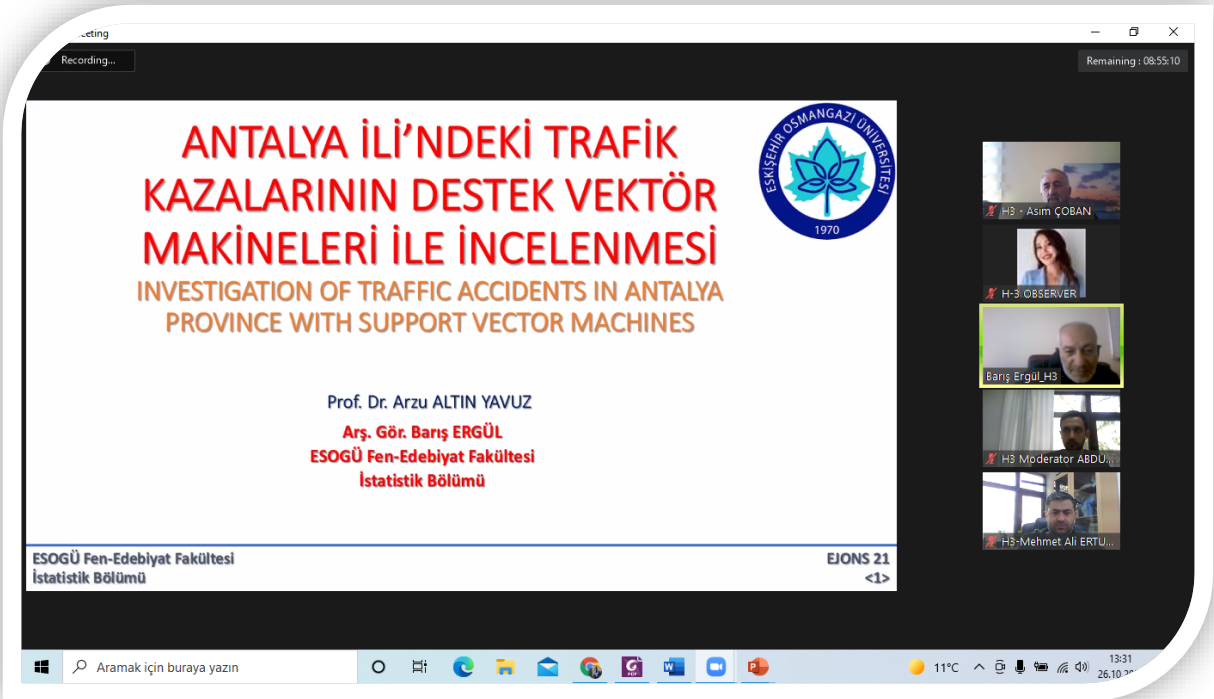
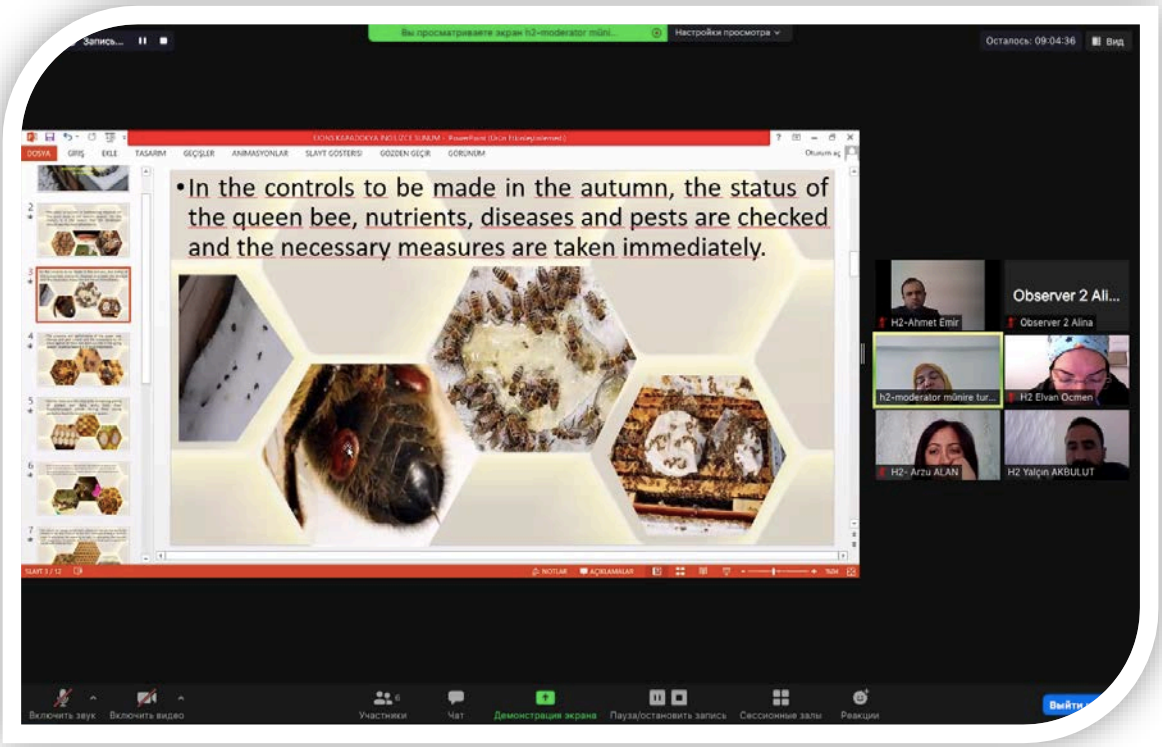

Ensar GÜNAYDI...
ELÇİN FERDİŞ-A...
Hall-3,fethi bou...
S3 kamlee K.A
S3,Hall -3 ,Swed...
Cüneyt Ergen-Al...
Participants (10)
Mute All
Reclaim Host

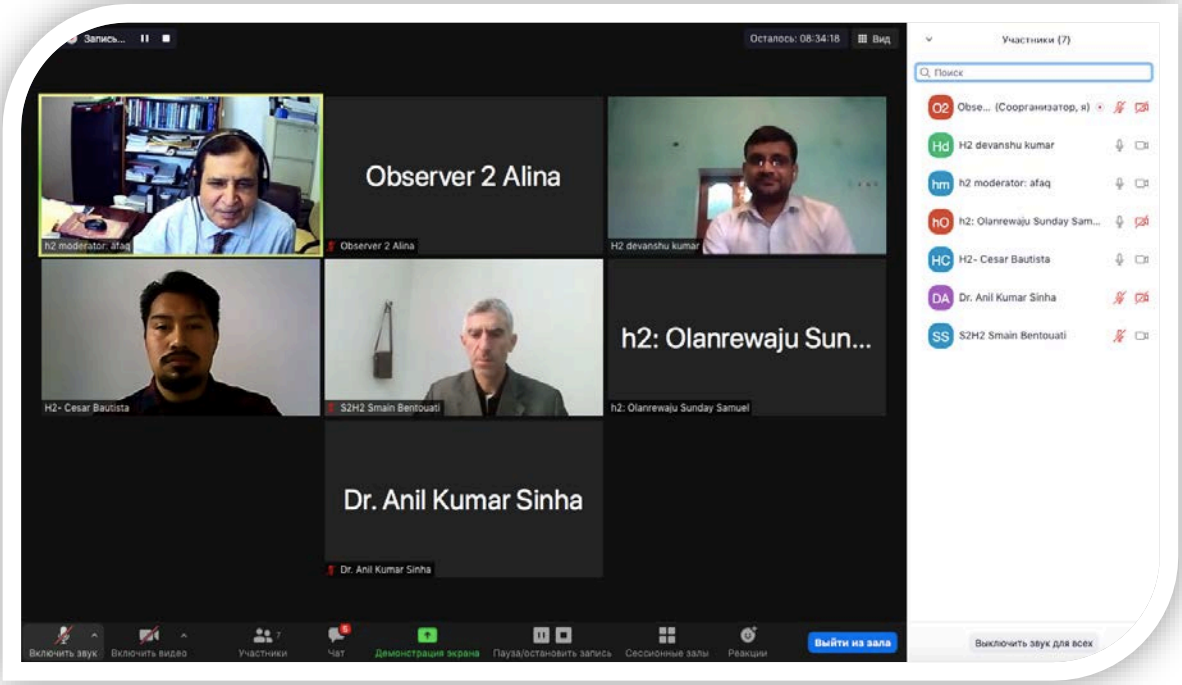

MALZEME VE MALZEME ÖZELLİKLERİ
a) Lamello Biscuit
b) K-20 Clamping Plates
Panel type | MC (%) | d (g/m3) | MOE (MPa) | MOR(MPa)
LamPB | 7.3 | 0.61 | 2150 | 18.30
LamMDF | 6.5 | 0,78 | 2750 | 36.50
Participants (6)
H1-Ayşe AYTAÇ
H1 Nuri Yıldırım

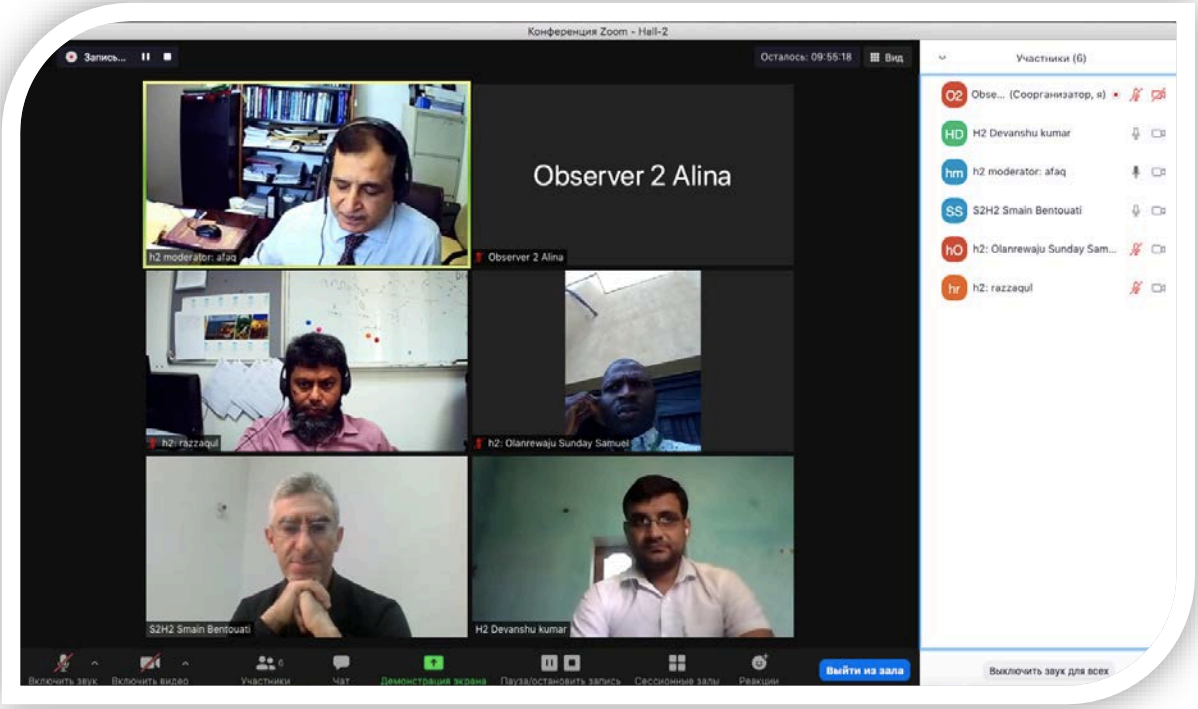

H1-Ayşe AYTAÇ
EJONS
GİRİŞ
Kağıdın icadı, yazının icat edilmesi ile başlamaktadır.
Yazı M.Ö. 3500 yıllarında Güney Mezopotamya'da yaşayan Sümerliler tarafından icat edilmiştir.
Kağıdın icadından önce insanlar mağara duvarlarına ve taşlar üzerine resimler çizip bronz ve kil tabletleri, hayvan derileri, ağaç kabukları vb. çevrelerinde ulaşabildikleri maddeler üzerine yazı yazmaya çalışmışlardır.
Kağıdın atası olarak bilinen, kağıt benzeri madde olan ve birçok dilde kağıda adını veren Papirüsü, M.Ö. 4000 yıllarında Eski Mısırlılar bulmuştur.
Bilinen hali ile kağıt M.S. 105 yılında Çin'de icat edilmiştir.
Avrupada kurulan en eski kağıt fabrikası Valancia yakınlarında 1144 yılında kurulmuştur.
Amerika kıtasında ise ilk kağıt fabrikası 1575 yılında başlamıştır.

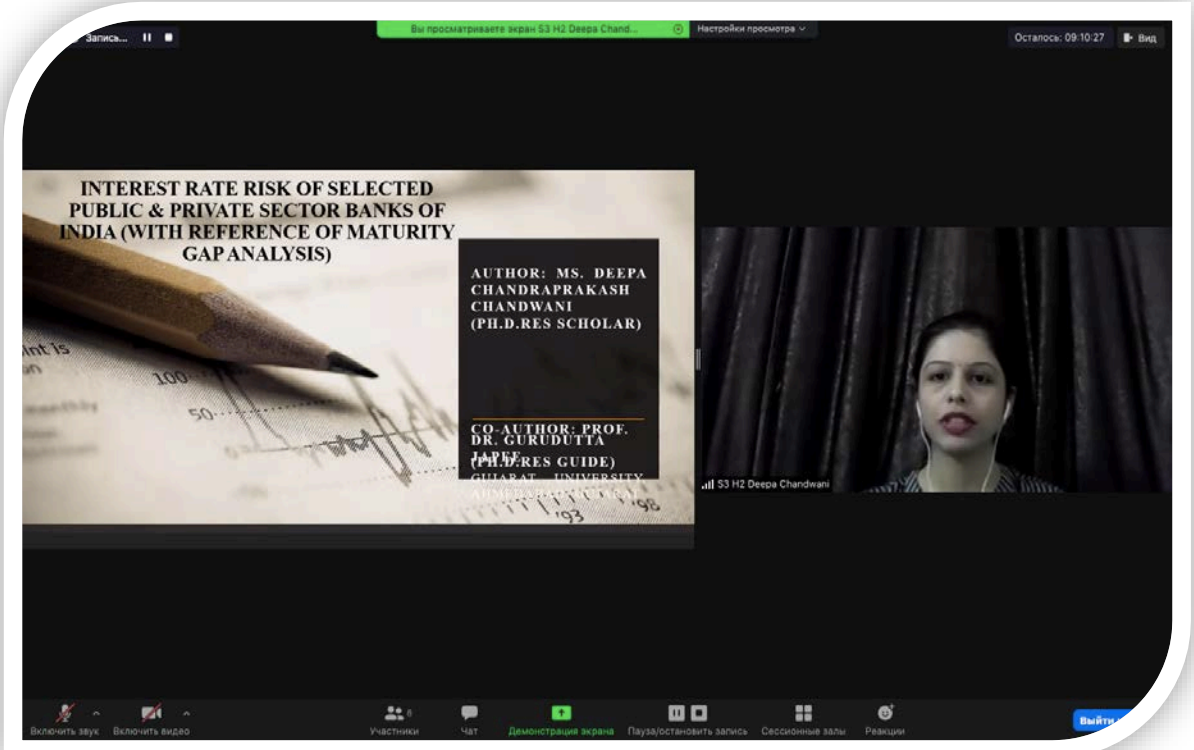

Recording...
You are viewing H3 Moderator: Assoc. Prof. Dr....'s screen
View Options
Remaining : 09:24:38
AISI 1040 ÇELİĞİNİN DÜŞÜK KESME HIZINDA TORNALANMASININ SONLU ELEMANLAR
İNCELENMESİ
LEVENT UĞUR
H3 - ÖZNUR özdinç
H-3 OBSERVER
H3 Moderator: Assoc. Pr...
H3 HATİCE VURAL
H3-Erdoğan Kanip
H3 Gülten Yılmaz
Unmute
Start Video
Participants
Chat
Share Screen
Pause/Stop Recording
Breakout Rooms
Reactions


Recording...
Remaining : 08:55:10
ANTALYA İLİ'NDEKİ TRAFİK KAZALARININ DESTEK VEKTÖR MAKİNELERİ İLE İNCELENMESİ
INVESTIGATION OF TRAFFIC ACCIDENTS IN ANTALYA PROVINCE WITH SUPPORT VECTOR MACHINES
ESKİŞEHİR OSMANGAZİ ÜNİVERSİTESİ
1970
Prof. Dr. Arzu ALTIN YAVUZ
Arş. Gör. Barış ERGÜL
ESOGÜ Fen-Edebiyat Fakültesi
İstatistik Bölümü
ESOGÜ Fen-Edebiyat Fakültesi
İstatistik Bölümü
EJONS 21
<1>
H3 - Asim ÇOBAN
H-3 OBSERVER
Barış Ergül_H3
H3 Moderator ABDU...
H3-Mehmet Ali ERTU...
Aramak için buraya yazın
11°C


•In the controls to be made in the autumn, the status of the queen bee, nutrients, diseases and pests are checked and the necessary measures are taken immediately.
Observer 2 Ali...
H2-Ahmet Emir
Observer 2 Alina
h2-moderator münire tur...
H2 Elvan Ocmen
H2- Arzu ALAN
H2 Yalçın AKBULUT


Observer 2 Alina
h2 moderator: afaq
H2 devanshu kumar
H2- Cesar Bautista
S2H2 Smain Bentouati
h2: Olanrewaju Sun...
h2: Olanrewaju Sunday Samuel
Dr. Anil Kumar Sinha
Участники (7)
Obse... (Соорганизатор, я)
H2 devanshu kumar
h2 moderator: afaq
h2: Olanrewaju Sunday Sam...
H2- Cesar Bautista
Dr. Anil Kumar Sinha
S2H2 Smain Bentouati


Конференция Zoom - Hall-2
Observer 2 Alina
h2 moderator: afaq
h2: razzaqul
h2: Olanrewaju Sunday Samuel
S2H2 Smain Bentouati
H2 Devanshu kumar
Участники (6)
Выйти из зала


INTEREST RATE RISK OF SELECTED PUBLIC & PRIVATE SECTOR BANKS OF INDIA (WITH REFERENCE OF MATURITY GAP ANALYSIS)
AUTHOR: MS. DEEPA CHANDRAPRAKASH CHANDWANI (PH.D.RES SCHOLAR)
S3 H2 Deepa Chandwani

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Dr. Bülent BAYRAKTAR - Bayburt University

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13th INTERNATIONAL CONGRESS ON MATHEMATIC, ENGINEERING AND NATURAL SCIENCES

October 26-27, 2021

Cappadocia, Turkey

CONGRESS PROGRAM

Online (with Video Conference) Presentation

Participating Countries:

Turkey, Ethiopia, Morocco, Algeria, Nigeria, India, Vietnam, Philippines, Saudi Arabia, Iran, Romania, Colombia, United Kingdom, Oman, Ukraine, Hungary, Bulgaria

Meeting ID: 868 7868 4858
Passcode: 000777

ÖNEMLİ, DİKKATLE OKUYUNUZ LÜTFEN / IMPORTANT, PLEASE READ CAREFULLY

Önemli, Dikkatle Okuyunuz Lütfen

- ✓ Kongremizde Yazım Kurallarına uygun gönderilmiş ve bilim kurulundan geçen bildiriler için online (video konferans sistemi üzerinden) sunum imkanı sağlanmıştır.
- ✓ Online sunum yapabilmek için **https://zoom.us/join** sitesi üzerinden giriş yaparak "Meeting ID or Personal Link Name" yerine ID numarasını girerek oturuma katılabilirsiniz.
- ✓ Zoom uygulaması ücretsizdir ve hesap oluşturmaya gerek yoktur.
- ✓ Zoom uygulaması kaydolmadan kullanılabilir.
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- ✓ Her oturumdaki sunucular, sunum saatinden 15 dk öncesinde oturuma bağlanmış olmaları gerekmektedir.
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- ✓ Moderatör – oturumdaki sunum ve bilimsel tartışma (soru-cevap) kısmından sorumludur.

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- ✓ Katılım belgeleri kongre sonunda tarafınıza pdf olarak gönderilecektir
- ✓ Kongre programında yer ve saat değişikliği gibi talepler dikkate alınmayacaktır

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- ✓ To be able to attend a meeting online, login via **https://zoom.us/join** site, enter ID "Meeting ID or Personal Link Name" and solidify the session.
- ✓ The Zoom application is free and no need to create an account.
- ✓ The Zoom application can be used without registration.
- ✓ The application works on tablets, phones and PCs.
- ✓ The participant must be connected to the session 15 minutes before the presentation time.
- ✓ All congress participants can connect live and listen to all sessions.
- ✓ Moderator is responsible for the presentation and scientific discussion (question-answer) section of the session.

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- ✓ Make sure your computer has a microphone and is working.
- ✓ You should be able to use screen sharing feature in Zoom.
- ✓ Attendance certificates will be sent to you as pdf at the end of the congress.
- ✓ Requests such as change of place and time will not be taken into consideration in the congress program.

Before you login to Zoom please indicate your name_surname and HALL number,
exp. Hall-1, Paunescu Cosmin

Meeting ID: 868 7868 4858
Passcode: 000777

26.10.2021, Tuesday
Venue: By Cappadocia Hotel & Spa
Moderator: Assist. Prof. Dr. Pınar ERECEVİT SÖNMEZ
Meeting ID: 868 7868 4858 / Passcode: 000777
Ankara Local Time: 15:00 – 17:30

Title	Author(s)	Affiliation
ANTIMICROBIAL EFFECTS OF Centaurea urvillei DC. hayekiana Wagenitz, THAT IS AN ENDEMIC PLANT IN TURKEY'S ELAZIG PROVINCE, ON DISEASE -CAUSING MICROORGANISMS	Assist. Prof. Dr. Pınar ERECEVİT SÖNMEZ	Munzur University, Turkey
	Assoc. Prof. Dr. Uğur ÇAKILCIOĞLU	Munzur University, Turkey
RESEARCH OF ALTERNATIVE SOILLESS AGRICULTURAL MATERIAL FOR PLANT GERMINATING AND ROOTING	Okan TUTUM	Aydın Endüstri San. Tic. A.Ş.
	Murat ZENGİN	Aydın Endüstri San. Tic. A.Ş.
	Sıla TOPÇU	Aydın Endüstri San. Tic. A.Ş.
	Fatih ÇALIŞKAN	Sakarya Uygulamalı Bilimler University, Sakarya, Turkey
IMPROVEMENT IN POLYURETHANE FOAM SIZING	Murat ZENGİN	Aydın Endüstri San. Tic. A.Ş.
	Sıla TOPÇU	Aydın Endüstri San. Tic. A.Ş.
	Fatih ÇALIŞKAN	Sakarya Uygulamalı Bilimler University, Sakarya, Turkey
SOFT SEMI-TOPOLOGICAL HYPERGROUPS	Gulay OGUZ	Harran University, Şanlıurfa, Turkey
DEVELOPMENT OF A DYNAMIC AND FLEXIBLE INTEGRATION MANAGEMENT PLATFORM FOR LOGISTICS ACTIVITIES	Cüneyt ERGEN	Alışan Ar-Ge Merkezi, Istanbul, Turkey
	Elçin Soysal FERDİŞ	Alışan Ar-Ge Merkezi, Istanbul, Turkey
	Ensar GÜNAYDIN	Alışan Ar-Ge Merkezi, Istanbul, Turkey
	Ahmet FEYZİOĞLU	Marmara University, Istanbul, Turkey
THE INTERGENERATIONAL TRAUMATIC BIRTH PERCEPTION IN PREGNANT WOMEN	Şule ÖZDEMİR	Sağlık Bakanlığı, Battalgazi İlçe Sağlık Müdürlüğü, Malatya, Türkiye
	Assist. Prof. Dr. Hacer ÜNVER	İnönü University, Malatya, Turkey
All participants must join the conference 15 minutes before the session time. Every presentation should last not longer than 10-12 minutes. Kindly keep your cameras on till the end of the session.		

Session-1, Hall-1
26.10.2021, Tuesday
Moderator: Prof. Dr. Nasip DEMİRKUŞ
Meeting ID: 868 7868 4858 / Passcode: 000777
Ankara Local Time: 10:00 – 12:00

Title	Author(s)	Affiliation
INFLUENCE OF DIFFERENT NITROGEN DOSES ON PLANT PROPERTIES AND FORAGE QUALITY OF PHACELIA (Phacelia tanacetifolia Bentham)	Kaffar TUNCER	Adıyaman İl Tarım ve Orman Müdürlüğü, Adıyaman, Türkiye
	Prof. Dr. Uğur BAŞARAN	Yozgat Bozok University, Yozgat, Turkey
QUALITY CHARACTERISTICS IN DIFFERENT LOCATIONS OF TURKEY ORIGIN GRASS PEA (Latyrus sativus L.) VARIETIES AND POPULATIONS	Assist. Prof. Dr. Medine ÇOPUR DOĞRUSÖZ	Yozgat Bozok University, Yozgat, Turkey
CURRENT SITUATION OF BEEKEEPING (BEEHIVE) INSURANCE IN TURKEY AND ITS IMPORTANCE	Damla ÖZSAYIN	Çanakkale Onsekiz Mart University, Turkey
A NEW APPROACH TO THE DEFINITIONS AND RELATIONSHIPS BETWEEN EVOLUTION SCIENCE, BASIC SCIENCES AND MATHEMATICS	Prof. Dr. Nasip DEMİRKUŞ	Van Yüzüncü Yıl University, Tuşba/Van/Turkey
A STUDY ON IDENTIFICATION OF TAXA OF UNIDENTIFIED ASTERACEAE, FABACEAE AND LAMIACEAE FAMILIES IN HERBARIUM OF MERSIN UNIVERSITY	Ayşe ÜZGÖR ÜN	Van Yüzüncü Yıl University, Tuşba/Van/Turkey
	Zekiye Ayşe EVEREST	Prof. Dr., Mersin University, Yenisehır/ Mersin/Turkey
	Prof. Dr. Nasip DEMİRKUŞ	Van Yüzüncü Yil University, Tuşba/Van/Turkey
EFFECT OF SCORZONERA CINEREA ON KIDNEY FUNCTION TEST PARAMETERS IN DIABETES	Mehmet Ali TEMİZ	Karamanoğlu Mehmetbey University, Karaman, Turkey
ÇANAKKALE / ÇAN KARADAĞ MOUNTAIN BIRDS	Kübra DOĞAN	Gazi University, Ankara, Turkey
	Abdullah HASBENLİ	Gazi University, Ankara, Turkey
KARADAĞ MOUNTAIN ÇANAKKALE / ÇAN SOME ENDEMIC AND RARE PLANTS	Meryem GÜNAY	Gazi University, Ankara, Turkey
	Hayri DUMAN	Gazi University, Ankara, Turkey
All participants must join the conference 15 minutes before the session time. Every presentation should last not longer than 10-12 minutes. Kindly keep your cameras on till the end of the session.		

Session-1, Hall-2
26.10.2021, Tuesday
Moderator: Assist. Prof. Dr. Münire TURHAN
Meeting ID: 868 7868 4858 / Passcode: 000777
Ankara Local Time: 10:00 – 12:00

Title	Author(s)	Affiliation
INVESTIGATION OF BIOACTIVE MOLECULES AND ENZYME INHIBITORY EFFECTS OF Allium guttatum subsp. Sardoum	Ahmet Emir	Ege University, İzmir, Turkey
ASSESSMENT OF THE EFFECT OF METAL ARTEFACT ON THE ACCURACY OF CBCT LINEAR MEASUREMENTS IN DIFFERENT VOXEL RESOLUTIONS	Arzu ALAN	Ankara Yıldırım Beyazıt University, Ankara,Turkey
THE EFFECT OF SEVOFLURANE ANESTHESIA ON MEDULLA SPINALIS IN NEWBORN RATS	Elvan ÖÇMEN	Dokuz Eylul Unıversıty, İzmir, Turkey
	Hale Aksu Erdost	Dokuz Eylul Unıversıty, İzmir, Turkey
	Osman Yılmaz	Dokuz Eylul Unıversıty, İzmir, Turkey
	Muge Kiray	Dokuz Eylul Unıversıty, İzmir, Turkey
	Necati Gökmen	Dokuz Eylul Unıversıty, İzmir, Turkey
MACROANATOMIC INVESTIGATION OF EXTERNAL CAROTID ARTERY AND ITS TERMINAL BRANCHES OF TUJ SHEEP	Bahattin BEKİ	Kafkas University, Kars, Turkey
	Doç. Dr. Yalçın AKBULUT	Kafkas University, Kars, Turkey
VITILIGO DEVELOPING AFTER VACCINATION FOR COVID-19, NUMBNESS IN THE ARMS	Hüseyin DURU	Rize State Hospital, Turkey
AUTUMN STUDIES IN HONEYBEE COLONIES	Assist. Prof. Dr. Münire TURHAN	Bingöl University, Turkey
All participants must join the conference 15 minutes before the session time. Every presentation should last not longer than 10-12 minutes. Kindly keep your cameras on till the end of the session.		

Session-1, Hall-3
26.10.2021, Tuesday
Moderator: Assoc. Prof. Dr. Levent UĞUR
Meeting ID: 868 7868 4858 / Passcode: 000777
Ankara Local Time: 10:00 – 12:00

Title	Author(s)	Affiliation
RESEARCH ON CONTROLLER DESIGNS USED IN TRAJECTORY TRACKING CONTROL OF AUTONOMOUS UNDERWATER VEHICLES (AUV)	Gülten YILMAZ	Kocaeli University, Kocaeli, Turkey
ELECTRONIC AND MOLECULAR DOCKING STUDIES ON 5-(TRIFLUOROMETHYL)PYRIDINE-2-THIOL	Hatice VURAL	Amasya University, Amasya, Turkey
INVESTIGATION OF TURNING OF AISI 1040 STEEL AT LOW CUTTING SPEED BY FINITE ELEMENT METHOD	Assoc. Prof. Dr. Levent UĞUR	Amasya University, Amasya, Turkey
EVALUATION OF THE EFFECTS OF DIFFERENT WALKING SPEEDS ON THE TIBIA AND TIBIOTAS JOINT: FINITE ELEMENT ANALYSIS METHOD	Erol ÖTEN	Amasya University, Amasya, Turkey
	Assoc. Prof. Dr. Levent UĞUR	Amasya University, Amasya, Turkey
THE EFFECT OF DIFFERENT FIBER CROSS-SECTION SHAPES ON POLIESTER MACHINE-MADE CARPET	Prof. Dr. Cem Güneşoğlu	Gaziantep University, Gaziantep, Turkey
	Lect. Öznur Özdinç	Gaziantep University, Gaziantep, Turkey
EFFECTS OF SODA-LIME WASTE GLASS ADDITION ON THE PROPERTIES OF SANITARYWARE CERAMICS	Akın Odabaşı	Firat University, Elazığ, Turkey
	Hülya Kaftelen Odabaşı	Firat University, Elazığ, Turkey
	Erdoğan Karip	Firat University, Elazığ, Turkey
	Mehtap Muratoğlu	Firat University, Elazığ, Turkey
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Session-1, Hall-4
26.10.2021, Tuesday
Moderator: Assist. Prof. Dr. Murat ÖZENÇ
Meeting ID: 868 7868 4858 / Passcode: 000777
Ankara Local Time: 10:00 – 12:00

Title	Author(s)	Affiliation
COATING OF Ti-HA BIOCOMPOSITE ON Ti6Al4V ALLOY BY PRESSURE ASSISTED SINTERING	Assoc. Prof. Dr. Rıdvan YAMANOĞLU	Kocaeli University, Kocaeli, Turkey
	Res. Assist. Hasan İsmail YAVUZ	Kocaeli University, Kocaeli, Turkey
AN ASSESSMENT OF USING MIXED ADHESIVE IN COMPOSITE MATERIALS	Yunus Emre TOĞAR	Pamukkale University, Denizli, Turkey
	Assist. Prof. Dr. Murat ÖZENÇ	Pamukkale University, Denizli, Turkey
MACHINABILITY OF AISI 304 AUSTENITIC STAINLESS STEEL BY THE ABRASIVE WATERJET PROCESS	Arslan KAPTAN	Sivas Cumhuriyet University, Sivas, Turkey
	Fuat KARTAL	Kastamonu University, Kastamonu, Turkey
DESIGN AND DEVELOPMENT OF MOTOR UPPER GROUP PROCESSING TECHNOLOGIES	Özgür BİRANT	Şafak Makina Yedek Parca Sanayi ve Ticaret A.Ş. Ar-Ge Merkezi, Düzce, Turkey
	Emre AŞÇI	Şafak Makina Yedek Parca Sanayi ve Ticaret A.Ş. Ar-Ge Merkezi, Düzce, Turkey
	Serkan TAŞÇI	Şafak Makina Yedek Parca Sanayi ve Ticaret A.Ş. Ar-Ge Merkezi, Düzce, Turkey
	Ahmet FEYZİOĞLU	Marmara University, Istanbul, Turkey
INVESTIGATION OF MECHANICAL PROPERTIES OF PIPES WITH BUTT CURVED LAP JOINTS SUBJECTED TO TORSION	Cüneyt YETKİN	Adıyaman University, Adıyaman, Turkey
	Şerif ÇİTİL	Adıyaman University, Adıyaman, Turkey
	Ali İhsan KAYA	Adıyaman University, Adıyaman, Turkey
DEVELOPMENT OF ARTIFICIAL INTELLIGENCE PLATFORM FOR SMEs AND IMPLEMENTATION ON TIRE TRACKING	Bülent BEDİR	Hit Bilişim Danışmanlık Turizm Hizmetleri San. Tic. Ltd. Şti. Ar-Ge Merkezi, Istanbul, Turkey
	Ersin KANAR	Hit Bilişim Danışmanlık Turizm Hizmetleri San. Tic. Ltd. Şti. Ar-Ge Merkezi, Istanbul, Turkey
	Mert ERDOĞAN	Hit Bilişim Danışmanlık Turizm Hizmetleri San. Tic. Ltd. Şti. Ar-Ge Merkezi, Istanbul, Turkey
16-BLOCK OPTICAL LENS DESIGN COMPATIBLE WITH TEDAŞ STREET LIGHTING SPECIFICATION ME 3 CLASS	Utku ÖZTÜRK	TLS Teknoloji Sistemleri San. ve Dış Tic. A. Ş. Tasarım Merkezi, Istanbul, Turkey
	İbrahim ÖKMEN	TLS Teknoloji Sistemleri San. ve Dış Tic. A. Ş. Tasarım Merkezi, Istanbul, Turkey
	Ahmet FEYZİOĞLU	Marmara University, Istanbul, Turkey
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Session-1, Hall-5
26.10.2021, Tuesday
Moderator: Prof. Dr. JOSE KANETI
Meeting ID: 868 7868 4858 / Passcode: 000777
Ankara Local Time: 10:00 – 12:00

Title	Author(s)	Affiliation
ENVIRONMENTAL RISK ASSESSMENT OF THE IMPACT OF NICKEL ON AGRICULTURAL SOIL AND ON DURUM WHEAT	Baba Ahmed Abderrazzak	Ahmed Zabana university, Relizane, Algeria
	Boudahri Fethi	Ahmed Zabana university, Relizane, Algeria
	Tabti Affaf	Ahmed Zabana university, Relizane, Algeria
FLUORESCENCE DETECTION OF METAL ION COMPLEXES WITH QUINAZOLINE DERIVATIVES	Prof. Dr. JOSE KANETI	Institute of Organic Chemistry with Centre of Phytochemistry, Bulgarian Academy of Sciences, 1113 Sofia, Bulgaria
	Assoc. Prof. Dr. SNEZHANA BAKALOVA	Institute of Organic Chemistry with Centre of Phytochemistry, Bulgarian Academy of Sciences, 1113 Sofia, Bulgaria
INVESTIGATION OF FLAME RETARDANT EFFECTS OF BORIC ACID AND BORAX ON CELLULOSIC FABRICS	Duygu Y. AYDIN	Malatya Turgut Ozal University, Malatya, Turkey
INFLUENCE OF THE RECTANGULAR GROOVE AMPLITUDE ON REDUCING THE WIND LOAD OF A STEADY FLOW AROUND A CIRCULAR CYLINDER.	Youcef Becheffar	University of Tiaret, 14000 Algeria
	Khaled Chaib	University of Tiaret, 14000 Algeria
	Mohamed Abdi	University of Tiaret 14000, Algeria
VALORIZATION OF MOROCCAN BENTONITE DEPOSITS: “PURIFICATION AND TREATMENT OF MARGIN BY THE ADSORPTION PROCESS”	Hanane Ait Hmeid Mustapha Akodad Mourad Baghour Abdelmajid Moumen Ali Skalli Hicham Guedarri	Mohamed First University, 60700 Nador, Morocco
EFFECT OF THERMAL RADIATION AND CHEMICAL REACTION ON MHD FLOW OF BLOOD IN STRETCHING PERMEABLE VESSEL	Dr. Binyam Zigta	Ethiopia
PROXIMATE COMPOSITION AND PHYSICO-CHEMICAL PROPERTIES OF TISSUE AND EXTRACTED OIL FROM CLARIAS GARIEPINUS AND SYNODONTIS BUDGETTI OBTAINED FROM KALGWAI DAM, JIGAWA STATE, NIGERIA	Abdul Ademola Olaleye	Federal University Dutse, Dutse, Nigeria
	Adeolu Jonathan Adesina	Ekiti State University, Ado-Ekiti, Nigeria.
THERMAL RADIATION, CHEMICAL REACTION AND VISCOUS DISSIPATION EFFECTS ON MHD MICRO POLAR BLOOD FLOW WITH STRETCHING CAPILLARY IN THE PRESENCE OF HEAT GENERATION/ ABSORPTION	Dr. Binyam Zigta	Ethiopia
PHOENIX DACTILIFERA L. SEED: AN ALTERNATIVE SOURCE OF EDIBLE OIL	Yasmina Halabi Chaimae Nasri Hicham Harhar Abdelkbir Bellaouchou Mohamed Tabyaoui	Mohammed V University, 4 Av. Ibn Battouta, B.P 1014 Rabat, Morocco

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Session-2, Hall-1

26.10.2021, Tuesday

Moderator: Assist. Prof. Dr. Şükran UYGUN

Meeting ID: 868 7868 4858 / Passcode: 000777

Ankara Local Time: 12:30 – 14:30

Title	Author(s)	Affiliation
THE ADOMIAN DECOMPOSITION METHOD FOR SOLVING WAVE EQUATION USING MAPLE	Prof. Dalal Adnan Maturi	King Abdulaziz University, Jeddah, Saudi Arabia
BOUNDS FOR THE SPECTRAL NORMS OF GEOMETRIC AND R-CIRCULANT MATRICES WITH BI-PERIODIC JACOBSTHAL LUCAS NUMBERS	Assist. Prof. Dr. Şükran UYGUN	Gaziantep University, Turkey
HOMOLOGY GROUPS OF MAPPING CLASS GROUPS	Alev MERAL DÜLGER	Dicle University, Diyarbakır, Turkey and Middle East Technical University, Ankara, Turkey
A STUDY OF A NONLINEAR FOURTH-ORDER TWO POINT BOUNDARY VALUE PROBLEM	Dr. HABIB DJOURDEM	Laboratory of Fundamental and Applied Mathematics of Oran (LMFAO), University of Oran, Ahmed Benbella. Algeria Relizane University
IMPACT OF THERMOPHORESIS AND BROWNIAN MOTION ON MHD FLOW OF CASSON NANOFLUID PAST A STRETCHING SHEET WITH CONVECTIVE BOUNDARY CONDITIONS	G.P. Ashwinkumar, P. Nanda	Vijayanagara Sri Krishnadevaraya University, Ballari, India
INFLUENCE OF VISCOUS DISSIPATION AND THERMAL RADIATION ON LIQUID THIN FILM FLOW OF DISSIPATIVE MAGNETIC-NANOFLUIDS OVER A STRETCHING SHEET WITH	G. P. Ashwinkumar, B. Ranjana	Vijayanagara Sri Krishnadevaraya University, Ballari, India
IMPACT OF THERMAL RADIATION ON UNSTEADY FLOW OF MHD HYBRID NANOFLUID OVER A FLAT/SLANDERING SURFACE	G. P. Ashwinkumar	Vijayanagara Sri Krishnadevaraya University, Bellary, India
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Session-2, Hall-2
26.10.2021, Tuesday
Moderator: Prof. Afaq Ahmad
Meeting ID: 868 7868 4858 / Passcode: 000777
Ankara Local Time: 12:30 – 14:30

Title	Author(s)	Affiliation
SAFETY ANALYSIS IN AUTOMOTIVE PERCEPTION	César Bautista	Doctoral School on Safety and Security Sciences, Budapest, Hungary
	Gyula Mester	Doctoral School on Safety and Security Sciences, Budapest, Hungary
TEACHING CIRCUIT ANALYSIS USING GRAPH THEORY – SOLVING PROBLEMS OF COMPLEX CIRCUITS	Prof. Afaq Ahmad	Sultan Qaboos University, Muscat, Oman
	Dr. Joseph Jervase	Sultan Qaboos University, Muscat, Oman
	Dr. Mohammed Bait Suwailam	Sultan Qaboos University, Muscat, Oman
	Dr. Hassan Al-Lawati	Sultan Qaboos University, Muscat, Oman
	Dr. Razzaqul Ahsan	Sultan Qaboos University, Muscat, Oman
	Dr. Ghulam Dastagir khan	Sultan Qaboos University, Muscat, Oman
PERFORMANCE EVALUATION OF STUDENTS IN MATHEMATICS USING MACHINE LEARNING ALGORITHMS	OLANREWAJU, Sunday Samuel	School of General Studies Education, Science Unit. Federal College of Education (Special), Oyo.
INTERNET OF THINGS APPLICATIONS ENHANCED E – LEARNING	Devanshu Kumar	Veer Kunwar Singh University, India
	Khushboo Mishra	Veer Kunwar Singh University, India
	Md. Alimul Haque	Veer Kunwar Singh University, India
	Anil Kumar Sinha	Veer Kunwar Singh University, India
	Binay Kumar Mishra	Veer Kunwar Singh University, India
ANN MODEL FOR PREDICTING DEGREE OF DETERIORATION DURING THE PHOTOSTABILIZATION OF POLYMERS	Hadjira Maouz	University of Médéa, Ain D'Heb 26000, Médéa, Algeria
	Salah Hanini	University of Médéa, Ain D'Heb 26000, Médéa, Algeria
A NEW APPROACH TO ADAPTIVE CONTROL BASED ON FUZZY SYSTEMS: APPLICATION TO THE PERMANENT MAGNET SYNCHRONOUS MACHINE	S. BENTOUATI	University of Medea, Medea 26000, Algeria
	A. TLEMÇANI	University of Medea, 26000, Algeria
	N. HENINI	University of Medea, 26000, Medea, Algeria
	H. NOURI	Power Systems Electronics and Control Research Group, Department of Engineering Design and Mathematics, Bristol, U.K.
RELIABILITY ASSESSEMENT OF POWER ELECTRONICSSYSTEMS USING MACHINE LEARNING TECHNIQUES	Soumya Rani Mestha	India
	Dr. Pinto Pius A.J	India
STATIC AND DYNAMIC ANALYSIS OF HYBRID TALL STRUCTURAL SYSTEM	Emarti Kumari	Department of Mechanical Engineering, M.B.M. Engineering College, JNVU Jodhpur, India
	Shiv Lal	Department of Mechanical Engineering, RTU Kota, India
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Session-2, Hall-3
26.10.2021, Tuesday
Moderator: Abdullah SAR
Meeting ID: 868 7868 4858 / Passcode: 000777
Ankara Local Time: 12:30 – 14:30

Title	Author(s)	Affiliation
SOLVABILITY OF TRANSFER PROBLEMS WITH AN ABSTRACT LINEAR OPERATOR CONTAINED IN THE EQUATION	Oktay Sh. MUKHTAROV	Gaziosmanpaşa University, Tokat Turkey
	Kadriye AYDEMİR	Amasya University, Tokat Turkey
	Fahreddin MUHTAROV	Institute of Mathematics and Mechanics, National Academy of Sciences, Azerbaijan
COMPLETENESS OF THE SYSTEM OF ROOT FUNCTIONS FOR BOUNDARY VALUE PROBLEMS INVOLVING TRANSMISSION CONDITIONS	Oktay Sh. MUKHTAROV	Gaziosmanpaşa University, Tokat Turkey
	Kadriye AYDEMİR	Amasya University, Tokat Turkey
	Oktay Sh. MUKHTAROV	Gaziosmanpaşa University, Tokat Turkey
A DETAILED ANALYSIS OF CLASS TEACHER'S OPINIONS ON THE APPLICABILITY OF DISASTER PLANS IN SCHOOLS	Asım ÇOBAN	Amasya University, Turkey
PRIMARY FINDINGS OF LATE CRETACEOUS PLUTONIC ROCKS OUTCROPPING IN THE NORTHEAST OF MALATYA	Mehmet Ali ERTÜRK	Fırat University, Elazığ, Turkey
MINERALOGICAL AND PETROGRAPHIC PROPERTIES OF THE EOCENE PLUTONIC ROCKS OUTCROPPING AROUND GÜLÜMÜSAĞI (MALATYA/TURKEY)	Abdullah SAR	Fırat Universitiy, Faculty of Engineering, Department of Geological Engineering, Elazığ, Turkey
INVESTIGATION OF TRAFFIC ACCIDENTS IN ANTALYA PROVINCE WITH SUPPORT VECTOR MACHINES	Barış ERGÜL	Eskişehir Osmangazi University, Eskişehir, Turkey
	Arzu ALTIN YAVUZ	Eskişehir Osmangazi University, Eskişehir, Turkey
ANOMALY DETECTION FOR CATEGORICAL DATA	Barış ERGÜL	Eskişehir Osmangazi University, Eskişehir, Turkey
	Arzu ALTIN YAVUZ	Eskişehir Osmangazi University, Eskişehir, Turkey
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Session-2, Hall-4
26.10.2021, Tuesday
Moderator: Assoc. Prof. Dr. Nilgun ULUTASDEMIR
Meeting ID: 868 7868 4858 / Passcode: 000777
Ankara Local Time: 12:30 – 14:30

Title	Author(s)	Affiliation
ZIKA VIRUS AND TURKEY	Hakan KAVUR	Cukurova University, Adana, Turkey
	Ozan ARTUN	Cukurova University, Adana, Turkey
	Gülşah EVYAPAN	Cukurova University, Adana, Turkey
	Davut ALPTEKİN	Cukurova University, Adana, Turkey
PEDICULOSIS EDUCATION, DETECTION OF HEAD LICE PREVALENCE AND ULTRASONIC SOUND FREQUENCIES EFFECTS ON PEDICULUS HUMANUS CAPITIS IN THREE SCHOOLS IN KARAISALI, ADANA	Hakan KAVUR	Cukurova University, Adana, Turkey
	Assist. Prof. Dr. Halil ÖZKURT	Cukurova University, Adana, Turkey
	Lect. Fatma Büyükkatran	Cukurova University, Adana, Turkey
	Gülşah EVYAPAN	Cukurova University, Adana, Turkey
	Davut ALPTEKİN	Cukurova University, Adana, Turkey
HEALTHY AND SAFE SCHOOL ENVIRONMENT IN COMMUNICABLE DISEASES	Ayşe ELKOCA	Gümüşhane University, Gümüşhane, Turkey
	Nilgun ULUTASDEMIR	Gümüşhane University, Gümüşhane, Turkey
EVALUATION OF MENOPOSAL SYMPTOMS WITH THE COVID-19 PROCESS	Aleyna BULUT	University of Health Sciences, Istanbul, Türkiye
	Handan ÖZCAN	University of Health Sciences, Istanbul, Türkiye
ONE SURGEON'S EXPERIENCE OF TOTAL THYROIDECTOMY IN BENIGN THYROID DISEASES IN THE ENDEMIC REGION, RETROSPECTIVE ANALYSIS OF 100 PATIENTS	OP. Dr. Yüksel DOĞAN	Bartin State Hospital, Turkey
DETERMINATION OF HEALTH-RELATED PROBLEMS DEVELOPED DUE TO THE USE OF PERSONAL PROTECTIVE EQUIPMENT IN NURSES DURING THE COVID-19 PANDEMIC PROCESS	Gülpınar ASLAN	Agri Ibrahim Cecen University, Ağrı, Turkey
	Hasret YALÇINÖZ BAYSAL	Atatürk University, Erzurum, Turkey
	Ayşe Berivan SAVCI BAKAN	Agri Ibrahim Cecen University, Ağrı, Turkey
COMPARISON BETWEEN TWO METHODS OF EXTRACTING A WILD PLANT FROM THE ALGERIAN SAHARA	Belfarhi Leila	Permanent researcher at the CRAPC research center in Algiers PhD student (Es science), Department of Animal Biology, University of Annaba
	Tahraoui Abdelkrime	University of Badji Moukhtar, Annaba, Algeria; Center of Research in Physico-chemical analyses CRAPC, Tipaza, Algeria
	Bairi Abdelmedjid	University of Badji Moukhtar, Annaba, Algeria; Center of Research in Physico-chemical analyses CRAPC, Tipaza, Algeria
	Ibtissem Chouba	University of Badji Moukhtar, Annaba, Algeria
	Naziha Amri	University of Badji Moukhtar, Annaba, Algeria
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Session-2, Hall-5
26.10.2021, Tuesday
Moderator: Dr. Gabriela BOANGIU
Meeting ID: 868 7868 4858 / Passcode: 000777
Ankara Local Time: 12:30 – 14:30

Title	Author(s)	Affiliation
ELEMENTS OF VERNACULAR ARCHITECTURE. CASE STUDIES OLTENIA REGION	Dr. Gabriela BOANGIU	Institute for Socio-Human Researches "C.S.Nicolaescu-Plopsor", Craiova, of the Romanian Academy, Romania
AQUILA OPTIMIZER (AO) FOR CONTINUOUS OPTIMIZATION PROBLEMS	Emine BAŞ	Selçuk University, Konya, Turkey.
QUALITATIVE AND QUANTITATIVE STUDY OF DINOFLAGELLATE CYSTS IN SURFACE SEDIMENTS OF THE NADOR LAGOON	Ouassila Riouchi	Mohammed 1st University, Morocco. Abdelmalek Essaadi University, 90060 Tangier, Morocco.
	Faid El Madani	
	Ali Skalli	
	Mustapha Akodad	
	Abdelmajid Moumen	
	Hanane Ait Hmeid	
	Ghizlane Azizi	
	Hicham Guedari	
	Yassine EL YOUSFI	
	Mourad Baghour	
CRYPTOGRAPHY IS CHANGING THE PICTURE OF CLOUD COMPUTING	Mr. Rahul Sugandh	Carmel School, Bhagalpur, India
CONTEXTUALIZED TEACHING IN MATHEMATICS, PERCEPTIONS AND ATTITUDES TOWARDS PROBLEM-SOLVING	Julie Mar M. Regis	Northwestern Mindanao State College of Science and Technology, Philippines
	Ronnel S. Gomez	Pisaan National High School, Philippines
THE APPLICATIONS OF MULTIMEDIA AND E-LEARNING TECHNOLOGY IN EDUCATION	Devanshu Kumar	Veer Kunwar Singh University, Ara-802301, India
	Khushboo Mishra	Veer Kunwar Singh University, Ara-802301, India
	Md. Alimul Haque	Veer Kunwar Singh University, Ara-802301, India
	Anil Kumar Sinha	Veer Kunwar Singh University, Ara-802301, India
	Binay Kumar Mishra	Veer Kunwar Singh University, Ara-802301, India
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Session-3, Hall-1
26.10.2021, Tuesday
Moderator: Prof. Dr. Mykola SAKHNENKO & Assoc. Prof. Iryna STEPANOVA
Meeting ID: 868 7868 4858 / Passcode: 000777
Ankara Local Time: 15:00 – 17:00

Title	Author(s)	Affiliation
A NOVEL TECHNO-ECONOMIC ANALYSIS OF HYBRID RENEWABLE ENERGY SYSTEMS USING ARTIFICIAL INTELLIGENCE OPTIMIZATION TECHNIQUES	Adel Yahiaoui	University of Medea, Algeria
	Abdelhalim Tlemçani	University of Medea, Algeria
SURFACE ROUGHNESS MODELLING USING ARTIFICIAL INTELLIGENCE THE EFFECT OF THE TOOL TRAJECTORY STRATEGY USING AN ARTIFICIAL NEURAL NETWORK MODEL	Outemsaa Omar	University Ibn Zohr-Agadir, Morocco
	Hamouti Lahcen	University Ibn Zohr-Agadir, Morocco
	EL Farissi Omar	University Ibn Zohr-Agadir, Morocco
	Hilali Elmokkhtar	University Ibn Zohr-Agadir, Morocco
EFFECTIVE FAULT TOLERANT CONTROL DESIGN FOR DOUBLE FED INDUCTION GENERATOR	Oussama DJAIDJA	University Mohamed Boudiaf of M'Sila, Algeria
	Dr. Hemza MEKKI	University Mohamed Boudiaf of M'Sila, Algeria
	Dr. Samir ZEGHLACHE	University Mohamed Boudiaf of M'Sila, Algeria
	Dr. Ali DJERIOUI	University Mohamed Boudiaf of M'Sila, Algeria
OUTPUT VOLTAGE CONTROL OF DOUBLY FED INDUCTION GENERATOR (DFIG) USING AN ADAPTIVE BACKSTEBBING CONTROL APPROACH	Hadji chaabane	University Mohamed Boudiaf of M'Sila, Algeria
SYNTHESIS AND RESEARCH THE COMPOSITE ELECTROCHEMICAL COATINGS OF EXTENDED FUNCTIONALITY	Dr. Hanna KARAKURKCHI	National Defence University of Ukraine named after Ivan Cherniakhovskyi, Ukraine
	Prof. Dr. Mykola SAKHNENKO	National Technical University "Kharkiv Polytechnic Institute", Ukraine
	Assoc. Prof. Iryna STEPANOVA	National Technical University "Kharkiv Polytechnic Institute", Ukraine
	Svitlana ZYUBANOVA	National Technical University "Kharkiv Polytechnic Institute", Ukraine
USE OF WASTE HEAT AS AN ENVIRONMENTAL IMPACT MITIGATION PROPOSAL	Prof. Daniel SANIN VILLA	Metropolitan Technological Institude ITM, (Medellin, Colombia)
	Yeny Patricia ARBOLEDA URREA	Student, Metropolitan Technological Institude ITM, (Medellin, Colombia)
REVIEW OF FATIGUE STRENGTH EVALUATION OF LOCAL STRESSES IN WELDED JOINTS	Houssam SABBABI	PhD Student, University of Miskolc, Miskolc, Hungary
SOIL COMPACTION INFLUENCED SOIL PHYSICAL PROPERTIES AND SOYBEAN (GLYCINE MAX.) YIELD IN OGBOMOSO, SOUTHWESTERN NIGERIA	Ewetola, E. A.	Ladoke Akintola University Of Technology, Ogbomoso, Oyo state Nigeria
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Session-3, Hall-2
26.10.2021, Tuesday
Moderator: Paunescu Cosmin
Meeting ID: 868 7868 4858 / Passcode: 000777
Ankara Local Time: 15:00 – 17:00

Title	Author(s)	Affiliation
DISSECTION THREE MAIN CHALLENGES FOR IRANIAN TEACHER TRAINING IN THE FIELD OF ENVIRONMENTAL EDUCATION	Amirali Boroumand	Ferdowsi University of Mashhad, Iran
	Azita Farashi	Ferdowsi University of Mashhad, Iran
PLAYING WITH SOIL; A COMBINATION OF GAME AND NATURE EXPERIENCE	Amirali Boroumand	Ferdowsi University of Mashhad, Iran
	Azita Farashi	Ferdowsi University of Mashhad, Iran
DEMOLITION WASTE: AN ALTERNATIVE OF CEMENT	Dr. Ghanshyam Barman	C G P I T, Uka Tarsadia University, Bardoli, Gujarat, India
INTEREST RATE RISK OF SELECTED PUBLIC & PRIVATE SECTOR BANKS OF INDIA (WITH REFERENCE OF MATURITY GAP ANALYSIS)	Miss Deepa Chandraprakash Chandwani	Gujarat University, Ahmedabad, India
	Prof. Dr. Gurudutta Japee	Gujarat University, Ahmedabad, India
RESEARCH ON MATERIALS USED FOR PRESSURE VESSELS	Paunescu Cosmin	University of Pitesti, Romania
STUDIES REGARDING COMPOSITE MATERIALS WITH POLYMERIC MATRIX	Vasile Gheorghe	University of Pitesti, Romania
NUMERICAL EVALUATION OF AN H-DARRIEUS TURBINE IN CONFIGURATION WITH EXTERNAL ACCESSORIES	Angie J. Guevara-Muñoz	Department of Mechatronics Engineering, Research Group – MATyER, Instituto Tecnológico Metropolitano, Medellín, Colombia
	Diego A. Hincapié-Zuluaga	Department of Mechatronics Engineering, Research Group – MATyER, Instituto Tecnológico Metropolitano, Medellín, Colombia
SELENIUM-DOPED SILICON FOR PRODUCING N-TYPE SEMICONDUCTOR	Hassan Guendouz	Mechanics Research Center (CRM), BP N73B, Ain El Bey, 25021 Constantine, Algeria
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Session-3, Hall-3
26.10.2021, Tuesday
Moderator: Assist. Prof. Dr. M Kasiviswanathan
Meeting ID: 868 7868 4858 / Passcode: 000777
Ankara Local Time: 15:00 – 17:00

Title	Author(s)	Affiliation
SEISMIC ANALYSIS OF GROUND SUPPORTED STEEL LIQUID STORAGE TANKS	Mutlu Seçer	Izmir Katip Celebi University, Izmir, Turkey
	Özer Zeybek	Mugla Sitki Kocman University, Muğla, Turkey
MODELLING AND OPTIMIZATION OF THE REAL AGRI-FOODS SUPPLY CHAIN WITH THE MINIMIZATION OF CO2 EMISSION.	Fethi Boudahri	Manufacturing Enginneering Loboratery of Tlemcen, Tlemcen, Algeria University of Relizane, Relizane, Algeria
	Abderazzak Baba Ahmed	University of Relizane, Relizane, Algeria
	Rabab Boukli Hacene	Manufacturing Enginneering Loboratery of Tlemcen, Tlemcen, Algeria
STATEMENT OF TASKS OF SCIENTIFIC RESEARCH ON DEVELOPMENT OF METHODS OF FIRE PREVENTION AND EXPLOSION SAFETY OF SOLID HOUSEHOLD BUILDING OBJECTS	Vladislav Shershnyov	National University of Civil Defence of Ukraine, Kharkiv, Ukraine
	Nina Rashkevich, PhD	National University of Civil Defence of Ukraine, Kharkiv, Ukraine
INFORMATION TECHNOLOGIES EMERGENCIES PREVENTION AT SOLID WASTE LANDFILL WITH LIQUIDATION ENERGY-INTENSIVE TECHNOLOGICAL EQUIPMENT	Nina Rashkevich, PhD	National University of Civil Defence of Ukraine, Kharkiv, Ukraine
NUMERICAL ANALYSIS OF THE INFLUENCE OF MECHANICAL PARAMETERS OF THE INCLUSION REMOTELY LOCATED FROM ELLIPTICAL HOLE ON THE STRESS CONCENTRATION IN SPHERICAL SHELL	Dr. Vadim HUDRAMOVICH	Corresponding member of NAS Ukraine, Dr. Sci. (Tech.), Head of Department, Institute of Technical Mechanics of the National Academy of Sciences of Ukraine and the State Space Agency of Ukraine, Dnipro, Ukraine
	Prof. Dr. Eteri HART	Dr. Sci. (Phys.-Math.), Professor of the Department of Theoretical and Computer Mechanics, Oles Honchar Dnipro National University, Dnipro, Ukraine
	Oleg MARCHENKO	PhD student, Oles Honchar Dnipro National University, Dnipro, Ukraine
INFLUENCE OF INCLUSIONS AROUND A RECTANGULAR HOLE ON THE STRESS CONCENTRATION FACTOR IN A TRAPEZOIDAL PLATE	Eteri HART	Oles Honchar Dnipro National University, Dnipro, Ukraine
	Oleksii SEMENCHA	PhD student, Oles Honchar Dnipro National University, Dnipro, Ukraine
	Bohdan TEROKHIN	PhD student, Oles Honchar Dnipro National University, Dnipro, Ukraine
EFFECT OF STRESS GRADIENT ON WEB BUCKLING STRENGTH OF FRP BOX-BEAMS	Swedha	M.E-Structural Eng. Student, Sona College of Technology, Salem, India
	Assist. Prof. M Kasiviswanathan	Assistant professor, Sona College of Technology, Salem, India
KPI FOR ENERGY MANAGEMENT IN AIR COMPRESSOR SYSTEMS	Juan Steven TORRES JIMENEZ	Student, Mechatronic & Electromechanical Department, Metropolitan Technological Institude ITM, (Medellin, Colombia)
	Prof. Daniel SANIN VILLA	Prof. Ms, Mechatronic & Electromechanical Department, Metropolitan Technological Institude ITM,

		(Medellin, Colombia)
LATERAL TORSIONAL BUCKLING OF SINUSOIDALLY CORRUGATED STEEL WEBS: A NUMERICAL STUDY	Kamalee	M.E-Structural Eng. Student, Sona College of Technology, Salem, India
	Assist. Prof. M Kasiviswanathan	Assistant professor, Sona College of Technology, Salem, India
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Session-3, Hall-4

26.10.2021, Tuesday

Moderator: Dr. Preeti Singh Bahadur

Meeting ID: 868 7868 4858 / Passcode: 000777

Ankara Local Time: 15:00 – 17:00

Title	Author(s)	Affiliation
ON STABILITY OF NONLINEAR FRACTIONAL DYNAMICAL SYSTEM	Shiva Eshaghi	Alzahra University, Tehran, Iran
RECYCLING OF USED INDUSTRIAL CATALYSTS, USED IN THE OXIDATION REACTION OF SO2 TO SO3, BY ACID LEACHING	Noureddine EL HASBAOUI	Chouaib Doukkali University, El Jadida, Morocco
	Abdelouahab EL HADRAMI	Chouaib Doukkali University, El Jadida, Morocco
	Prof. Dr. Rachid BRAHMI	Chouaib Doukkali University, El Jadida, Morocco
NONLINEAR MAPS PRESERVING CERTAIN SUBSPACES OF LIE PRODUCT OF OPERATORS	Mhamed Elhodaibi	Departement of Mathematics, Labo LIABM, Faculty of Sciences, 60000 Oujda, Morocco
	Soufiane Elouazzani	Departement of Mathematics, Labo LIABM, Faculty of Sciences, 60000 Oujda, Morocco
	Somaya Saber	Departement of Mathematics, Labo LIABM, Faculty of Sciences, 60000 Oujda, Morocco
AN INTELLIGENT AUTOMATIC MONITORING SYSTEM FOR VIOLENCE DETECTION	IMANE RAHIL	Mathematical Team and Information Processing National school of applied sciences SAFI, Morocco
	WALID BOUARIFI	Mathematical Team and Information Processing National school of applied sciences SAFI, Morocco
	MUSTAPHA OUJAOURA	Mathematical Team and Information Processing National school of applied sciences SAFI, Morocco
NUMERICAL INVESTIGATION OF THE OPENING RATIO IN THE UPPER ZONE OF A VAWT H-DARRIEUS	Andres Felipe Burbano Hernández	Undergraduate student, Department of Mechatronics Engineering - Research Group – MATyER Instituto Tecnológico Metropolitano, Colombia
NUMERICAL ANALYSIS OF THE TEMPERATURE AND MECHANICAL FIELDS IN A FSW WELDING JOINT	Imane Elmeguenni	Mechanical research center CRM, constantine, Algeria
SPECIFIC HEAT CAPACITY OF MIXED (KCN)0.3(KBR)0.7 CRYSTAL	Dr. Preeti Singh Bahadur	Department of Physics, Amity University Greater Noida (U.P), India
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Session-3, Hall-5
26.10.2021, Tuesday
Moderator: Res. Assist. Safiye Nur ÖZDEMİR
Meeting ID: 868 7868 4858 / Passcode: 000777
Ankara Local Time: 15:00 – 17:00

Title	Author(s)	Affiliation
A NUMERICAL SIMULATION OF SERPENTINE FLOW CHANNEL PEMFC PERFORMANCE	Safiye Nur ÖZDEMİR	Sakarya University, Sakarya, Turkey
	İmdat TAYMAZ	Sakarya University, Sakarya, Turkey
FARM FIELD SCHOOL (FFS) TRAINING METHODS FOR FARMERS: SOME RESEARCH IN MEKONG DELTA, VIETNAM	Pham Ngoc Nhan Huynh Quang Tin Le Tran Thanh Liem	University of Economics Ho Chi Minh City, Vinh Long Campus Can Tho University, Vietnam
PRESERVICE TEACHERS' READINESS to FLEXIBLE LEARNING MODALITIES	Steve I. Embang	Northwestern Mindanao State College of Science & Technology, Philippine
TRANSFORMING PLANT ON RICE LAND: THE STATUS AND POLICY OF SUPPORT - A CASE STUDY IN HAU GIANG PROVINCE, VIETNAM	Pham Ngoc Nhan	University of Economics Ho Chi Minh City – Vinh Long Campus, Vietnam
NUMERICAL SIMULATION OF A HYDRAULIC SAVONIUS TURBINE FOR IN-PIPE ENERGY HARVESTING	Oscar D. Monsalve-Cifuentes	Instituto Tecnológico Met-ropolitano, Medellín, Colombia
	Sebastián Velez Garcia	Instituto Tecnológico Met-ropolitano, Medellín, Colombia
INTERNATIONAL ENGINEERING SCIENCES AND APPLICATION	BLaoui Mohamed Mossaab	Mechanics Research Center (CRM), BP N73B, Ain El Bey, 25021 Constantine, Algeria
ENERGY MODELING AND OPTIMIZATION OF A WIND POWER SYSTEM IN THE ADRAR REGION	R. Abbas	Ahmed Draïa University, Adrar, Algeria
	A. Harrouz	Ahmed Draïa University, Adrar, Algeria
	D. Beltrache	Ahmed Draïa University, Adrar, Algeria
	Dumbrava Virgil	Polytechnic University of Bucharest, Bucharest, Romania
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Session-1, Hall-1
27.10.2021, Wednesday
Moderator: Assist. Prof. Dr. Youssef MOURDI
Meeting ID: 868 7868 4858 / Passcode: 000777
Ankara Local Time: 10:00 – 12:00

Title	Author(s)	Affiliation
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	M. Serdar ONSES	Erciyes University, Kayseri, Turkey
INVESTIGATIONS THE EFFECTS OF FASTENER, ADHESIVE AND COMPOSITE MATERIAL TYPES ON CREEP PERFORMANCE IN BOOKCASE FURNITURE	Assoc. Prof. Dr. Mehmet Nuri YILDIRIM	Karabük University, Turkey
	Assoc. Prof. Dr. Abdurrahman KARAMAN	Uşak University, Turkey
DETERMINATION OF ASPHALT PAVEMENT CRACKS WITH EFFICIENTNET	Ömer Osman DURSUN	Firat University, Elazig, Turkey
	Suat TORAMAN	Firat University, Elazig, Turkey
INVESTIGATION OF THE EFFECT OF DIFFERENT ALKALINE TREATMENT ON TISSUE PAPER PROPERTIES	İsmail UĞURDAN	Kocaeli University, Kocaeli, Turkey
	Ayşe AYTAÇ	Kocaeli University, Kocaeli, Turkey.
ARTIFICIAL INTELLIGENCE IN HEALTH: PERSPECTIVES AND USES	Alina AMANZHOLOVA	Gazi University, Turkey
	Prof. Dr. Aysun COSKUN	Gazi University, Turkey
ARTIFICIAL INTELLIGENCE AND AUTO-DIAGNOSIS OF ALZHEIMER'S DISEASE: STATE OF THE ART AND NEW RESEARCH DIRECTIONS	Youssef MOURDI	Cadi Ayyad University, Safi, Morocco
	Hasna ELALAOUI ELABDALLAOUI	Cadi Ayyad University, Marrakech, Morocco
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	Youssef MOURDI	Cadi Ayyad University, Safi, Morocco
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BLOCK-CHAIN TECHNOLOGY AND CRYPTO-CURRENCY, DISTINCTION AND APPLICATIONS	Ibrahim inusa	Marwadi University Rajkot Gujarat India Department of Information technology
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Session-1, Hall-2
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Moderator: Assoc. Prof. Dr. Mustafa Özgür Yaylı
Meeting ID: 868 7868 4858 / Passcode: 000777
Ankara Local Time: 10:00 – 12:00

Title	Author(s)	Affiliation
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	Tülin ÇELİK	Aksaray University, Aksaray, Turkey
THE ARCHITECTURE OF TABRIZ INDUSTRIAL FACTORIES IN THE FIRST PAHLAVI PERIOD	Dr. Mohammad Jafar Chamankar	Urmia University
	Ali Aghayari	Master of History of Islamic Iran / Tabriz
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EARLY ESTIMATION OF MAINTENANCE AND REPAIR COSTS OF PUBLIC SERVICE BUILDINGS WITH REGRESSION METHOD	Tuğçe SARIKOÇ	Gazi University, Ankara, Turkey
	Prof. Dr. Mürsel ERDAL	Gazi University, Ankara Turkey
INVESTIGATION OF CARBONATION EFFECT IN CONCRETES PRODUCED USING ALKALINE ACTIVATOR	Ümit YURT	Düzce University, Düzce, Turkey
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ABSTRACTS

FARKLI AZOT DOZLARININ ARIOTUNUN (*Phacelia tanacetifolia* Bentham) BİTKİSEL ÖZELLİKLERİ VE OT KALİTESİ ÜZERİNE ETKİSİ

INFLUENCE OF DIFFERENT NITROGEN DOSES ON PLANT PROPERTIES AND FORAGE QUALITY OF PHACELIA (*Phacelia tanacetifolia* Bentham)

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Uğur BAŞARAN

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Özet

Dünyada nektar kaynağı olarak tarımı yapılan arıotu (*Phacelia tanacetifolia* Bentham), yem bitkisi olarak da kuru ot ve silaj amacıyla yetiştiriciliği yapılmaktadır. Arı otu çiçeklenme sonunda hasat edilmesi ile aynı alanın hem arı merası hem de yem bitkisi olarak değerlendirilmesini mümkün kılan bir bitkidir. Araştırma, Yozgat-Sorgun ekolojik şartlarında, farklı biçim dönemlerinin ve değişik gübre (azot) dozlarının arıotunun verim, kalite, fenolojik ve morfolojik özelliklerine etkisini belirlemek amacıyla yürütülmüştür. Çalışmada 5 farklı azot (N) dozu (0, 2.5, 5, 7.5, 10 kg/da) uygulanmış ve iki biçim zamanı (% 50 çiçeklenme ve çiçeklenme sonu) değerlendirilmiştir. Arıotunda çiçeklenme ortalama 42.6 gün süre ile devam etmiş ve bu süre 45 gün ile en uzun kontrol işleminde gerçekleşmiştir. Arıotunun kuru ot verimi, protein oranı ve protein verimi biçim döneminden önemli düzeyde ($p<0.01$) etkilenmiş ve % 50 çiçeklenme döneminde yapılan hasatta daha yüksek bulunmuştur. Azot dozları ise kuru ot ve protein verimi üzerinde etkili olmuş ($p<0.05$), protein oranında ise önemli bir farklılık oluşturmamıştır. Biçim zamanlarına bağlı olarak arıotunun ADF ve NDF değerlerinde önemli bir farklılık gözlenmezken RFV ve mineral madde oranları % 50 çiçeklenme döneminde daha yüksek olmuştur. Arıotunu ziyaret eden arı sayısı (adet/m2/5 dakika) biçim dönemleri arasında önemli düzeyde ($p<0.01$) değişmiş ve % 50 çiçeklenme döneminde daha yüksek bulunmuştur. Bununla birlikte, arı ziyareti N dozlarından da önemli ($p<0.05$) düzeyde etkilenmiş ve % 50 çiçeklenme dönemindeki en yüksek arı ziyareti (43) 10 kg/da N dozunda gerçekleşmiştir. Sonuç olarak aynı sezonda nektar bitkisi ve yem bitkisi olarak değerlendirilecek bir arıotu tesisinin7.5 kg/da N dozuyla gübrelenmesi ve % 50 çiçeklenme döneminin sonunda hasat edilmesi en uygun işlem olarak tespit edilmiştir.

Anahtar Kelimeler: Arıotu, nektar, yem bitkisi, azot, biçim dönemi

Abstract

Phacelia (*Phacelia tanacetifolia* Bentham), which is cultivated as a nectar source in the world, is also cultivated for hay and silage as a forage crop. When phacelia is harvested at the end of flowering, ıt is a plant that making it possible to use the same area as both a bee pasture and a forage plant.

This study was conducted to determine nitrogen doses and cutting stages on forage yield, quality, phenological and morphological traits of phacelia (*Phacelia tanacetifolia* Bentham) in Yozgat-Sorgun conditions.

Five Nitrogen (N) doses (0, 2.5, 5, 7.5, 10 kg/da) and two cutting time (50% flowering and, and of flowering) was performed in the study. Inflorescences period of phacelia continued 42.6 days and was the longest (45 days) in control (N0) treatment. .

Hay yield, crude protein ratio and yield were significantly ($p<0.01$) affected by cutting stage and were the highest in the plants cutted at 50% flowering stage. The effects of N doses was also significant ($p<0.05$) on hay and crude protein yield but not significant on crude protein ratio. In depending on the cutting time, while no significant difference was observed in the ADF and NDF values of the phacelia, the RFV and mineral substance ratios were higher at 50% flowering period. The number of bee visit (bee//m2/5minute) showed significant ($p<0.01$) variation between cutting stage and N doses and, it was the highest at the 50% flowering stage and under 10 and 5 kg/da N doses.

Consequently, harvesting at the 50% flowering stage and 7.5 kg/da dose of the nitrogen was determined as the most suitable treatments for phacelia to be considered as forage and nectar plants at same season.

Keywords: Phacelia, nectar, forage, nitrogen, cutting stage.

TÜRKİYE ORİJİNLİ MÜRDÜMÜK (*Latyrus sativus* L.) ÇEŞİT VE POPÜLASYONLARININ FARKLI LOKASYONLARDA KALİTE ÖZELLİKLERİ

QUALITY CHARACTERISTICS IN DIFFERENT LOCATIONS OF TURKEY ORIGIN GRASS PEA (*Latyrus sativus* L.) VARIETIES AND POPULATIONS

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Özet

Çalışma 2019-2020 yıllarında, Türkiye orijinli 9 popülasyon ve 4 tescilli çeşitten (Gap mavisi, Karadağ, İptaş ve Eren) oluşan 13 adet mürdümük (*Latyrus sativus* L.) genotipi aralarındaki varyasyonu belirlemek amacıyla iki farklı sezonda (yazlık ve kışlık) ve lokasyonda yetiştirilmiştir. Yozgat Merkez ve Yerköy ilçelerinde 3 tekerrürlü olarak kurulan denemeler tohum olgunlaşma döneminde hasat edilmiştir. Denemede, mürdümük genotipleri arasındaki varyasyonu belirlemek amacıyla çiçeklenme süresi, olgunlaşma süresi, ana sap sayısı, ana sap uzunluğu, ana sap kalınlığı, bitkide bakla sayısı, baklada tane sayısı, bakla boyu, bakla eni ve bitki başına tane ağırlığı belirlenmiştir. Mürdümük genotiplerinin kışlık ekimde olgunlaşma süresi ortalama 243 gün, yazlık ekimde ise 117 gün olarak belirlenmiştir. Kışlık ekimde lokasyon ortalamalarına göre genotiplerin bakla boyu, bakla eni, bitkideki bakla sayısı, bakladaki tane sayısı önemsiz olmuştur. Ancak ana sap uzunluğu (45.95 cm) ve bitki başına tane ağırlığında (7.50 g) merkez ilçesi, ana sap kalınlığı (1.61 mm) ve ana sap sayısında (8.12 adet) ise Yerköy lokasyonu önemli ve daha yüksek bulunmuştur. Yazlık ekimde ise lokasyon ortalamalarında genotiplerin bakla eni ve ana sap kalınlığı önemsiz olurken diğer özellikler önemli bulunmuştur. Ana sap sayısında (8.64 adet) bakımından Yerköy lokasyonu, ana sap uzunluğu (41.05 cm), baklada tane sayısı (3.29 adet), bakla boyu (2.92 cm), bitkideki bakla sayısı (14.21 adet), bitki başına tane ağırlığında (5.74 g) Merkez lokasyonu ön plana çıkmıştır. Sonuç olarak, Kışlık ekim bitkideki bakla sayısı, bakladaki tane sayısı ve tohum ağırlığı, yazlık ekimde ana sap kalınlığı hariç, diğer tüm özellikler bakımından 13 mürdümük genotipi arasında varyasyon belirlenmiştir. Ayrıca mürdümük genotiplerinin her iki dönemde de yetiştirilebileceği ve lokasyon olarak merkez lokasyonunun daha uygun olduğu ortay çıkmıştır.

Anahtar Kelimeler: Mürdümük, popülasyon, varyasyon, kalite.

Abstract

In the study, 13 grass pea (*Latyrus sativus* L.) genotypes consisting of 9 populations and 4 registered cultivars (Gap mavisi, Karadağ, İptaş and Eren) originating in Turkey were grown in two different seasons (summer and winter) and location, in order to determination the variation between them. Trials established in Yozgat Center and Yerköy districts and in 2019-2020 with 3 replications were harvested during the seed maturation period. In the experiment, flowering time, maturation time, main stem number, main stem length, main stem thickness, pod number per plant, seed number per pod, pod length, pod width and grain weight per plant were determined in grass pea genotypes. The average maturation period of the grass pea genotypes was determined as 243 days in winter sowing and 117 days in summer sowing. In winter sowing, pod length, pod width, pod number per plant, seed number per pod of genotypes were insignificant according to location averages. However, the main stem length (45.95 cm) and grain weight per plant (7.50 g) in the central district, the main stem thickness (1.61 mm) and the number of main stems (8.12 unit) in Yerköy location were found to be significant and higher. In summer sowing, while the pod width and main stem thickness of the genotypes were

insignificant in the location averages; other characteristics were found to be important. Yerköy location in terms of main stem number (8.64 units), central location in terms of main stem length (41.05 cm), seed number per pod (3.29 units), pod length (2.92 cm), pod number per plant (14.21 units), grain weight per plant (5.74 g) has come to the fore. As a result, variation was determined among 13 grass pea genotypes in terms of all other characteristics, except to the pod number per plant seed number per pod and seed weight, in winter sowing, main stem thickness in summer sowing. In addition, it has been revealed that grass pea genotypes can be grown in both periods and the central location is more suitable as a location.

Keywords: Grass pea, population, variation, quality.

OTONOM SUALTI ARAÇLARI (OSA)'NIN YÖRÜNGE İZLEME DENETİMİNDE KULLANILAN DENETLEYİCİ TASARIMLARI ÜZERİNE ARAŞTIRMA

RESEARCH ON CONTROLLER DESIGNS USED IN TRAJECTORY TRACKING CONTROL OF AUTONOMOUS UNDERWATER VEHICLES (AUV)

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Özet

Otonom Sualtı Araçları (OSA), okyanus ve deniz araştırmalarında, gerekliliği ve önemi her geçen gün artan araçlardır. Denizlerdeki kirlilik artışlarının araştırılması, deniz dibi haritalaması, gaz ve petrol araştırmaları, mayın taraması ve deniz taşıtlarının taban hasarlarının tespiti kullanım alanlarından bazılarıdır. Sualtı araçlarında, insana bağlılığı en aza indirmek adına yapılan geliştirme çalışmaları halen devam etmektedir. OSA'nın, belirli bir yörüngeyi, en az hata ile takip etmesi için optimum denetleyicilerin tasarımı, bu konuda çalışılan en önemli konulardandır. Bir OSA'nin temel performansı, yörünge takip denetiminin gerçekleştirilmesi ile iyileştirilebilir. Son yıllarda konuyla ilgili pek çok araştırmacı, OSA'ların yörünge takip denetimine büyük önem vermişlerdir. Çünkü bu konu önemli ve araştırma potansiyeline sahip bir konudur. Bu çalışmada yedi yörünge izleme denetim yönteminden bahsedilmektedir. Bunlar; PID denetim, Model Öngörülü Denetim (MÖD), bulanık denetim, uyarlamalı denetim, Yapay Sinir Ağı (YSA) ile denetim, kayan modlu denetim ve geriye adımlama ile denetim yöntemleridir. İlk olarak bir OSA için yörünge takibi denetimi kavramı ve ilgli teoriler açıklanmıştır. Ardından, yörünge takibi denetimi için şu anda kullanılan bu yöntemler açıklanmıştır. Yöntemler değerlendirilerek, avantajları ve dezavantajları belirlenmiştir. Son olarak, OSA'ların yörünge takibi denetiminin gelecekteki gelişimi tartışılmıştır.

Anahtar Kelimeler: Otonom sualtı aracı (OSA), Yörünge izleme, Denetleyici, Bulanık denetim

Abstract

Autonomous Underwater Vehicles (AUV) are vehicles whose necessity and importance are increasing day by day in ocean and sea research. Investigation of pollution increases in the seas, seabed mapping, gas and oil exploration, mine sweeping and detection of damage of bottom watercraft are some of the usage areas. In underwater vehicles, development studies are still continuing in order to minimize human dependence. The design of optimum controllers for AUV's to follow a certain trajectory with minimum error is one of the most important issues studied in this regard. The fundamental performance of an OSA can be improved by performing trajectory tracking control. In recent years, many researchers on the subject have attached great importance to the orbital tracking control of OSAs. Because this subject is important and has a research potential. In this study, seven control methods for trajectory tracking are mentioned. These are PID control, Model Predictive Control (MPC), Fuzzy Control Adaptive Control, Artificial Neural Network (ANN) control, sliding mode control and back stepping control methods. First, the concept of trajectory tracking control for an AUV and related theories are explained. Next, some currently used methods for trajectory tracking control are described. The methods were evaluated and their advantages and disadvantages were determined. Finally, the future development of orbital tracking control of OSAs is discussed.

Keywords: Autonomous underwater vehicles (AUV), Trajectory tracking, Controller, Fuzzy control

THERMAL RADIATION, CHEMICAL REACTION AND VISCOUS DISSIPATION EFFECTS ON MHD MICRO POLAR BLOOD FLOW WITH STRETCHING CAPILLARY IN THE PRESENCE OF HEAT GENERATION/ ABSORPTION

Dr. Binyam Zigta

ETHIOPIA

Abstract

Numerical and theoretical analysis of mixed convection flow of MHD micropolar fluid with stretching capillary in the presence of thermal radiation, chemical reaction, viscous dissipation and heat generation/ absorption have been studied. The governing non linear partial differential equations of momentum, angular velocity, energy and concentration are converted into ordinary differential equations using similarity transformations which can be solved numerically. The dimensionless governing equations are solved by using Runge Kutta fourth fifth order along with shooting method. The effect of physical parameters viz., micropolar parameter, unsteadiness parameter, thermal buoyancy parameter, concentration buoyancy parameter, Hartmann number, spin gradient viscosity parameter, microinertial density parameter, thermal radiation parameter, Prandtl number, Eckert number, heat generation or absorption parameter, Schmidt number and chemical reaction parameter on flow variables viz., velocity of micropolar fluid, microrotation, temperature and concentration has been analyzed and discussed graphically. MATLAB code is used to analyze numerical and theoretical facts. From the simulation study it can be concluded that an increment of micropolar parameter, Hartmann number, unsteadiness parameter, thermal and concentration buoyancy parameter results in decrement of velocity flow of micropolar fluid; microrotation of micropolar fluid decreases with an increment of micropolar parameter, unsteadiness parameter, microinertial density parameter and spin gradient viscosity parameter; temperature profile of micropolar fluid decreases with an increment of thermal radiation parameter, Prandtl number, micropolar parameter, unsteadiness parameter, heat absorption and viscous dissipation parameter; concentration of micropolar fluid decreases as unsteadiness parameter, Schmidt number and chemical reaction parameter increases. Furthermore, computational values of local skin friction coefficient, local wall coupled coefficient, local Nusselt number and local Sherwood number for different values of parameters have been investigated.

Keywords: Thermal radiation, chemical reaction, viscous dissipation, heat absorption/ generation, similarity transformation**.**

SINIF ÖĞRETMENİ ADAYLARININ OKULLARDA AFET PLANLARININ UYGULANABİLİRLİĞİ HAKKINDAKİ GÖRÜŞLERİNE YÖNELİK BETİMSEL BİR ANALİZ

A DETAILED ANALYSIS OF CLASS TEACHER'S OPINIONS ON THE APPLICABILITY OF DISASTER PLANS IN SCHOOLS

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Özet

İçinde yaşadığımız dünyanın önemli gerçeklerinden birisi de afetlerdir. Doğal ve beşeri afetler olmak üzere başlangıçta 2 gruba ayrılan afetler insanlık tarihinin her döneminde etkili olmuş, can ve mal kayıplarına yol açmıştır. Dünya nüfusunun hızla artması, aydınlanma çağıyla birlikte sanayileşmenin hız kazanması, insan ihtiyaçlarının sürekli artarak değişmesiyle artan talebin karşılanması üretim artışını zorunlu hale getirirken, sınırlı dünya kaynaklarının azalması ve aşırı üretim ihtirası çevrenin doğal yapısının giderek daha hızlı bir şekilde bozulmasına neden olmuştur. Dünyanın doğal yapısında görülen bozulmalar, doğal süreçlerin afete dönüşmesini kolaylaştırmış, geçmiş dönemlerle mukayese edilemeyecek boyutta can ve mal kayıplarının yaşanmasına yol açmıştır. Coğrafi konumu, jeolojik ve topografik özellikleri dikkate alındığında Türkiye doğal olayların kolaylıkla afete dönüşebildiği ülkelerden birini oluşturmaktadır. Türkiye aktif deprem kuşağında yer alıyorken, konumu ve topografik yapısı gereği su baskınları ve taşkınlar açısından da dezavantajlı ülkeler arasında yer almaktadır. Dolayısıyla Türkiye'de yaşayan insanların tamamı bu coğrafyanın afet potansiyelinin farkında olmak, olası afetlerden doğacak zararı en aza indirecek önlemleri almak ve bireysel olarak da afet öncesi, sırası ve sonrasında yapılması gerekenler bakımından mutlaka bilinçli olmak zorundadır. Afetler konusunda farkındalık oluşturulmasında en önemli role sahip olan kurumların başında gelen okullarda hem teorik, hem de pratik anlamda afet duyarlılığı kazandırılması büyük önem taşımaktadır. Bu bağlamda tüm kurum ve kuruluşlarda uygulanabilir afet planlarının hazırlanması alınması gereken öncelikli önlemler arasında yer almaktadır. Bu çalışmada sınıf öğretmeni adaylarının okullardaki afet planlarının uygulanabilirliği hakkındaki görüşlerinin ortaya konulması hedeflenmiştir. Nitel araştırma yöntemlerinden durum çalışması şeklinde gerçekleştirilen araştırmada 15 öğretmen adayından oluşan örneklem grubuna açık uçlu 4 soru sorulmuş, okullardaki afet planlama çalışmalarının ve okulların fiziki imkânlarının yetersiz olduğu, afet planlama çalışmalarının uygulanabilir nitelikte olması ve uygulamalı eğitimlerin daha sık bir periyotta yapılmasının gerekliliği ortaya çıkmıştır.

Anahtar Kelimeler: Doğal afetler, Afet planları, Sınıf öğretmeni adayları.

Abstract

One of the important facts of the world we live in is disasters. Disasters, which were initially divided into two groups as natural and human disasters, have been effective in every period of human history and have caused loss of life and property. While the rapid increase in the world population, the acceleration of industrialization with the age of enlightenment, meeting the increasing demand with the ever-increasing change of human needs, the decrease in limited world resources and the desire for excessive production caused the natural structure of the environment to deteriorate more and more rapidly. Deteriorations in the natural structure of the world have facilitated the transformation of natural processes into disasters and have led to loss

of life and property that cannot be compared with previous periods. Considering its geographical location, geological and topographic features, Turkey is one of the countries where natural events can easily turn into disasters. While Turkey is located in an active seismic belt, it is also among the disadvantaged countries in terms of floods and overflows due to its location and topographic structure. Therefore, all people living in Turkey must be aware of the disaster potential of this geography, take measures to minimize the damage that may arise from possible disasters, and individually be conscious of what to do before, during and after the disaster. It is of great importance to bring disaster awareness both theoretically and practically in schools, which are among the leading institutions that have the most important role in raising awareness about disasters. In this context, the preparation of applicable disaster plans in all institutions and organizations is among the priority measures to be taken. In this study, it is aimed to reveal the opinions of prospective classroom teachers about the applicability of disaster plans in schools. In the study, which was carried out as a case study, one of the qualitative research methods, 4 open-ended questions were asked to the sample group of 15 pre-service teachers, and it was revealed that the disaster planning studies in schools and the physical facilities of the schools were insufficient, the disaster planning studies were applicable and the practical training should be done more frequently.

Keywords: Natural disasters, disaster plans, Classroom teacher candidates.

DÖNEL OLARAK KISITLANMIŞ SINIR KOŞULLARI İLE FONKSİYONEL OLARAK DERECELENDİRİLMİŞ BİR TİMOSHENKO KİRİŞİNİN TERMAL BURKULMA ANALİZİ

THERMAL BUCKLING ANALYSIS OF A FUNCTIONALLY GRADED TIMOSHENKO BEAM WITH ROTATIONALLY RESTRAINED BOUNDARY CONDITIONS

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Özet

Dönme yönünde kısıtlanmış Timoshenko fonksiyonel olarak derecelendirilmiş (FG) nano kirişlerin termal burkulma tepkisi, Eringen'in yerel olmayan elastikiyet teorisi kullanılarak incelenmiştir. Yerel olmayan Timoshenko (FG) nanokirişinin burkulmasını (termal) analiz etmek için iki Fourier serisi kullanılmıştır. Bir öz değer matrisi ile Timoshenko (FG) nanokiriş teorisi için açık iki denklem sistemi türetilmiştir. Mevcut yöntemin temel matematiksel avantajı, rijit veya deforme olabilen sınır koşullarıyla çözüm yapabilme yeteneğidir. Özellikle, bu yeni yöntem, kayma düzeltme faktörüne uygun bir değer atanarak yerel olmayan Euler (FG) nanokiriş yaklaşımına dejenere edilebilir. Sunulan yaklaşım güvenilirliğini tartışmak için çeşitli matematiksel problemler çözülmüştür. Matematiksel sonuçlar, sıcaklık arttığında termal etkiler dahil burkulmanın termal etkileri olmayanlardan daha düşük olduğunu göstermektedir. Dönme yönündeki kısıtlanmış yayların (FG) nanokirişlerinin kararlılık tepkisi üzerinde önemli etkileri vardır.

Anahtar Kelimeler: Termal, burkulma, dönmeyi kontrol

Abstract

The thermal buckling response of restrained Timoshenko functionally graded (FG) nanobeams is studied using the Eringen’s non-local elasticity theory. Two Fourier series are used to analyse the buckling(thermal) of the non-local Timoshenko (FG) nanobeam. Explicit two systems of equations are derived for the Timoshenko (FG) nanobeam theory with an eigen value matrix. The main mathematical advantage of the present method is its capability of dealing with rigid or deformable boundary conditions. In particular, this new method may be degenerated to the non-local Euler (FG) nanobeam approximation by assigning proper value to the factor of shear correction. Several mathematical problems are solved to discuss presented approach reliability. The mathematical results displays that buckling including the thermal effects are lower than those without the thermal effects when the temperature rises. The restrained springs in rotational direction have significant effects on the stability response of (FG) nanobeams.

Keywords: Thermal, buckling, rotational restraints

NULLİPAR GEBELERDE KUŞAKLARARASI TRAVMATİK DOĞUM ALGISI

THE INTERGENERATIONAL TRAUMATIC BIRTH PERCEPTION IN PREGNANT WOMEN

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Özet

Gebeler, doğum ve doğum sonu süreçle birlikte sağlığını olumsuz yönde etkileyebilecek birçok durumla karşı karşıya kalabilmektedir. Travmatik etkiler gebelik sürecinde yaşanan olumsuz olaylardan kaynaklanabildiği gibi doğum sürecinde yaşanan olumsuz deneyimlerle de şiddeti artarak travmatik doğum algısına yol açabilmektedir. Araştırma nullipar gebelerde kuşaklararası travmatik doğum algısını (TDA) belirlemek amacıyla yapıldı.

Kesitsel tipte yapılan araştırma Türkiye'nin doğusunda yer alan bir ildeki birinci basamak sağlık kuruluşlarında yapıldı. Araştırma 2020 – 2021 tarihleri arasında yapıldı. Araştırmanın örneklemini 180 gebe and 180 anne oluşturdu (n=360). Veriler Kişisel Tanıtım Formu ve Travmatik Doğum Algısı (TDA) Ölçeği ile toplandı. İstatistiksel değerlendirmede tanımlayıcı istatistik analizlerin yanı sıra korelasyon ve regresyon analizleri kullanıldı.

Araştırmada gebelerin yaş ortalaması 26.59 ± 4.54, annelerinin yaş ortalaması ise 52.60 ± 7.06'dır. Gebelerin %37.8'inin annelerinin ise %33.9'unun "orta" düzeyde travmatik doğum algısına sahip olduğu saptandı. Gebelerde TDA ölçeği toplam puan ortalaması ile annede TDA ölçeği toplam puan ortalaması arasında orta düzeyde pozitif yönde anlamlı ilişki olduğu görüldü ($p<0.001$, r:0.501). Araştırmaya katılan gebelerin TDA'sını açıklamada annelerdeki TDA %25 oranında istatistiksel öneme sahip olduğu saptandı ($p<0.001$, β: 0.501).

Araştırmada gebelerde travmatik doğum algısı ile annelerindeki travmatik doğum algısı arasında önemli ilişki olduğu belirlendi. Gebelerin travmatik doğum algısının dörtte birinin annelerinden aktarıldığı belirlendi.

Anahtar Kelimeler: Algı, gebelik, vajinal doğum, nulliparite.

Abstract

Pregnant women may face many situations that may adversely affect their health along with the birth and postpartum period. Traumatic effects can be caused by negative events experienced during pregnancy, as well as by negative experiences during the birth process, increasing their severity and leading to the perception of traumatic birth. The study was carried out to determine the perception of intergenerational traumatic birth (TKA) in nulliparous pregnant women.

The cross-sectional study was conducted in primary health care institutions in a province in eastern Turkey. The study was conducted between 2020 and 2021. The sample of the study consisted of 180 pregnant women and 180 mothers (n=360). Data were collected with the Personal Identification Form and the Traumatic Birth Perception (TBP) Scale. In addition to descriptive statistical analyzes, correlation and regression analyzes were used in the statistical evaluation.

In the study, the mean age of the pregnant women was 26.59 ± 4.54, and the mean age of their mothers was 52.60 ± 7.06. It was determined that 37.8% of the pregnant women and 33.9% of their mothers had a "moderate" perception of traumatic birth. It was observed that there was a moderately positive and significant correlation between the total mean TBP scale score in pregnant women and the mean TBP scale total score in the mother ($p<0.001$, r:0.501). It was determined that the TBP of the mothers had a statistical significance of 25% in explaining the TBP of the pregnant women who participated in the study ($p<0.001$, β: 0.501).

In the study, it was determined that there is a significant relationship between the perception of traumatic birth in pregnant women and the perception of traumatic birth in their mothers. It was determined that one fourth of the pregnant women's perception of traumatic birth was transferred from their mothers.

Keywords: perception, pregnancy, nulliparity, vaginal birth

TÜRKİYE'DE ARICILIK (ARILI KOVAN) SİGORTASININ MEVCUT DURUMU VE ÖNEMİ

THE CURRENT SITUATION OF BEEKEEPING (BEEHIVE) INSURANCE IN TURKEY AND ITS IMPORTANCE

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Özet

Hayvancılık sektörünün önemli bir dalı olan arıcılık, dünyada olduğu gibi Türkiye'de de önemli bir gelir kaynağıdır. Ülkenin sahip olduğu coğrafi konum ve zengin bitki örtüsü, arıcılık faaliyetinin gelişiminde önemli rol oynamaktadır. Ancak, doğa koşullarına bağlı olarak gerçekleştirilen bu faaliyet doğa koşullarından en çok etkilenen hayvancılık alt sektörlerinin de başında gelmektedir. Arıcılık faaliyeti ile ilgili bu durum dikkate alındığında; arıcılıktaki risklerin bir kısmının sigorta ile güvence altına alınması mümkündür. Bu nedenle, bu çalışmada Türkiye'de 2014-2019 yılları arasında uygulanan arıcılık (arılı kovan) sigortasının mevcut durumu ve önemi değerlendirilmiştir. Araştırmanın verileri, Tarım Sigortaları Havuzu'ndan (TARSİM) elde edilmiştir. Türkiye'de 2014 yılında arılı kovan sigortası için poliçe sayısı 6824 adet iken bu sayı 2018 yılında 10489 adete yükselmiştir. Ancak, 2019 yılında bu sayı 7721 adete düşerek azalma eğilimi göstermiştir. Ayrıca, 2014-2019 yılları arasında gerçekleştirilen arılı kovan sigortası uygulamalarında sigorta bedeli, prim üretimi ve devlet destek prim tutarlarında yıllar itibariyle artış görülmüştür. Sonuç olarak, kovan başına ödenen prim tutarlarının azaltılması ve arılı kovan sigortası konusunda bilgilendirme çalışmalarının yaygınlaştırılması çiftçilerin arıcılık sigortasına olan eğilimlerini olumlu yönde etkileyebilir.

Anahtar Kelimeler: Arıcılık, Arılı kovan sigortası, Hayvancılık, Türkiye .

Abstract

Beekeeping, which is an important branch of the livestock sector, is an important source of income in Turkey as well as in the world. The geographical location of Turkey and its rich vegetation play an important role in the development of beekeeping activity. However, this activity, which is carried out depending on natural conditions, is one of the sub-sectors of livestock that is most affected by natural conditions. Considering this situation regarding beekeeping activity, it is possible to securing some of the risks in beekeeping with insurance. Therefore, in this study, the current situation of beekeeping (beehive) insurance implemented between the years 2014 and 2019 in Turkey and its importance were evaluated. The data of the study were obtained from the Agricultural Insurance Pool (TARSIM). In Turkey, the number of beehive policies were 6824 in 2014, reached 10489 in 2018. However, this number decreased to 7721 in 2019. Also, there has been an increase in the amount of insurance cost, premium production and state support premium amount by the years in the beehive insurance practices carried out between 2014-2019. As a result, the reducing amount of premium paid per hive and the spreading of informational studies about beehive insurance may positively affect farmers' tendencies towards beekeeping insurance.

Keywords: Beekeeping, Beehive insurance, Livestock, Turkey.

TARİHİ KÖPRÜLERİN ONARIM VE GÜÇLENDİRİLMESİNDE KULLANILAN YÖNTEMLER

METHODS USED IN REPAIR AND STRENGTHENING HISTORIC BRIDGES

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Özet

Geçmişten günümüze kadar gelen, insanoğlunun kültürel, sosyal yaşam, ekonomik ve dini inançlarını yansıtan yapı türleri tarihi yapılar olarak adlandırılmaktadır. Tarihi yapılar içerisinde, köprüler, hanlar, hamamlar, camiler, medreseler, kervansaraylar yer almaktadır. Bu çalışmada da ele alınan tarihi köprüler, akarsu ve vadi gibi geçilmesinde zorluklar yaşanan iki kıyının, güvenli bir şekilde birbirine bağlanmasını sağlayan yapılardır. Tarih boyunca Anadolu'da, tarihi ve kültürel olarak önemli birçok köprü inşa edilmiştir. Eskiçağlardan Selçuklu ve Osmanlı dönemine kadar inşa edilen tarihi köprülerden bazıları yıkılmış bazıları ise günümüze kadar varlıklarını koruyabilmişlerdir. Genellikle köprülerin en büyük sorunu ağırlaşan trafik yükleridir. Geçmişten günümüze kadar yaşanan doğal afetler, savaşlar, yangınlar, zeminden kaynaklı sebepler, insan etkileri ve kötü işçilik gibi etkiler nedeniyle, tarihi köprüler yıkılmış veya ağır hasar görerek kullanım dışı kalmışlardır. Bu yapıları gelecek nesillere aktarabilmek için, yapıların onarım ve güçlendirilmeleri ile ilgili çalışmalar hakkında yeterli bilgiye sahip olmak gerekmektedir. Hasarlı tarihi köprülerin yıkılmalarını önlemek amacıyla zamanında ve yerinde onarım ve güçlendirme çalışmaları yapılmalıdır. Bu yapılar üzerinde gerçekleştirilen onarım ve güçlendirme çalışmalarında, tarihi yapıların özgünlüğü kaybolmamalı ve aslına uygun malzemeler kullanılmalıdır. Tarihi yapılar üzerinde gerçekleştirilen bu çalışmalar, tarihi yapının ve taşıdığı kültürün yaşatılması adına büyük önem taşımaktadır.

Bu çalışmada, tarihi köprüler üzerinde yapılan farklı onarım ve güçlendirme çalışmaları araştırılarak incelenmiştir. Çalışma kapsamında, köprülerdeki sayısal ve uygulamaya yönelik onarım ve güçlendirme çalışmaları değerlendirilmiştir. Yapılan bu çalışmalar ile tarihi köprülerde önerilen ve uygulanarak hayata geçirilen onarım ve güçlendirme çalışmaları hakkında daha fazla bilgi birikiminin oluşmasına yardım ederek, gelecekte yapılacak olan köprülerin onarım ve güçlendirme çalışmaları için kaynak oluşturacaktır.

Anahtar Kelimeler: Tarihi Köprüler, Onarım ve Güçlendirme, Restorasyon Uygulamaları, Sayısal Modelleme.

Abstract

Structure types that reflect the cultural, social life, economic and religious beliefs of human beings from the past to the present are called historical structures. There are bridges, inns, baths, mosques, madrasahs and caravanserais in historical buildings. The historical bridges, which are also discussed in this study, are structures that enable the safe connection of two coasts, such as rivers and valleys, which are difficult to cross. Throughout history, many historically and culturally important bridges have been built in Anatolia. Some of the historical bridges built

from ancient times to the Seljuk and Ottoman periods have been destroyed, while others have preserved their existence until today. Generally, the biggest problem of bridges is heavy traffic loads. Due to the effects of natural disasters, wars, fires, ground-based causes, human effects and bad workmanship from the past to the present, historical bridges have been destroyed or severely damaged and out of use. In order to transfer these structures to future generations, it is necessary to have sufficient knowledge about the repair and strengthening of the structures. In order to prevent the collapse of damaged historical bridges, timely and on-site repair and strengthening works should be carried out. In the repair and strengthening works carried out on these structures, the authenticity of the historical structures should not be lost and materials that are suitable for the original should be used. These studies carried out on historical buildings are of great importance in terms of keeping the historical structure and its culture alive.

In this study, different repair and strengthening works on historical bridges were investigated and examined. Within the scope of the study, numerical and practical repair and strengthening works on bridges were evaluated. These studies will help to create more knowledge about the repair and strengthening works proposed and implemented in historical bridges, and will constitute a resource for the repair and strengthening works of the bridges to be built in the future.

Keywords: Historical Bridges, Repair and Strengthening, Restoration Applications, Numerical Modeling.

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Özet

Zika virüsü Flaviviridae ailesinde yer alan bir RNA virüsüdür. Semen, vagina salgısı, kan, idrar, amniyon sıvısı, beyin-omurilik sıvısı (BOS), anne sütü, tükürük gibi vücut sıvılarında, beyin ve medulla spinalis'te saptanmıştır, kuluçka süresi 3-14 gün arasında değişmektedir. Ayrıca, Zika virüsünün neden olduğu hastalık, *Aedes* (*Ae*.) *albopictus* (Asya kaplan sivrisineği) ve *Ae. aegypti* (sarı humma sivrisineği) türü sivrisinekler aracılığıyla insanlara bulaşmaktadır. Enfekte olan kişilerde genel olarak herhangi bir belirti bulunmaz. Nadir olmakla birlikte, belirtileri akut başlangıçlı ateş, makülopapüler döküntü, artralji veya nonpürülan konjonktivitle nitelenir. Zika virüsü dişi sivrisineğin kan emmesi ile anneye ondan da transplasental yol ile fetüse geçerek mikrosefali başta olmak üzere fetal anomalilere ve nadir de olsa nörolojik komplikasyonlara neden olur. İlk kez 1947 yılında Uganda'da maymunlardan izole edilmiştir. Dünya Sağlık Örgütü Zika virüsü epidemiyoloji verilerine göre 2019 yılı itibariyle dünyada 84 ülkede, yaklaşık 1,62 milyon insanın Zika virüsünden etkilendiği düşünülmektedir. Asya, Afrika, Amerika ve Pasifik ülkelerinde virüslü insanın kanını emen infekte dişi sivrisineklerinin hastalığı insanlara bulaştığı bildirilmiştir. Türkiye'den bildirilmiş olgu bulunmamasına rağmen, virüsün yayılımından sorumlu *Aedes* cinsi sivrisinekler Türkiye faunasında bulunmaktadır. Özellikle ülkemizde Akdeniz (*Ae. aegypti*) Marmara ve Karadeniz (*Ae. albopictus*) bölgelerinin sahile yakın kesimlerinde saliniteye toleranslarından dolayı tespit edilmişlerdir. Ülkemizde 50 türün endemik olarak kabul edildiği toplam 64 sivrisinek türü, 8 cins (*Anopheles, Aedes, Ochlerotatus, Culex, Culiseta, Coquillettidia, Orthopodomyia* ve *Uranotaenia*) altında sınıflandırılmıştır. Konu ile ilgili tarafımızca ve diğer araştırmacıların yürüttüğü çalışmaların derlendiği bildiride hastalığın ülkemizde görülme ihtimalinin irdelenmesi amaçlanmıştır. Sonuç olarak sivrisinekler, yaygın ilaçlama programlarına rağmen Zika virüsünü, Lâtin Amerika başta olmak üzere dünyadaki bir çok yerde insanlara bulaştırmaktadırlar. Zika virüsü hastalığını önlemek için en etkili halk sağlığı önlemleri, biyolojik, kimyasal ve fiziki önlemler ile sivrisinek populasyonlarının kontrolü ve insanların sivrisineklere maruz kalmasının önlenmesidir. Türkiye'den henüz vaka rapor edilmemesi ancak hastalığı taşıyan vektör sivrisineklerin mevcut fauna içerisinde bulunması söz konusu virüsün gelecekte ülkemizin özellikle sahil kesimlerinde görülme ihtimalini arttırmaktadır.

Anahtar Kelimeler: Zika vürüsü, Sivrisinek, *Aedes*, Vektör Kontrol, Türkiye.

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Abstract

Zika virus is an RNA virus in the Flaviviridae family. It has been detected in body fluids such as semen, vaginal secretions, blood, urine, amniotic fluid, cerebrospinal fluid (CSF), breast milk, saliva, brain and spinal cord. The incubation period varies between 3-14 days. In addition, the disease caused by the Zika virus, *Aedes* (*Ae*.) *albopictus* (Asian tiger mosquito) and *Ae*. *aegypti* (yellow fever mosquito) species is transmitted to humans through mosquitoes. In general, people who are infected do not have any symptoms. Although rare, its symptoms are characterized by acute onset fever, maculopapular rash, arthralgia, or nonpurulent conjunctivitis. Zika virus passes from the mother to the fetus by the blood-sucking female mosquito and from it to the fetus via the transplacental route, causing fetal anomalies, especially microcephaly, and rare neurological complications. It was first isolated from monkeys in Uganda in 1947. According to the Zika virus epidemiology data of the World Health Organization, as of 2019, approximately 1.62 million people in 84 countries around the world are thought to be affected by Zika virus. It has been reported that the disease is transmitted to humans by infected female mosquitoes sucking the blood of infected people in Asia, Africa, America and Pacific countries. Although there are no cases reported from Turkey, Aedes mosquitoes responsible for the spread of the virus are found in the fauna of Turkey. Especially in our country, they have been detected in the Mediterranean (*Ae*. *aegypti*) Marmara and Black Sea (*Ae*. *albopictus*) regions close to the coast due to their tolerance to salinity. A total of 64 mosquito species, of which 50 species are considered endemic in our country, are classified under 8 genera (*Anopheles*, *Aedes*, *Ochlerotatus*, *Culex*, *Culiseta*, *Coquillettidia*, *Orthopodomyia* and *Uranotaenia*). In this presentation, in which the studies carried out by us and other researchers on the subject are compiled, it is aimed to examine the possibility of the disease in our country. As a result, mosquitoes transmit Zika virus to people in many places in the world, especially in Latin America, despite widespread spraying programs. The most effective public health measures for preventing Zika virus disease include controlling the mosquito populations via insecticides and preventing humans from direct exposure to mosquitoes. The fact that no cases have been reported from Turkey yet, but the presence of vector mosquitoes transmitting the disease in the existing fauna increases the possibility of the virus being seen in the future, especially in the coastal areas of our country.

Keywords: Zika virüs, Mosquito, *Aedes*, Vector Control, Turkey.

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ADANA İLİ KARAİSALI İLÇESİNDEKİ ÜÇ OKULDA PEDİKÜLOZİS EĞİTİMİ, SAÇ BİTİ PREVALANSININ TESPİTİ VE YÜKSEK DÜZEYDEKİ SES FREKANSLARINA SAHİP ULTRASES DALGALARININ PEDICULUS HUMANUS CAPITIS ÜZERİNE OLAN ETKİLERİNİN ARAŞTIRILMASI

PEDICULOSIS EDUCATION, DETECTION OF HEAD LICE PREVALENCE AND ULTRASONIC SOUND FREQUENCIES EFFECTS ON PEDICULUS HUMANUS CAPITIS IN THREE SCHOOLS IN KARAISALI, ADANA

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Özet

Pedikülozis, saç biti *Pediculus* (*P.*) *humanus* (*h.*) *capitis*'in saçlı deride neden olduğu bir enfestasyondur. Özellikle okul çağındaki çocuklarda sıklıkla rastlanan pedikülozis, kişisel gelişimleri başta olmak üzere birçok yönden çocukları etkileyebilmektedir. Saç bitleri kontrolü diğer ektoparazit eklembacaklılarda olduğu gibi mekanik (fiziksel) ve kimyasal yöntemlerle gerçekleştirilmektedir. Günümüzde mekanik mücadele ajanı olarak yüksek frekanslı ultrases dalgaları istenmeyen birçok canlıda olduğu gibi saç bitlerine karşıda kullanılmaktadır. Çalışmamızın amaçları, Adana Karaisalı İlçesindeki Etekli, Çukur ve Eğlence Mahallerinde bulunan ilkokul ve ortaokullarda pedikülozis hakkında veli ve öğretmenlere eğitimler vermek, konu ile ilgili bilgi düzeylerini anketler yaparak ölçmek, söz konusu odaklardaki pedikülozis prevalansını tespit etmek ve pozitif çocuklardan alınan saç bitlerini yüksek frekanslı (0,5 MHz, 1 MHz, 1,5 MHz, 2 MHz ve 2,5 MHz) ses dalgalarına 24 saatlik periyotlarda maruz bırakarak, *P. h. capitis* ergin ve nimflerindeki mortaliteyi tespit etmektir. Öğrenci veli ve öğretmenlerine uygulanan anketlerin sonuçlarının karşılaştırılmasında, pozitif çocukların cinsiyete göre dağılımının belirlenmesinde ve saç bitlerindeki mortalite ile ilgili bulguları analiz etmek için sırasıyla SPSS 25.0 programında T-testi, Ki-Kare testi ve tek yönlü ANOVA testi kullanılmıştır. Çalışmamızda 363 veli ve öğretmenin anket sonuçları değerlendirilmiştir. Velilerin anketlere verdikleri doğru cevaplarda %9,80'lik artış saptanır iken, öğretmenlerin

doğru cevaplarında %9,70 oranında artış belirlenmiştir. Saç biti taramaları 4 kez tekrar edilmiştir. Her bir tekrarda sırasıyla 440, 429, 417 ve 407 öğrenci taranmıştır. Kız öğrencilerin pedikülozis oranları taramalarda sırasıyla %79,1, %97,3, %58,3 ve %85,7 olarak tespit edilmiştir. Pedikülozis prevalansı tüm okullarda ilk taramadaki %0,14'ten son taramada tespit edilen %0,02 değerine gerilemiştir. Saç biti ergin ve nimflerine uygulanan yüksek frekanslı ultrases dalgaları arasından en fazla mortaliteye 1,5MHz-2,5MHz aralığındaki ses frekanslarının neden olduğu tespit edilmiştir. Sonuç olarak pedikülozis ile ilgili eğitimlerin okullarda farklı periyodlarda öğretmen ve velilere verilmesi ve düzenli saç biti taramalarının Milli Eğitimin tüm kademelerinde düzenli aralıklarda gerçekleştirilmesi hastalığın kontrolünde önemli olduğu düşünülmektedir. Ayrıca, *P. h. capitis*'in kontrolünde yüksek mortaliteye neden olan frekans aralıklarının mekanik bir bariyer niteliğinde olduğu kanısına varılmıştır.

Anahtar Kelimeler: Saç biti, Pedikülozis, Saç biti taraması, Prevalans, Adana

Abstract

Pediculosis is an infection of the scalp caused by the head lice *Pediculus* (*P.*) *humanus* (*h.*) *capitis*. Pediculosis, which is common especially in school-age children, can affect children in many ways, especially their personal development. Control of head lice is conducted by mechanical, biological and chemical methods as in other ectoparasite arthropods. Today, high-frequency ultrasound waves are used against head lice as well as many pest organisms as a mechanical control agent. The objectives of our study were to trained parents and teachers of students about pediculosis in primary and secondary schools in Etekli, Çukur and Eğlence in Adana Karaisalı District, to measured their knowledge level by conducted surveys, to determine the prevalence of pediculosis in these foci and to determine the mortality in head lice adults and nymphs obtained from positive children that caused by exposure to high frequency sound waves (0.5 MHz, 1 MHz, 1.5 MHz, 2 MHz and 2.5 MHz) in 24-hour periods. We used T-test, Chi-Square test and one-way ANOVA test to compared the results of the surveys applied to students' parents and teachers, to determine the distribution of positive children by gender, and to analyzed the findings related to mortality in head lice. In our study, survey results of 363 parents and teachers were evaluated. An increase of 9.80% was found in the correct answers given by parents to surveys, while an increase of 9.70% was found in the correct answers of teachers. Head lice combing studies have been repeated 4 times. Also, 440, 429, 417 and 407 students were combed in each repetition respectively. Among the students who were diagnosed as positive, the pediculosis rate of female students was 79.1%, 97.3%, 58.3% and 85.7%, respectively, at each repetition. The prevalence of pediculosis decreased from 0.14% at the first combing in all schools to 0.02% detected at the last combing. Among the high-frequency ultrasound waves applied to adult head lice and nymphs, it was found that the maximum mortality was caused by sound frequencies in the range of 1.5 MHz-2.5 MHz. As a result, it is considered important to control the disease by providing training on pediculosis to teachers and parents at different periods in schools and conducting regular head lice controls at all levels of National Education. Also, it has been concluded that frequency ranges that cause high mortality in head lice control are a mechanical barrier.

Keywords: Head Lice, Pediculosis, Combing, Prevalence, Adana

HEALTHY AND SAFE SCHOOL ENVIRONMENT IN COMMUNICABLE DISEASES

BULAŞICI HASTALIKLARDA SAĞLIKLI VE GÜVENLİ OKUL ÇEVRESİ

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Abstract

Knowing the positive effects of education in the development of health, education and its developing health, the school environment has become increasingly important in improving public health since 1997. One of the items of the national child and environmental health action plan prepared in Turkey is to reduce the diseases caused by physical, chemical and biological agents and adverse working conditions that children and adolescents are exposed to. The main goals of school safety are the physical protection of students and employees, minimizing interruptions in education and training, and creating a culture of safety. The COVID-19 epidemic, which has affected the world for the last year and a half, has caused schools to be closed for a long time. With the vaccinations, the schools were reopened, bringing back the question of how healthy and safe the schools are. While the Ministry was making statements about the fact that schools would remain open, the measures taken in schools during the ongoing epidemic created a discussion topic. In this review, a brief overview of COVID-19 and communicable diseases will be presented, followed by a detailed assessment of the measures taken and should be taken in schools to create a healthy and safe school environment in communicable diseases.

Keywords: Covid-19, School Health, Healthy and Safe School

Özet

Sağlığın geliştirilmesinde, eğitimin ve gelişen sağlığında eğitime olumlu etkileri bilinerek 1997 yılından beri toplum sağlığının iyileştirilmesinde okul çevresi giderek önem kazanmıştır. Türkiye'de hazırlanan ulusal çocuk ve çevre sağlığı eylem planının maddelerinden biri, çocuk ve ergenlerin maruz kaldığı fiziksel, kimyasal ve biyolojik ajanlar ve olumsuz çalışma koşullarından kaynaklanan hastalıkların azaltılması yer almaktadır. Okul güvenliğinin başlıca hedefleri, öğrenci ve çalışanların fiziksel olarak korunması, eğitim ve öğretimin kesintisinin minimum seviyede tutulması, güvenlik kültürü oluşturulması yer almaktadır. Son bir buçuk yıldır dünyayı etkisi altına alan COVID-19 salgını okulların uzunca bir süre kapalı kalmasına sebep oluştur. Aşılamalarla birlikte okullar yeniden açılmış ve okullar ne kadar sağlıklı ve ne kadar güvenli sorusunu yeniden akla getirmiştir. Bakanlık okulların açık kalacağı ile ilgili açıklamalar yaparken devam eden salgında okullarda alınan önlemler tartışma konusu yaratmıştır. Bu derlemede COVİD-19 ve bulaşıcı hastalıklar ile ilgili kısa bir genel bakış ve ardından bulaşıcı hastalıklarda, sağlıklı ve güvenli okul çevresi oluşturmak için okullarda alınan ve alınması gereken önlemler dair ayrıntılı bir değerlendirme sunulacaktır.

Anahtar Kelimeler: Covid-19, Okul Sağlığı, Sağlıklı ve Güvenli Okul

TRANSFORMING PLANT ON RICE LAND: THE STATUS AND POLICY OF SUPPORT - A CASE STUDY IN HAU GIANG PROVINCE, VIETNAM

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Abstract

Converting crops on rice land is one of the critical contents of the agricultural sector in Hau Giang province, Vietnam. The study used the method of meta-analysis, assesses the status of conversion, and analyzes local authorities' policy implementation in converting crops to rice land in 2014-2016 and orientation to 2020. The analysis results showed that the conversion of crops on rice land of farmers was still slow, not meeting the requirements of the Project. Implementing policies for crop restructuring was still limited, and the disbursement progress was still low compared to the project's objectives.

Keywords: converting agriculture, crops, farmers, rice land.

AQUILA OPTIMIZER (AO) FOR CONTINUOUS OPTIMIZATION PROBLEMS

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Abstract

The optimization process means finding the optimal values for certain parameters of a system to complete the system design at the lowest cost. In general, real-world applications and problems in artificial intelligence and machine learning have a discrete, unconstrained, or discrete nature. Optimization methods are very successful in solving such problems. Therefore, in recent years, many intelligent heuristic algorithms based on swarm intelligence have been proposed. We can give many algorithms such as Arithmetic Optimization Algorithm (AOA), Social Spider Algorithm (SSA) etc. Many researchers in the literature have focused on such algorithms and have successfully solved many problems. Aquila Optimizer (AO) is one of such algorithms. Aquila Optimizer (AO) is a heuristic algorithm that has been proposed in recent years. It is a novel population-based optimization method. It was created by imitating the behavior of the aquila in nature in the process of catching its prey. The Aquila Optimizer (AO) algorithm is represented by four methods. These are: 1- select the search area high and fly with a vertical stoop; 2- exploring within a diverge search space by contour ight with short glide attack; 3- exploiting within a converge search space by low ight with slow descent attack; 4- swooping by walk and grab prey. A series of experimental series are run to verify the new optimizer's ability to find the optimal solution for different optimization problems. In this paper, the success of Aquila Optimizer (AO) is demonstrated in classical test functions. Experimental results were compared with well-known heuristic algorithms proposed in recent years and the success of Aquila Optimizer (AO) was demonstrated.

Keywords: Aquila Optimizer (AO), Optimization Algorithms, Meta-heuristics, Benchmarks

FARKLI LIF KESIT ŞEKILLERININ POLYESTER MAKINE HALISI ÜZERINE ETKISI

THE EFFECT OF DIFFERENT FIBER CROSS-SECTION SHAPES ON POLIESTER MACHINE-MADE CARPET

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Özet

Geçmişten günümüze kadar özellikle evlerimizde kullandığımız ve yaşam alanlarımızın vazgeçilmez ürünü olan halıların hem tasarım hem de üretim yönünden köklü bir geçmişi bulunmaktadır. Binlerce yıllık geçmişe sahip olan halı, dünyada giderek önem kazanmış ve dünya ticareti içerisinde kayda değer ürün gruplarından birisi haline gelmiştir.

Günümüzde makine halıları ya dokuma tekniği kullanılarak ya da tufting metodu kullanılarak üretilmektedir. Üretilen bu makine halılarının kalitesi için ürünün yapısal özellikleri önem arz etmektedir. Müşterinin bir halıda bulunmasını istediği akustik yalıtım, konfor, termal yalıtım, görünüm, dayanıklılık ve güvenlik gibi özelliklerin arka planında yer alan halının yapısal özellikleri belirleyici niteliktedir. Makine halısının yapısal kalitesini belirleyen faktörlerin başında ise büyük oranda hav ipliğinin yapısı gelmektedir.

Yapı içerisindeki hav ipliği incelendiğinde; sentetik liflerin sahip oldukları yüksek mukavemet ve aşınma direnci özelliği, kolay temizlenebilme özelliği, kimyasallara karşı yüksek direnç gösterme özelliği gibi avantajları sayesinde tekstil alanında yaygın olarak kullanıldıkları görülmektedir. Polipropilen lifi ve polipropilen ipliğinden üretilen makine halıları üzerine yapılan çalışmalarda polipropilen liflerinin, hafif olması, sürtünme dayanımının çok iyi olması, hidrofob karakterli bir yapıda olması, neme ve küfe karşı dirençli olması ve oldukça güçlü yapısı nedeni ile makine halıcılığı sektöründe hav ipliği olarak kullanım alanı bulacağını belirtmişlerdir.

Yapılan bu çalışmada aynı üretim parametrelerinden oluşmuş farklı kesit şekillerindeki polyester iplik kullanımının makine halıları üzerindeki etkisinin araştırılması amaçlanmıştır.

Anahtar Kelimeler: Makine Halısı, Polyester İplik, Hav İpliği, Mekanik Özellikler, Rezilyans.

Abstract

Carpets, which we use especially in our homes from the past to the present, and are indispensable products of our living spaces, have a long history in terms of both design and production. Carpet, with a history of thousands of years, has gradually gained importance in the world and has become one of the significant product groups in the world trade.

Today, machine-made carpets are produced using either the weaving technique or the tufting method. The structural features of the product are important for the quality of these machine-made carpets. The structural features of the carpet, which are behind the features such as acoustic insulation, comfort, thermal insulation, appearance, durability and safety that the

customer wants to have in a carpet, are decisive. The most important factor determining the structural quality of the machine carpet is the structure of the pile yarn.

When the pile thread in the structure is examined; It is seen that synthetic fibers are widely used in the textile field thanks to their advantages such as high strength and abrasion resistance, easy cleaning feature, high resistance to chemicals. Studies on machine carpets made of polypropylene fiber and polypropylene yarn have indicated that Polypropylene fibers will find use as pile yarn in the machine carpet industry due to their lightweight, very good friction resistance, hydrophobic character, moisture and mold resistance, and very strong structure.

The present study aimed to investigate the effect of using polyester yarn with the same production parameters at different cross-sections shapes on machine carpets.

Keywords: Machine-Made Carpets, Poliester Yarn, Pile Yarn, Mechanical Properties, Resilience

GÖNDERİM SINIF GRUPLARININ HOMOLOJİ GRUPLARI

HOMOLOGY GROUPS OF MAPPING CLASS GROUPS

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Özet

Bu çalışmada gönderim sınıf grubu, homoloji, ve homoloji grupları kavramlarından bahsedilmektedir. Bu kavramların tanımları, matematikte kullanımları, ve kullanılma sebepleri örneklerle açıklanmaktadır. Çeşitli geometrik nesnelerin homoloji grupları verilmektedir. Son olarak, gönderim sınıf grubunun homoloji grupları sunulmaktadır.

Anahtar Kelimeler: Gönderim sınıf grubu, Homoloji, Homoloji Grupları.

Abstract

In this paper, the concepts of Mapping Class Group, Homology, and Homology Groups are mentioned. The definitions of these concepts, their use in mathematics, and the reasons for their use are explained with examples. Homology groups of various geometric objects are given. Finally, homology groups of the Mapping Class Group are presented.

Keywords: Mapping class group, Homology, Homology Groups.

COVİD-19 SÜRECİ İLE MENOPOZAL SEMPTOMLARIN DEĞERLENDİRİLMESİ

EVALUATION OF MENOPOSAL SYMPTOMS WITH THE COVID-19 PROCESS

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Özet

Menopoz, kadınların üreme yeteneklerini kaybedip, over fonksiyonlarının yavaşladığı yeni bir çağa girdiği dönemdir. Dünya genelinde menopoz yaşı ortalama 51 kabul edilirken yaş aralığı 45-55 arasında değişmektedir. 2018 TNSA verilerine göre Türkiye'de menopoz yaşı 46-49 arasındadır. Gelişmiş ülkelere oranla gelişmekte olan ülkelerde menopoza daha erken girildiği görülmektedir. Genetik faktörler ve çevresel etmenler menopoz yaşının değişmesine neden olabilir. Bu dönemde östrojenin azalmasına ve diğer hormon değişikliklerine bağlı kadınlarda fiziksel, duygusal, psikolojik değişimler oluşur. Vazomotor semptomlar, osteoporoz, ürogenital problemler, gastroinstestinal sorunlar ve psikolojik sorunlar gerçekleşen değişimlerden bazılarıdır. Menopoza girmiş kadınların bağışıklık sistemi diğer yaşam dönemlerine göre daha zayıf hale gelir ve enfeksiyonlara yatkın olurlar. 2020'de pandemisi ilan edilen ve ülkemizde de Mart 2020'de görülmeye başlanan yeni koronavirüse karşı da menopoz dönemindeki kadınların daha açık olabileceği tahmin edilmektedir. Covid-19, yorgunluk, yüksek ateş, öksürük, vücut ağrıları, ishal, kusma gibi belirtilerle karakterizedir. Hastalık semptomlarının menopoz semptomlarıyla birleşmesi nedeniyle Covid-19'un, doğurganlık dönemindeki kadınlara göre menopozdaki kadınlarda daha ağır seyrettiği düşünülmektedir. Ayrıca virüsün ve pandemi döneminin neden olduğu psikolojik baskı da menopoz semptomlarının artmasına neden olabilir. Bu nedenle menopoz dönemindeki kadınlar Covid-19'a karşı bağışıklanmalı, semptomları değerlendirilmeli ve baş etme yöntemleri açısından desteklenmelidir. Yapılan bazı çalışmalara göre östrojen tedavisi alan menopoz dönemindeki kadınlar östrojen tedavisi almayanlara göre Covid-19'u daha hafif atlatmakta ve hastane ihtiyacı duymamaktadır. Covid-19'dan koruma ya da semptomları hafifletme amacıyla menopozda kullanılan tedavi yöntemleri de gözden geçirilmelidir. En önemlisi pandemi döneminde kadınlar menopoz semptomlarının hafifletilmesi amacıyla doktora ulaşmakta zorluk yaşadığı için de menopoz semptomlarının arttığı tahmin edilmektedir. Ancak menopozal dönemdeki kadınların Covid-19 süreciyle ilgili yeterli çalışma bulunmamaktadır. Bu konuda daha fazla çalışmaya ihtiyaç duyulmaktadır.

Anahtar Kelimeler: Menopoz, Covid-19, semptom

Abstract

Menopause is the period when women lose their reproductive abilities and enter a new era in which ovarian functions slow down. While the average age of menopause is accepted as 51 across the world, the age range varies between 45-55. According to 2018 TDHS data, the age of menopause in Turkey is between 46-49. It is seen that menopause is entered earlier in developing countries compared to developed countries. Genetic factors and environmental factors can cause the age of menopause to change. During this period, physical, emotional and

psychological changes occur in women due to the decrease in estrogen and other hormonal changes. Vasomotor symptoms, osteoporosis, urogenital problems, gastrointestinal problems and psychological problems are some of the changes that occur. The immune system of women who have entered menopause becomes weaker compared to other periods of life and they are prone to infections. It is estimated that women in the menopause period may be more susceptible to the new coronavirus, which was declared a pandemic in 2020 and started to be seen in our country in March 2020. Covid-19 is characterized by symptoms such as fatigue, high fever, cough, body aches, diarrhea, vomiting. Due to the combination of disease symptoms with menopausal symptoms, Covid-19 is thought to be more severe in menopausal women than in fertile women. In addition, the psychological pressure caused by the virus and the pandemic period may also increase the symptoms of menopause. For this reason, women in the menopause period should be immunized against Covid-19, their symptoms should be evaluated and they should be supported in terms of coping methods. According to some studies, women in the menopausal period who receive estrogen therapy survive Covid-19 more mildly and do not need a hospital compared to those who do not receive estrogen therapy. Treatment methods used in menopause should also be reviewed to protect from Covid-19 or alleviate symptoms. Most importantly, it is estimated that menopausal symptoms increase as women have difficulty in reaching a doctor in order to alleviate menopausal symptoms during the pandemic period. However, there are not enough studies on the Covid-19 process of women in the menopausal period. More work is needed on this subject.

Keywords: Menopause, Covid-19, symptoms

ÇEKİRDEK ARACILIĞIYLA BÜYÜTME YÖNTEMİ İLE KATI ALTLIKLAR ÜZERİNDE ELDE EDİLEN NANOYAPILAR

NANOSTRUCTURES ON SOLID-SURFACES THROUGH SEED-MEDIATED GROWTH METHOD

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Özet

Nanoyapılı malzemelerin üretiminde kullanılan iki genel yaklaşım vardır: yukarıdan aşağıya (top-down) ve aşağıdan yukarıya (bottom-up). Genellikle litografi tabanlı olan yukarıdan-aşağı yöntemi çok basamaklı bir süreç içerir ve katı altlıklar üzerinde düzenli nanoyapıları elde edebilmek için sıklıkla kullanılır. Bu yöntem hem yüksek maliyetli cihazları hem de bu cihazların kullanımı için yeterli bilgi birikimine sahip insan gücüne ihtiyaç duyar. Aşağıdan yukarıya yönteminde ise çeşitli kimyasal yöntemlerle atom/moleküller organize edilerek koloidal bir çözelti oluşturulur. Fakat bu yöntemle üretilen nanoyapıların cihaz tasarımı veya sensör yapımı gibi işlemlerde kullanılabilmesi için katı altlıklar üzerine entegre edilmeleri gerekir. Bunun için de çok karmaşık işlem basamakları kullanılır.

Çekirdek aracılığıyla büyütme yöntemi, çekirdek olarak tanımlanan nanoyapıların üzerinde ıslak kimyasal yöntemlerle aynı veya başka bir cins malzemenin depolanması sonucu yeni bir nanomalzeme elde edilmesi işlemidir. Bu işlem genellikle core-shell şeklinde tanımlanan nanoparçacıklar veya nanoçubukların elde edilmesi amacıyla kullanılır. Bu yöntemde reaksiyon ortamında çekirdeklerin önceden var olması ve bu çekirdek üzerine seçici olarak indirgeme sağlayacak zayıf bir indirgeyici ajanın kullanılması gerekir. Bu sayede var olan bir çekirdek üzerine daha düşük bir aktivasyon enerjisi ile metal iyonları indirgenir ve hedeflenen yeni nanomalzeme üretilmiş olur.

Bu çalışmada Si wafer veya cam gibi katı altlıklar üzerinde polietilen glikol (PEG) ve poli2-vinilpyridine (P2VP) fırçalar oluşturuldu. Polimer fırçalar üzerine ise sahip oldukları –OH uç fonksiyonları sayesinde sitratla stabilize edilmiş farklı boyutlardaki Au ve Ag nanoparçacıkları tutunduruldu. Bu nanoparçacıklar, çözelti ortamında bulunacak diğer metal iyonlarının indirgenmesi için çekirdek olarak kullanılacak. Çalışma esnasında zayıf ve seçici bir indirgeyici ajan olması sebebiyle hidrokinon kullanıldı. Belli konsantrasyonlarda metal iyonu ve indirgeyici ajan barıdıran büyüme çözeltisi içerisine daldırılan çekirdekli katı altlıklar belli süreler bekletildikten sonra çekirdekler üzerinde ikincil metal nanoyapılarının üretildiği net bir şekilde karakterize edildi. Bu sayede herhangibir ek işlem yapmadan direkt olarak nanoyapılı malzemeler katı altlıklar üzerinde elde edilmiş oldu.

Anahtar Kelimeler: çekirdek aracılığıyla büyütme, SERS, metalik nanoyapılar.

Abstract

There are two general approaches used in the production of nanostructured materials: top-down and bottom-up. The top-down method, usually lithography-based, involves a multi-step process and is often used to obtain ordered nanostructures on solid substrates. This method requires

both high-cost devices and qualified man-power to use these devices. In the bottom-up method, a colloidal solution is formed by organizing atoms/molecules by various chemical methods. However, nanostructures produced by this method must be integrated on solid substrates in order to be used in processes such as device design or sensor. For this, very complex processing steps are used.

The seed-mediated growth method is the process of obtaining a new nanomaterial as a result of depositing the same or another.

On the polymer brushes, different sizes of Au and Ag nanoparticles stabilized with citrate were attached thanks to their –OH terminal functions. These nanoparticles will be used as seeds for the reduction of other metal ions that will be present in the solution environment. During the study, hydroquinone was used because it is a weak and selective reducing agent. It was clearly characterized that secondary metal nanostructures were produced on the seeds after the solid type of material on the nanostructures defined as the seed by wet chemical methods. This process is generally used to obtain nanoparticles defined as core-shell or nanorods. In this method, seeds must be pre-existing in the reaction medium and a weak reducing agent must be used to selectively reduce this seed. In this way, metal ions are reduced on an existing seeds with a lower activation energy and a new targeted nanomaterial is produced.

In this study, poly(ethylene glycol) (PEG) and poly(2-vinylpyridine) (P2VP) brushes were formed on solid substrates such as Si wafer or glasssubstrates with seeds were immersed in a growth solution containing metal ions and reducing agents at certain concentrations, after waiting for a certain period of time. In this way, nanostructured materials were obtained directly on solid substrates without any additional processing.

Keywords: seed-mediated growth, SERS, metallic nanostructures.

CLIMATE SENSITIVE TRANSPORTATION MANAGEMENT IN TURKEY: OPERATIONS, REGULATION, AND REFORM

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Abstract

The smart city transport idea is seen as a future vision meaning to embrace examinations on the metropolitan arranging measure and to build strategy pathways for accomplishing future targets. Along these lines, this paper sets out three dreams for the year 2035 which achieve an extreme change in the degree of green vehicle frameworks (regularly called walking, cycling, and public vehicle) in Turkish metropolitan regions. A participatory visioning procedure was organized by a three-stage procedure: (I) Extensive internet based complete review, in which potential vehicle measures were investigated for their significance in advancing shrewd vehicle frameworks in future Turkish metropolitan regions; (ii) semi-organized meetings, where transport technique ideas were created with regards to the conceivable nonexistent metropolitan regions and their related context oriented portrayal of the fanciful metropolitan regions for every vision; (iii) participatory studios, where an imaginative strategy was created to investigate different inventive future decisions and options. Generally speaking, this paper shows that the substance of things to come savvy transport dreams was sensible, yet such dreams need an impressive level of agreement and extremist methodologies for handling them. The discoveries offer significant bits of knowledge to scientists asking about the smart transport field, and strategy creators considering applying those into training in their neighborhood metropolitan regions. The critical message from our exploration is that changing a significant part of the populace to more dynamic types of transport for some excursions is altogether attainable, if such types of transport are made available, agreeable, and can undoubtedly be incorporated into the client's day by day schedule. The vast majority perceive the dreams are solid and answers for the current difficulties are clear however powerful to execute in light of the fact that they require somewhat extreme advancement not just in the propensities wherein individuals travel yet additionally in the construction and association of metropolitan turn of events.

Keywords: visions, cities, urban transport, sustainable transport, operations

QUALITATIVE AND QUANTITATIVE STUDY OF DINOFLAGELLATE CYSTS IN SURFACE SEDIMENTS OF THE NADOR LAGOON

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Abstract

The qualitative and quantitative study of dinoflagellates (cysts and vegetative forms) was carried out on samples of surface sediment and water of the lagoon of Nador, collected during the winter and the month of February 2019. It was therefore necessary to undertake a qualitative and quantitative study of dinoflagellate cystsand vegetative forms in parallel with the aim of specifying the factors that control the concentration of cysts in the sediments, as well as their specific diversities and their blooms. Indeed, dinoflagellates are of undeniable ecological interest, they are considered as sentinel species of the quality of the coastline because they respond quickly to environmental changes thanks to their very fast life cycle. Moreover, their cysts, due to their extreme resistance and abundance in sediments, constitute an extremely important tool in the evaluation of current environments. The main goal of this work is to study the abiotic parameters of the Nador lagoon that control the concentration of cysts in the sediments, their specific diversity and the dominance of one group over another.

Keywords: Dinoflagellates, quantitative, qualitative, sediments, Nador lagoon…

INVESTIGATIONS THE EFFECTS OF FASTENER, ADHESİVE AND COMPOSITE MATERIAL TYPES ON CREEP PERFORMANCE IN BOOKCASE FURNITURE

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Abstract

Creep is the permanent inelastic deformation of a material due to changes in the material caused by the prolonged application of stress. Creep effects, at a minimum, have the potential to affect the serviceability of structure. A more severe issue related to creep is its ability to alter material characteristics and subsequent mechanical properties of a structural element or system. Eventually, excessive creep may result in the failure of a structure.

Case-type furniture is one of the most important categories of furniture produced and used today. It is used comprehensively in homes, offices, and industrial buildings for storage purposes. The case furniture panels are often used in applications where they are likely to be subjected to sustained loading for considerable periods of time, for example as furniture shelves and case bottoms. It is essential that the appearance and structural integrity of the panels is maintained in service. The purpose of the study was to undertaken determine the effect of the fastener, adhesive, and wood composite materials on the time-dependent the deflection performance under static loading of bookshelves constructed from wood based panels. The test specimens are were prepared with 18 mm thick laminated particleboard (Lam-PB) and medium density fiberboard (Lam-MDF). Lamello AG products wood biscuit and K-20 clamping plates fastener types have been used. Eigth bookcases which contain four shelves each were constructed and exposed to static loading for seven months by considering the critic loads which could effect while in service use. According to test results, the highest performance was obtained in bookcase prepared using LamMDF, polyurethane adhesive (PUR-D4), and wood biscuit fastener, while the lowest performance was found in experimental samples using Lam-PB, polyvinyl acetate (PVAc-D4), and K-20 clamping plates. It is recommended to use wood biscuit as a fastener, polyurethane adhesive (PUR-D4) as a glue, and Lam-MDF as the wood-based composite panel.

Keywords: Creep, Bookcase, K-20 Clamping Plates, Wood Biscuit,

TEK CERRAHIN ENDEMİK BÖLGEDE TİROİDİN BENİGN HASTALIKLARINDA TOTAL TİROİDEKTOMİ DENEYİMİ, 100 HASTANIN RETROSPEKTİF ANALİZİ

ONE SURGEON'S EXPERIENCE OF TOTAL THYROIDECTOMY IN BENIGN THYROID DISEASES IN THE ENDEMIC REGION, RETROSPECTIVE ANALYSIS OF 100 PATIENTS

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Özet

Tiroidektomi özellikle endemik bölgelerde düşük mortalite oranlarıyla sık uygulanan bir cerrahi girişimdir.. Benign tiroid hastalıkları için standart bir tedavi yöntemi yoktur.. Benign tiroid hastalıklarında uygulanacak olan teknik üzerine tartışmalar ve görüş farklılıkları devam etmektedir. Seçilecek olan cerrahi prosedür ülkeler arasında değişebildiği gibi klinikler arasında bile farklılık gösterebilmektedir. Yapılan cerrahinin kalıcı rekurren laringeal sinir hasarı ve hipoparatiroidizm gibi majör komplikasyon oranlarının ve nüksün en az görülebileceği bir prosedür olması oldukça önemlidir. Komplikasyon gelişmesi ciddi morbiditeye sebep olabilir. Bu çalışmada benign tiroid hastalığının tedavisinde total tiroidektominin sonuçları ve güvenilirliği araştırıldı.

Bartın Devlet Hastanesindeki tek cerrahın Ocak 2012 ile Eylül 2021 tarihleri arasında total tiroidektomi uygulanan 100 hastanın verileri retrospektif olarak değerlendirildi.

Çalışmaya alınan hastaların 95 (%95)kadın 5'i (%5) erkekti. Yaş ortalaması 47±9 olan hastaların 10 toksik multinodüler guatr (%10), 90'ı(%90) ise toksik olmayan multinodüler guatr idi. Ameliyat öncesi yapılan ultrasonografide ortalama dominant nodül çapı 23.9±10.7 idi.22 hastamıza tiroid ince iğne aspirasyon biopsisi yapıldı. Patolojileri benign, yetersiz numune, kan elemanları şeklinde raporlandı.Operasyon kararları lab,fiziki muayene,hasta şikayetleri,ultrasonografik veriler,ince aspirasyon biopsi sonuçları ile karar verildi. Preop dönemde tiroid kanseri ön tanısı almış hasta saptanmadı. Postop dönemde 3 hastamızda (%3) geçici hipoparatiroidizm, 2 hastada ise (%2) ses kalitesinde bozulma saptandı.,1 hastada ise postopdönemde geçiçi trakestomi açıldı, 3(%3) hastamızda postop dönemde kanama görüldü. Kalıcı reküren larengeal sinir felci ve hipoparatiroidizm görülmedi.İnsidental tiroid kanseri 9(%9) hasta da saptandı.

Benign bir tiroid hastalığı için yapılacak cerrahi işlem düşük komplikasyon ve nüks oranına sahip olmalıdır. Total tiroidektomi diğer cerrahi prosedürlere göre benzer komplikasyon ve düşük nüks oranına sahip olması nedeniyle tercih edilebilir bir yöntemdir.Total Tiroidektominin insidental olarak saptanan malignite olgularında gerekli tedaviyi sağladığı ve ikincil bir operasyondan kaynaklanabilecek artmış komplikasyon oranlarına maruz bırakmaması bir avantaj olabileceği kanatindeyiz.. Tiroidin benign hastalıkları için seçilecek cerrahi prosedürde, her ne kadar gelişebilecek komplikasyonların etkisi olsa da; total tiroidektomi, diğer tiroidektomi prosedürleri kadar güvenli ve düşük komplikasyonlar ile yapılabilmektedir. Özellikle endemik bölgelerde ve postoperatif histopatolojik tanıda yüksek oranda insidental kanser ve hiperplazi tespit edilebileceği göz önünde bulundurulduğunda total tiroidektominin, reoperasyon gerektirmeyeceği için cerrahlar tarafından seçilebilecek etkin ve güvenli bir yöntem olduğunu düşünüyoruz.

Anahtar Kelimeler: multinoduler guatr, total tiroidektomi, endemik

Abstract

Thyroidectomy is a frequently performed surgical procedure with low mortality rates, especially in endemic areas. There is no standard treatment method for benign thyroid diseases. Discussions and differences of opinion continue on the technique to be applied in benign thyroid diseases. The surgical procedure to be chosen may vary between countries and even between clinics. It is very important that the surgery performed is a procedure with the least incidence of major complications such as permanent recurrent laryngeal nerve damage and hypoparathyroidism and recurrence. The development of complications can cause serious morbidity. In this study, the results and safety of total thyroidectomy in the treatment of benign thyroid disease were investigated.

Materials and Methods: The data of 100 patients who underwent total thyroidectomy between January 2012 and September 2021 of a single surgeon in Bartın State Hospital were evaluated retrospectively.

Results: Of the patients included in the study, 95 (95%) were female and 5 (5%) were male. Of the patients with a mean age of 47±9 years, 10 had toxic multinodular goiter (10%), and 90 (90%) had non-toxic multinodular goiter. In the preoperative ultrasonography, the mean diameter of the dominant nodule was 23.9±10.7. Thyroid fine-needle aspiration biopsy was performed in 22 of our patients. Their pathology was reported as benign, insufficient sample, blood elements. Operational decisions were made based on lab, physical examination, patient complaints, ultrasonographic data, and fine aspiration biopsy results. No patient with a preliminary diagnosis of thyroid cancer was detected in the preoperative period. Transient hypoparathyroidism was detected in 3 patients (3%) in the postoperative period, and deterioration in voice quality was found in 2 patients (2%). Permanent recurrent laryngeal nerve palsy and hypoparathyroidism were not observed. Incidental thyroid cancer was detected in 9 (9%) patients.

Conclusion: The surgical procedure for a benign thyroid disease should have a low complication and recurrence rate. Total thyroidectomy is a preferable method as it has similar complications and low recurrence rate compared to other surgical procedures. Although complications that may develop may have an effect on the surgical procedure to be chosen; Total thyroidectomy can be performed as safe and with low complications as other thyroidectomy procedures. Considering that a high rate of incidental cancer and hyperplasia can be detected especially in endemic areas and in postoperative histopathological diagnosis, we think that total thyroidectomy is an effective and safe method that can be chosen by surgeons as it does not require reoperation.

Keywords: multinodular goiter, total thyroidectomy, endemic

MERSİN ÜNİVERSİTESİ HERBARYUMU'NDA TEŞHİS EDİLMEYEN ASTERACEAE, FABACEAE VE LAMIACEAE FAMİLYALARINA AİT TAKSONLARIN TEŞHİSİ ÜZERİNE BİR ÇALIŞMA

A STUDY ON IDENTIFICATION OF TAXA OF UNIDENTIFIED ASTERACEAE, FABACEAE AND LAMIACEAE FAMILIES IN HERBARIUM OF MERSIN UNIVERSITY

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Özet

Bu çalışmanın amacı; uzun uğraşlar sonucu toplanan kurutulan zengin bitki koleksiyonları barındıran herbaryumların önemine dikkat çekmektir. Flora çalışmaları veya bilimsel araştırmalara kaynak niteliği taşıyan herbaryumların; oluşturulması, korunması ve gelecek nesillere aktarılması gerekliliği vurgulanmıştır. Türkiye'de endemik sıralamasında, Mersin (462 takson), Antalya'dan sonra (862 takson) gelir. Mersin İli Türkiye Grid (kareleme) sistemin de C4-C5 karelerin de yeralır. Bu çalışma Mersin ilinin çoğunlukla Anamur ilçesinde farklı yıllarda toplanan *Asteraceae, Fabaceae, Lamiaceae* familyalarına ait taksonların teşhisine yer verilmiştir. Çalışma yeri, Mersin Üniversitesi Biyoloji Bölümü Herbaryumu'nda (MERARŞHERB; MERA) yürütülmüştür. MERA'da *Asteraceae, Fabaceae* ve *Lamiaceae* familyalarına ait teşhis edilmemiş bitki örneklerinin floristik tanımlamaları yapılmıştır. Birçok alan için kaynak niteliği taşıyan herbaryumların önemine değinilmiştir. Önemli uluslararası bazı herbaryumların içerdiği takson sayısı ve herbaryum linkleri verilmiştir. Çeşitli yıllarda toplanan ve gazete kâğıdında yer alan bitkilerin örneklerinin teşhisi yapılmıştır. Bitki örnekleri herbaryum tekniklerine uygun yapıştırılıp, etiket bilgisi yazılarak herbaryum dolaplarına konmuştur. Daha sonra bitki örneklerinin teşhisi yapılımıştır. Teşhisli bitkilerin bilimsel adı, toplandığı yer ve toplayıcı adı, varsa herbaryum numarası, bulunduğu habitat ve yükseklik bilgileri verilmiştir. Familya ve takson listeleme işlemi alfabetik sıraya göre yazılmıştır.

Toplamda 465 tane bitki örneğinin teşhis edilmiştir. Herbaryumda bulunan; *Asteraceae* familyasına ait 178, *Fabaceae* familyasına ait 98, *Lamiaceae* familyasına ait 189 bitki örneğinin teşhisi yapılmıştır. Bitki teşhisinde; P.H.Davis editörlüğünde yazılmış on ciltlik eseri, ayrıca yerli basım olan onbirinci cilt olan "Flora of Turkey and The Aegean Islands" adlı temel eser ve ek ciltlerden yararlanılmıştır. Teşhis edilen taksonlar, uluslararası sanal herbaryumlarda bulunan aynı bitki örnekleri ile karşılaştırılarak her taksona, uluslararası sanal

herbaryumlardaki görüntüsüne ait internet linki verilmiştir. Çalışma sonucunda *Asteraceae* familyasından 42 cinse ait 82 takson (10 takson endemik), *Fabaceae* familyasından ait 19 cinse ait 47 takson (1 takson endemik), *Lamiaceae* familyasından ise, 23 cinse ait 85 takson (14 takson endemik) olmak üzere, toplamda 3 familyadan 83 cinse ait 214 takson teşhis edilmiştir. Teşhis edilen taksonların endemizm oranı %11.57 (25 takson)'dir.

Anahtar Kelimeler: Anamur, Flora, Herbaryum, Mersin, Türkiye

Abstract

The aim of this study is the importance of herbariums, which contain rich plant collections. It was emphasized that the herbariums, which are the sources of flora studies or scientific researches, should be formed, protected and transferred to the next generations. In the ranking endemic in Turkey, Mersin (462 taxa), after Antalya (862 taxa) income. Mersin Province Turkey Grid (quadrature) of the system is located at the C4-C5 frame. In this study, the taxa belonging to the families of *Asteraceae*, *Fabaceae*, *Lamiaceae* which are collected in different years in Anamur district of Mersin province are included. The workplace was carried out at the Herbarium of the Biology Department of Mersin University (MERARŞHERB; MERA). Floristic identification of unidentified plant samples belonging to *Asteraceae*, *Fabaceae* and *Lamiaceae* families were made in MERA. The importance of herbariums, which are the source for many areas, have been mentioned. The number of taxa and herbarium links of some important international herbarium are given. The samples of the plants collected in various years and located on the newspaper were identified. Plant samples are adhered to herbarium techniques and label information has been written and put into herbarium cabinets. Plant samples were then identified. The scientific name, location and collector name of the diagnosed plants, the herbarium number, if any, habitat and elevation information are given. Family and taxon listing process is written in alphabetical order. A total of 465 plant specimens were identified. Located in the herbarium; 178 plant specimens belonging to *Asteraceae* family, 98 plant belonging to *Fabaceae* family and 189 plant belonging to *Lamiaceae* family were identified. In plant identification; ten volumes of the book, edited by P.H.Davis, and the eleventh volume of the local edition, "Flora of Turkey and The Aegean Islands", were used.

The identified taxa were compared with the same plant samples found in the international virtual herbarium and each taxa was given a link to the image of the international virtual herbarium.

As a result of this study, 82 taxa (10 taxa endemic) belonging to 42 genera from *Asteraceae* family, 47 taxa (1 taxa endemic) belonging to 19 genera from *Fabaceae* family, 85 taxa (14 taxa endemic) belonging to 23 genera from *Lamiaceae* family; 83 genera from 3 families 214 taxa belonging to the genus were identified. Endemism rate of the identified taxa is 11.57% (25 taxa).

Keywords: Anamur, Flora, Herbarium, Mersin, Turkey

EVRİM BİLİMİ, TEMEL BİLİMLER VE MATEMATİK ARASINDAKİ TANIMLAR VE İLİŞKİLERE YENİ BİR YAKLAŞIM

A NEW APPROACH TO THE DEFINITIONS AND RELATIONSHIPS BETWEEN EVOLUTION SCIENCE, BASIC SCIENCES AND MATHEMATICS

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Özet

Literatürde de bilim, matematik, evrim, evrim teorisi ve evrim bilimi hakkında pek çok bilgi ve kavram yanılgısı bulunmaktadır. Ancak bu kavramların tanımları ve aralarındaki ilişkiler hakkında düzenli ve yeterli bilgi bulunmamaktadır. Bu kafa karıştırıcı nedenler beni bu araştırmayı yöneltti. Bilim, matematik, evrim, yaratık, varlık ve bilgelik kavramları arasındaki ilişkilerle ilgili bilgilerimiz, kavram yanılgıları ve kafa karışıklığı içinde görünmektedir. Bunları netleştirmek için literatür kaynaklarından dikkatle bu kavramların tanımları ve ilişkileri incelenmiştir. Bu temel kavramların özgün tanımları ve ilişkileri doğru yapılmadığı için kavramlar yanlış anlaşılmalara neden olmuştur. Tıpkı Hücre, Hücre Teorisi ve Hücre Biliminin açık ve doğru tanımları olduğu gibi. Evrimle ilgili kavramlarda da aynı mantık yürütüldü ve kullanıldı. Bazı kavramların birden fazla doğru tanımı olabilir. Eğitime katkı sağlamak için bu kavramların yeni özgün tanımları ve ilişkileri önerilmiştir. Matematik: bilimdeki tüm bilgileri, olayları, olguları, süreçleri, yaratıkları ve ilişkileri semboller, yazılar, denklemler, kümeler ve şekillerle ifade eden bilimin ana yüzüdür. Hiçbir bilim dalı matematik olmadan çalışamaz. Bilimi bir beden olarak kabul edersek, matematik kalbi gibidir. Ancak matematik, diğer disiplinlere ihtiyaç duymadan tek başına çalışabilir. Dolayısıyla matematik, bilimin kalbi ve diğer tüm bilim dallarının toplamının ortak paydası gibidir. Bu mantıktan hareketle matematik dışındaki tüm bilim dalları bilimin doğal, kültürel ve yaşamsal ara yüzünü oluşturur. Bilimin evrimsel ara yüzü, bilimdeki tüm değişikliklerin gerçek hayat hikâyesini ifade eder Matematik, evrim ve bilimin konumları, tanımları ve ilişkilerinin ortak paydası nedir? Varlık ve yaratık kavramları ile bilim, matematik, evrim ve bilgelik kavramları arasındaki ilişkiler nelerdir? Bu soruların cevapları problem cümlelerimizin çözümü olmuştur.

Anahtar Kelimeler: Doğa Bilimleri; Sosyal bilim; Evrim Bilimi; Matematik

Abstract

In the literature, there is also a lot of information and misconceptions about science, mathematics, evolution, the theory of evolution, and the science of evolution. However, there is no tidy and sufficient information about the definitions, and relationships between these concepts. These confusing reasons led me to do this research. Our information about the relationships between the concepts of science, mathematics, evolution, creature, being and wisdom seems to have misconceptions and confusion. To clarify these, the definitions and relations of these concepts carefully studied from literature sources. Since the original definitions and relationships of these basic concepts were not made correctly, the concepts

caused misunderstandings. Just as there are clear and accurate definitions of Cell, Cell Theory and Cell Science. The same logic carried out and used in concepts related to evolution. Some concepts may have more than one correct definition. New original definitions and relationships of these concepts have been proposed to contribute to education. Math is the main face of science that expresses all the knowledge, events, facts, processes, creatures and relationships in science with symbols, writing, equations, sets and shapes. No branch of science can work without mathematics. If we accept science as a body, math is like its heart. However, mathematics can work alone without the need for other disciplines. Therefore, mathematics is like the heart of science and the common denominator of the sum of all other branches of science. Based on this logic, all branches of science except mathematics constitute the natural, cultural and life interface of science. The evolutionary interface of science expresses the real-life story of all the changes in science. What is the common denominator of the positions, definitions and relationships of mathematics, evolution and science? What are the relationships between the concepts of being and creature and science, mathematics, evolution and wisdom? The answers to these questions has been the solution to our problem sentences.

Keywords: Natural Sciences; Social Science; Evolution Science; Mathematics

COVİD-19 PANDEMİ SÜRECİNDE HEMŞİRELERDE KİŞİSEL KORUYUCU EKİPMAN KULLANIMI NEDENİYLE GELİŞEN SAĞLIKLA İLİŞKİLİ SORUNLARIN BELİRLENMESİ

DETERMINATION OF HEALTH-RELATED PROBLEMS DEVELOPED DUE TO THE USE OF PERSONAL PROTECTIVE EQUIPMENT IN NURSES DURING THE COVID-19 PANDEMIC PROCESS

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Özet

Bu çalışma hemşirelerin Covid-19 pandemi sürecinde kişisel koruyucu ekipman kullanımı nedeniyle yaşadıkları sağlıkla ilişkili sorunların belirlenmesi amacıyla yapılmıştır.

Tanımlayıcı tipte olan bu araştırma, iki farklı ildeki üç farklı hastanede ve birinci basamakta filyasyon ekiplerinde görev yapmakta olan hemşirelerle Haziran-Ağustos 2021 tarihleri yürütülmüştür.

Hemşirelerin, Covid-19 şüpheli veya doğrulanmış hastalarla toplam çalışma sürelerinin ortalama 9.79±5.75 ay, günlük ortalama çalışma sürelerinin 8.53±5.88 saat, kişisel koruyucu ekipmanı aralıksız ortalama kullanım sürelerinin ise 3.87±3.86 saat olduğu belirlenmiştir. Hemşirelerin %93.4'ünün kişisel koruyucu ekipman kullanımı ile ilgili eğitim aldıkları, %58.3'ünün ekipmanlarda kalite sorunu olduğunu düşündükleri ve %61'inin koruyucu ekipman kullanırken sıvı alımında kısıtlamaya gittikleri belirlenmiştir. Hemşirelerin %48.2'sinde basınç yaraları oluştuğu, %84.6'sında aşırı terleme, %44.3'ünde hipertermi ve %52.6'sında dehidratasyon sorunu yaşandığı saptanmıştır. Ayrıca eldiven kullanımına bağlı %64.9'unda lateks alerjisi, maske kullanımına bağlı %82'sinde kulak kepçesinde ağrı/deformasyon ve %89'unda baş ağrısı yaşandığı belirlenmiştir.

Sonuç olarak, bu çalışmada hemşirelerin büyük çoğunluğunun kişisel koruyucu ekipman kullanımına bağlı sağlık sorunları yaşadıkları ve yarısından fazlasının ekipmanları kalitesiz bulduğu saptanmıştır. Tüm sağlık kuruluşlarının kaliteli koruyucu ekipman temin etmeleri, benzer çalışmaların farklı sağlık kuruluşlarında ve daha büyük gruplarda yapılması önerilmektedir.

Anahtar Kelimeler: Covid-19, Filyasyon, Hemşire, Kişisel koruyucu ekipman.

Abstract

This study was conducted to determine the health-related problems experienced by nurses due to the use of personal protective equipment during the Covid-19 pandemic process.

This descriptive study was conducted between June-August 2021 with nurses working in three different hospitals in two different cities and in the filiation teams.

It was determined that the total working time of the nurses was 9.79±5.75 months with suspected or confirmed Covid-19 patients, and the average daily working time was 8.53±5.88 hours. The mean duration of continuous use of personal protective equipment was determined to be 3.87±3.86 hours. It was determined that 93.4% of the nurses received training on the use of personal protective equipment, 58.3% thought that there was a quality problem in the equipment, and 61% of them restricted their fluid intake while using protective equipment. It was determined that 48.2% of the nurses had pressure sores, 84.6% had excessive sweating, 44.3% had hyperthermia, and 52.6% had dehydration. In addition, it was determined that 64.9% of them experienced latex allergy due to the use of gloves, 82% of them experienced pain/deformation in the auricle and 89% of them had headache due to the use of masks.

In conclusion, in this study, it was determined that the majority of nurses experienced health problems related to the use of personal protective equipment and more than half of them found the equipment of poor quality. It is recommended that all health institutions provide quality protective equipment, and that similar studies should be carried out in different health institutions and in larger groups.

Keywords: Covid-19, Filiation, Nurse, Personal protective equipment.

BOUNDS FOR THE SPECTRAL NORMS OF GEOMETRIC AND R-CIRCULANT MATRICES WITH BI-PERIODIC JACOBSTHAL LUCAS NUMBERS

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Abstract

The special integer sequences have many interpretations, representations and applications in distinct areas of mathematics. In literature, there are too many papers about the generalizations on special integer sequences. The bi-periodic sequence arises in a natural way in the study of continued fractions of quadratic irrationals and combinatorics on words or dynamical system theory. Circulant type matrices not only have many connections to problems in physics, geometry and numerical analysis, but also have important applications in various disciplines including signal and image processing, networks engineering, solving ordinary and partial differential equations. In this article we investigate the bounds of the spectral norms of r-circulant and geometric circulant matrices whose elements are the bi-periodic Jacobsthal-Lucas numbers. Then we denote some bounds for the spectral norms of Kronecker and Hadamard products of r-circulant matrices and geometric circulant matrices with bi-periodic Jacobsthal-Lucas numbers. The eigenvalues of r-circulant matrix with the bi-periodic Jacobsthal-Lucas are also given.

Keywords: bi-periodic Jacobsthal-Lucas numbers; geometric matrix ;circulant matrix; norm

AMS Classifications: 15A60; 11B39; 15B05.

EFFICIENTNET İLE ASFALT ÇATLAKLARININ BELİRLENMESİ

DETERMINATION OF ASPHALT PAVEMENT CRACKS WITH EFFICIENTNET

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Özet

Asfalt kaplama, ulusal altyapı sistemlerinin önemli bir parçasıdır. Ulaşım ile ilgili kurumlar asfalt kaplamanın etkin ve verimli bir şekilde kullanılması için bakım çizelgeleri, yaklaşımlar ve bütçeler oluşturmaktadır. Ulaşım altyapı sisteminde ortaya çıkan ve altyapının hizmet verebilirliğini etkileyen kusurlardan biri asfalt kaplama çatlaklarıdır. Asfalt kaplama çatlakları, yolun yapısal bozulmasının aynı zamanda yolun hizmet verebilirliği ve tasarım ömründeki azalmanın bir göstergesidir. Asfalt kaplama çatlakları, araçların aşırı yüklenmesi, olumsuz iklim-çevre koşulları ve asfalt altyapısının yorulması veya yaşlanmasından kaynaklanmaktadır. Asfalt kaplama çatlakları farklı şiddet seviyeleri, topoloji ve geometrik biçimlerde olabilir. Asfalt kaplamalarında meydana gelen çatlağın erken fark edilip onarılması asfalt kaplamalarının bakım maliyetini önemli ölçüde azaltmaktadır. Asfalt kaplama çatlakları sürüş güvenliğini olumsuz etkilediği gibi ekonomiyi de olumsuz olarak etkilemektedir. Bu yüzden asfalt kaplama çatlakları ile ilgili kesin ve zamanında bilgi kaplama bakımı için çok önemlidir. Asfalt kaplama çatlaklarının tespiti bilgi, tecrübe ve uzmanlığa dayalı mühendislik becerisi ve gözlemleriyle gerçekleştirilmektedir. Son yıllarda asfalt kaplama çatlaklarının tespit edilmesinde daha etkin ve ekonomik olan görüntü işleme teknikleri kullanılmaktadır. Önerilen çalışmada insan karar vermesine bağlı aynı zamanda mühendislik becerisi ve gözlem gerektiren, zaman alıcı olan asfalt kaplama çatlak tespitlerinin belirlenmesine yönelik görüntü işleme yöntemlerinden biri olan otomatik bir derin öğrenme modeli geliştirilmiştir. Derin öğrenme modellerinde özellik çıkarma işlemi geleneksel özellik çıkarma yöntemlerinden farklı olarak otomatik bir şekilde gerçekleştirilmektedir. Bu çalışmada asfalt kaplama çatlaklarına ait 600 görüntü en son çıkan derin öğrenme modeli olan EfficientNet ve VGG19 kullanılarak sınıflandırılmıştır. Her iki derin öğrenme modelinde %97'nin üzerinde doğruluk elde edilmiştir. Geliştirilen makine öğrenmesine dayalı derin öğrenme modelleri asfalt kaplama çatlaklarının belirlenmesinde önemli bir katkı sağlayacaktır.

Anahtar Kelimeler: Asfalt kaplama çatlakları, EfficientNet, Derin öğrenme.

Abstract

Asphalt pavement is an essential part of national infrastructure systems. Transport authorities of the countries establish maintenance schedules, approaches, and budgets for effective and efficient use of asphalt pavement. One of the defects that occur in the transportation infrastructure system and affect the serviceability of the infrastructure is asphalt pavement cracks. Asphalt pavement cracks resulting from vehicle overloading, adverse climatic-environmental conditions, and fatigue or aging of asphalt infrastructure indicate that the road structurally deteriorates and its serviceability and design life is reduced. Asphalt pavement

cracks can have different levels of severity, topology, and geometric shapes. Therefore, early detection and repair of cracks in asphalt pavements significantly reduce the maintenance costs of asphalt pavements. Asphalt pavement cracks not only negatively affect driving safety but also negatively affect the economy. That's why precise and timely information about asphalt pavement cracks is essential for pavement maintenance. Asphalt pavement cracks are detected with engineering skills and observations based on knowledge, experience, and expertise. More efficient and economic image processing techniques have been used to detect asphalt pavement cracks in recent years. In the proposed study, an automatic deep learning model, one of the image processing methods, has been developed to determine asphalt pavement crack detection. In deep learning models, feature extraction is performed automatically, unlike traditional feature extraction methods. In this study, 600 images of asphalt pavement cracks were classified using the latest deep learning model EfficientNet and VGG19. Over 97% accuracy was achieved in both deep learning models. The developed machine learning-based deep learning models will contribute to the determination of asphalt pavement cracks.

Keywords: Asphalt pavement cracks, EfficientNet, Deep learning.

A STUDY OF A NONLINEAR FOURTH-ORDER TWO POINT BOUNDARY VALUE PROBLEM

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Abstract

The deformation of an elastic beam in equilibrium state, whose two ends are simply supported, can be described by a fourth-order ordinary equation boundary value problem. Recently, the two-point and multi-point boundary value problems for fourth-order nonlinear differential equations have received much attention from many authors. Many authors have studied the beam equation under various boundary conditions and by using different approaches like nonlinear alternatives of Leray-Schauder, the fixed point theory, and the method of upper and lower solutions. The aim of this paper is to etablish some simple criteria for the existence of single positive solutions for the following boundary value problem

$$u^{(4)}(t) = \lambda a(t) f(u(t)), \quad t \in (0,1) \tag{1}$$

$$u(0) = u'(0) = u''(1) = u'''(1) = 0 \tag{2}$$

where λ is a positive parameter and $a:(0,1)\to[0,\infty)$ is continuous and may be singular at *t* = 0 *or* 1, $f:[0,\infty)\to[0,\infty)$ is continuous. Here, by a positive solution u^* of BVP (1) - (2), we mean a function u^* satisfies BVP (1) - (2) and $u^*(t)>0$, $0<t<1$. Therefore, our positive solutions are nontrivial ones.

Under various assumptions on function a and function f we establish intervals of the parameter λ which yield the existence of at least one positive solutions of the boundary value problem by using the well-known Krasnoselskii's fixed point theorem of cone expansion-compression type. To show the applicability of our results, we give an example.

Keywords: nonlinear fourth-order differential equation; Positive solutions; Cone; Krasnoselskii's fixed point theorem.

EFFECT OF THERMAL RADIATION AND CHEMICAL REACTION ON MHD FLOW OF BLOOD IN STRETCHING PERMEABLE VESSEL

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Abstract

In this paper theoretical analysis of blood flow in the presence of thermal radiation and chemical reaction under the influence of time dependent magnetic field intensity has been studied. The unsteady non linear partial differential equations of blood flow considers time dependent stretching velocity, the energy equation also accounts time dependent temperature of vessel wall and concentration equation includes time dependent blood concentration. The governing non linear partial differential equations of motion, energy and concentration are converted into ordinary differential equations using similarity transformations solved numerically by applying ode45. MATLAB code is used to analyze theoretical facts. The effect of physical parameters viz., permeability parameter, unsteadiness parameter, Prandtl number, Hartmann number, thermal radiation parameter, chemical reaction parameter and Schmidt number on flow variables viz., velocity of blood flow in vessel, temperature and concentration of blood has been analyzed and discussed graphically. From the simulation study the following important results are obtained: velocity of blood flow increases with both increment of permeability and unsteadiness parameter. Temperature of the blood increases in vessel wall as Prandtl number and Hartmann number increases. Concentration of the blood decreases as time dependent chemical reaction parameter and Schmidt number increases.

Keywords: Stretching velocity, similarity transformations, time dependent magnetic field intensity, thermal radiation, chemical reaction.

PROXIMATE COMPOSITION AND PHYSICO-CHEMICAL PROPERTIES OF TISSUE AND EXTRACTED OIL FROM *CLARIAS GARIEPINUS* AND *SYNODONTIS BUDGETTI* OBTAINED FROM KALGWAI DAM, JIGAWA STATE, NIGERIA

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Abstract

The tissue and oil extracted from *Clarias gariepinus* and *Synodontis budgetti* obtained from Kalgwai Dam located around Hadejia-Auyo area of Jigawa State, Nigeria were critically evaluated for proximate composition and physico-chemical parameters using modern analytical techniques. The oil was extracted from both fishes by solvent extraction method using n-Hexane. The mean values for the proximate composition were (%): moisture content (14.98) and (10.37), crude protein (40.40) and (54.60%) crude lipid (4.31%) and (2.530%), ash (4.510%) and (3.943%), crude fibre (1.623%) and (1.726%) and carbohydrate (33.860%) and (26.18%) for *Clarias gariepinus* and *Synodontis budgetti* respectively. There were significant difference in the moisture content, lipid, carbohydrate ash and protein contents between *Clarias gariepinus* and *Synodontis budgetti*, but no significant difference was observed in the fibre content. Heating is one of the most commonly used methods of food preparation in homes and industries. Both the chemical and physical characteristics were investigated within a temperature range of 25-200°C. At room temperature (25°C), the results revealed that the chemical characteristics as follows: free fatty acid (FFA) (4.460%) and (4.303%), iodine value (IV) (145.91mg) and (103.56mg). The physical parameters were: moisture content (MC) (3.533%) and (2.431%); density (0.908 gcm^{-3}) and (0.993gcm^{-3}) at room temperature. At elevated range of temperatures (150-200°C), there were corresponding changes in both chemical and physical parameters as follows: free fatty acid (4.636-5.023%) and (5.193-6.310%); moisture content (0.573-0.507%); density (0.682-0.534g/cm3) and (0.791-0.476g/cm3); iodine value (131.47-93.887mg), and (85.610-73.396mg). Based on these findings, the fish tissue and oil are suitable for human consumption. They are also suitable for industrial applications especially in food industry.

Keywords: Clarias gariepinus, Synodontis budgetti, proximate, physico-chemical properties

IMPACT OF THERMOPHORESIS AND BROWNIAN MOTION ON MHD FLOW OF CASSON NANOFLUID PAST A STRETCHING SHEET WITH CONVECTIVE BOUNDARY CONDITIONS

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Abstract

In this study, we analyzed the three-dimensional magnetohydrodynamic flow of Newtonian/non-Newtonian fluid past a stretching sheet in the presence of thermophoresis and Brownian motion effects. The flow governing equations of the physical model are transformed into dimensionless ordinary differential equations and further they are solved numerically via Runge-Kutta based shooting technique. The influence of dimensionless parameters on velocity, temperature and concentration profiles along with the friction factor, local Nusselt and Sherwood numbers are discussed with the aid of plots and tables. It is found that an increase in the stretching ratio parameter enhances the rate heat and mass transfer. Also, the rate heat and mass transfer in non-Newtonian fluid is moderately high than the Newtonian fluid.

Keywords: Newtonian and Non-Newtonian fluids, Thermophoresis, Brownian motion, Stretching sheet.

INFLUENCE OF VISCOUS DISSIPATION AND THERMAL RADIATION ON LIQUID THIN FILM FLOW OF DISSIPATIVE MAGNETIC-NANOFLUIDS OVER A STRETCHING SHEET WITH

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Abstract

In recent days, external magnetic fields are very effective to set the thermal and physical properties of magnetic-nanofluids and regulate the flow and heat transfer characteristics. The strength of the applied magnetic field affects the thermal conductivity of magnetic-nanofluids and makes it aeolotropic. With this incentive, we investigate the flow and heat transfer characteristics of electrically conducting liquid film flow of magnetic-nanofluids over a stretching sheet by considering the aligned magnetic field, variable heat source/sink, viscous dissipation and thermal radiation effects in account. For this study, we considered Fe_3O_4 and $CoFe_2O_4$ nanoparticles embedded in water. Numerical results are determined by adopting Runge-Kutta based shooting technique. Graphs are exhibited and explained for various parameters of interest. The influence of pertinent parameters on reduced local Nusselt number, friction factor, flow and heat transfer is discussed with the assistance of graphs and tables. It is found that aligned magnetic field regulates the momentum boundary layer and heat transfer rate. It is also observed that increasing the volume fraction of nanoparticles effectively enhances the thermal conductivity of Fe_3O_4-water nanofluid when compared with $CoFe_2O_4$-water nanofluid.

Keywords: film flow, inclined magnetic field, viscous dissipation, radiation, non-uniform heat source/sink.

IMPACT OF THERMAL RADIATION ON UNSTEADY FLOW OF MHD HYBRID NANOFLUID OVER A FLAT/SLANDERING SURFACE

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Abstract

The pivotal objective of this research is to address the boundary layer analysis of two-dimensional unsteady hybrid-nanofluid flow over a flat/slandering surface. Thermal radiation and magnetohydrodynamic analysis are featured in this work. Nonlinear differential equations representing flow expressions are numerically solved using Runge-Kutta-Fehlberg technique. Then, a complete discussion of the influences of the flow regime on several thermo fluidic parameters is presented. The outcome of the present study is that velocity field lines are grown due to the strengthening of unsteadiness parameter. The significant outcome of the current investigation is that increment in magnetic and nanoparticle volume fraction ϕ_1 parameters decline the skin friction. Furthermore, it is shown that when the radiation and nanoparticle volume fraction ϕ_1 are improved, the heat transfer rate triggers considerable evolution. The obtained results of this model closely match with those available in the literature as a limiting situation.

Keywords: Slandering stretching sheet, hybrid-nanofluid, thermal radiation, MHD, slip effects.

FARM FIELD SCHOOL (FFS) TRAINING METHODS FOR FARMERS: SOME RESEARCH IN MEKONG DELTA, VIETNAM

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Abstract

Farm Field School's farmer training has positively impacted farmers to access new knowledge in agricultural production. At the same time, FFS is also a model to strengthen farmers' critical production practices. The results of the FFS study in Vietnam have shown positive effects, from improving knowledge levels to applying techniques to field production. For the FFS used in Vietnam, specific principles, and features such as classes conducted at farmers' residences and technical tests are always designed in the course. From the FFS course, farmers have been able to access new science and technology, acquire new knowledge, and, more importantly, be empowered in production activities in the field.

Keywords: Farmer, FFS, impacts, training.

PRESERVICE TEACHERS' PERCEPTION ON ONLINE TEACHING PREPARATION IN A STATE UNIVERSITY

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Abstract

The effect of COVID-19 on various industries around the world cannot be overemphasized. Not only the government and industry in the Philippines are working hard to find solutions to long-term problems, but also the education sector, which has undergone unmatched disruptions at every level of education in the modern time. The research aimed to assess the perception of Preservice Teachers and Readiness on Online Teaching Preparation.

A descriptive-correlational study was used. It was participated by 38 preservice teachers of University of Science & Technology of Southern Philippines. To answer the problem stated for this study, the form used was a researcher-made questionnaires in which were floated via google form to ensure the safety of the participants on this pandemic. The analytical design used consisted of the following: statistical procedures such as chi-square, hypothesis testing, correlation, linear regression, frequency distribution, averages, standard deviation and percentages.

With all the variables taken, the results showed that there was a significant relationship in both demographic profile to readiness and preservice teachers' perception to the readiness of online teaching. Preservice teachers' ability to deploy 21st century skills in an online environment depends largely on their experience, knowledge, skills, and attitude toward these skills. Cooperating and supervising teachers as facilitators of educational reform, need to be proactive in advancing preservice teachers' preparation towards online teaching. As the data confirmed that the preservice teachers manifested an approaching readiness towards to technological and experiences. However, a need to strengthen the alignment of curriculum, pedagogy, and assessment between and among preservice teachers.

Keywords: Covid19; Online Teaching; Perception; Pre-Service Teachers; State University

A NUMERICAL SIMULATION OF SERPENTINE FLOW CHANNEL PEMFC PERFORMANCE

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Abstract

The polymer electrolyte membrane fuel cell (PEM-FC) is the best alternative source for energy production with limited emissions, high power density, and rapid start-up. Implementing the proper operating and design parameter is an influential criterion in determining membrane water content, water management, and cell performance. This study generated a complete 3D, isothermal, and single-phase model for a PEM-FC. The impact of anode humidification, cathode humidification, and landing width to channel width ratio (Lw/Cw) on cell performance was investigated. Numerical simulations were performed on a 2.6 cm^2 single serpentine flow-field arrangement with a CFD code linked to user-defined functions at different relative humidity levels. Here, the landing width to channel width ratio is changed as 0.5, 1, and 2 values to see the performance variation. The relative humidity of the hydrogen varies from 0% to 100%, while the relative humidity of the air is kept at 100%. On the other hand, the relative humidity of the air mixture varies from 0% to 100%, while the relative humidity of the hydrogen remains fixed at 100%. The local current density distribution, which plays a crucial role in determining cell performance, strongly depends on the membrane water content. It is not desired to use an external humidifier in automotive applications, so proper anode and cathode humidification, which significantly affects membrane hydration, is essential. Results show that the PEMFC performs better at higher current densities as the number of gas channels of the serpentine channel configuration increases, while the active area of the numerical model remains constant. Also, the effect of the cathode humidification on cell performance is less than anode humidification.

Keywords : PEM-FC, Computational Fluid Dynamics, Power Density, Cell Performance

MALATYA KUZEYDOĞUSU'NDA YÜZEYLEYEN GEÇ KRETASE YAŞLI PLUTONİK KAYAÇLARA AİT İLKSEL BULGULAR

PRIMARY FINDINGS OF LATE CRETACEOUS PLUTONIC ROCKS OUTCROPPING IN THE NORTHEAST OF MALATYA

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Özet

Bu çalışmada Malatya Kuzeydoğusu'nda yüzeyleyen Geç Kretase yaşlı plutonik kayaçlara ait arazi ve petrografik özellikleri sunulmuştur. Doğu Anadolu'da Geç Kretase yaşlı plutonik kayaçlar geniş alanlarda yaygın olarak yüzeylenmektedir. İncelenen bu kayaçlar Elazığ bölgesinde Elazığ Magmatitleri/Elazığ Magmatik Kompleksi/Yüksekova Karmaşığı olarak adlandırılmıştır. Çalışma alanında birimler Geç Kretase yaşlı İspendere Ofiyoliti, Geç Kretase yaşlı plutonik kayaçlar, Orta Eosen yaşlı Maden Karmaşığı ve daha genç yaşlı sedimanter kayaçlardan oluşmaktadır. Bölgede Orta Eosen yaşlı Maden Karmaşığı üzerine tektonik olan Geç Kretase yaşlı İspendere Ofiyoliti yerleşmiştir. Geç Kretase yaşlı plutonik kayaçları İspendere Ofiyoliti ile bazen tektonik bazen de intrusif dokanaklıdır. Malatya Kuzeydoğusu'ndaki yüzeyleyen plutonik kayaçlar granit, granodiyorit, diyorit, monzonit, tonalit ve gabro bileşimindedir. Çoğunlukla gabro-monzonit-diyorit-tonalitten oluşan plutonik kütleler granodiyorit-granit gibi kütleler tarafından kesilmiştir. İncelenen kayaçlar plajiyoklas, kuvars, hornblend, biyotit ve opak minerallerden oluşmaktadır. Plajiyoklaslar genellikle yarı özşekilli veya özşekilli formlarda prizmatik kristaller halindedir. Albit veya polisentetik ikizlenmeler göstermekle birlikte zonlanmalar görülmektedir. Bazı kristallerde özellikle merkezi kısımlarda alterasyonlar yaygındır. Kuvarslar özşekilsiz formlarda olup dalgalı sönmeleriyle karakteristiktir. Alkali feldispalarda çoğunlukla yarı özşekilli formlarda olup bazı örneklerde pertitleşme gözlenmektedir. Hornblendler prizmatik veya altıgen öz veya yarı özşekilli kristaller halindedir. Tek yönde açık yeşilden koyu yeşile değişen pleokroizma gösterirler. Biyotitler yarı veya özşekilli levhamsı kristaller halindedir. Paralel sönme özelliği göstermektedir. Kayaçlarda holokristalen, porfirik holokristalen, poiklitik ve grafik doku gözlenmektedir. İncelenen kayaçlarda karbonatlaşma ve epidotlaşma türü alterasyonlar yoğun olarak gözlenmektedir. Kayaçlarda gözlenen poikilitik ve grafik dokuları incelenen kayaçların oluşumunda fraksiyonel ayrımlaşmasının (FC) yanısıra magma karışımı gibi bir dizi magma odası işlemlerinin birlikte etkili olduğunu göstermektedir.

Anahtar Kelimeler: Malatya, Petrografi, Geç Kretase Plutonik Kayaçları

Abstract

In this study, field and petrographic features of the Late Cretaceous plutonic rocks outcropping in the Northeast of Malatya are presented. In Eastern Anatolia, Late Cretaceous plutonic rocks are widely exposed in large areas. These rocks were named as Elazig Magmatites/Elazig Magmatic Complex/Yuksekova Complex in Elazig region. The units in the study area consist of Late Cretaceous İspendere Ophiolite, Late Cretaceous plutonic rocks, Middle Eocene Maden Complex and younger sedimentary rocks. In the region, the Late Cretaceous İspendere Ophiolite was emplaced on the Middle Eocene Maden Complex, which is tectonic. Late Cretaceous plutonic rocks are sometimes tectonic and sometimes intrusive contact with the İspendere Ophiolite. The plutonic rocks outcropping in the northeast of Malatya consist of granite, granodiorite, diorite, monzonite, tonalite and gabbro. Plutonic rocks consisting mostly of gabbro-monzonite-diorite-tonalite were cut by granodiorite-granite. Plutonic rocks

consisting mostly of gabbro-monzonite-diorite-tonalite were cut by granodiorite-granite. The investigated rocks consist of plagioclase, quartz, hornblende, biotite and opaque minerals. Plagioclases are usually in subhedral or euhedral forms as prismatic crystals. It shows albite or polysynthetic twinning and zoning. Alterations are common in some crystals, especially in the central parts. Quartz is an anhedral form and is characterized by its undulatory extinction. Alkali feldspars are mostly in euhedral forms and some samples show perthitic textures. Hornblendes are in the form of prismatic or hexagonal, euhedral or subhedral crystals. They show pleochroism ranging from light green to dark green in a single nicol. Biotite is in the form of sub or euhedral plate-like crystals. It shows parallel extinction. Holocrystalline, porphyritic holocrystalline, poiklitic and graphic textures are observed in the rocks. Carbonatization and epidotization type alterations are observed intensively in the investigated rocks. The poikilitic and graphic textures observed in the rocks show that fractional differentiation (FC) as well as a series of magma chamber processes such as magma mixing are effective together in the formation of the studied rocks.

Keywords: Malatya, Petrography, Late Cretaceous Plutonic Rocks

GÜLÜMUŞAĞI (MALATYA/TÜRKİYE) ÇEVRESİNDE YÜZEYLEYEN EOSEN YAŞLI PLÜTONİK KAYAÇLARIN MİNERALOJİK VE PETROGRAFİK ÖZELLİKLERİ

MINERALOGICAL AND PETROGRAPHIC PROPERTIES OF THE EOCENE PLUTONIC ROCKS OUTCROPPING AROUND GÜLÜMÜSAĞI (MALATYA/TURKEY)

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Özet

Bu çalışmada, Gülümuşağı (Malatya) çevresinde yüzeyleyen Eosen yaşlı plütonik kayaçların mineralojik ve petrografik özellikleri incelenmiştir. İnceleme alanında yüzeyleyen birimler, Prekambriyen yaşlı gnays ve şistler, üst Paleozoyik yaşlı şistler, Paleozoyik-Mesozoyik yaşlı mermer ve yer yer şistler, alt-orta Eosen yaşlı Maden Karmaşığına ait volkanikler ve sedimanter kayaçlar, Eosen yaşlı plütonik kayaçlar, kırıntılılar ve karbonatlar ile temsil edilmektedir. İncelenen plütonik kayaçlar alt-orta Eosen yaşlı Maden Karmaşığına ait volkanikler ve sedimanter kayaçlar içerisine yerleşmiştir. Petrografik olarak incelenen plütonik kayaçlar, el örneklerinde grimsi ve siyahımsı renklerde, ince-orta ve çok iri taneli olup, diyorit bileşimli ve bunları kesen ince taneli, açık renkli granit bileşimli kayaçlar ile temsil edilmektedir. Diyoritler, felsik mineral olarak plajiyoklas, mafik mineral olarak amfibol ve opak minerallerden oluşurlar. Mikroskobik olarak plajiyoklas kristalleri, yarı özşekilli veya özşekilli, kısa veya uzun primatik kristaller halinde gözlenmektedir. Albit ve polisentetik ikizlenmeler yaygın olarak görülmekle birlikte, kayaçlarda gözlenen yoğun alterasyondan dolayı bazı kristallerde ikiz lamelleri net olarak gözlenememektedir. Amfiboller; çoğunlukla yarı özşekilli, prizmatik veya altıngen kristaller halinde olup, tek nikolde gözlenen yeşil pleokroizmaları ve çift nikolde canlı girişim renkleri ile karakteristiktir. Bazı kristallerde tremolit-aktinolit minerallerine dönüşümler gözlenmiştir. İncelenen diyoritler genel olarak holokristalen doku ve porfirik holokristalen doku sergilemektedir. Bu kayaçlar; plajiyoklas fenokristallerinde elek dokusu ve kemirilme dokusu gibi dengesizlik dokuları içermektedir. Açık renkli granitler, ana mineral olarak kuvars, plajiyoklas ve K-feldispat, mafik mineral olarak amfibol ve opak mineral içeriğine sahiptir. Alterasyon diyoritlere oranla daha az olarak gözlenmektedir. Kuvarslar; beyaz-grimsi tonlarda özşekilsiz kristaller halindedir. K-feldispat kristalleri içerisinde plajiyoklaslar kapantılar şeklinde gözlenmiştir. Bu kayaçlar dokusal olarak holokristalen doku, porfirik holokristalen doku ve poiklitik doku sergilemektedir. Kayaçlarda görülen poiklitik dokular magma karışım süreçlerine işaret etmektedir.

Anahtar Kelimeler: Petrografi, Gülümuşağı, Malatya.

Abstract

In this study, mineralogical and petrographic properties of the Eocene plutonic rocks cropping out around Gülümüşağı (Malatya/Turkey) were investigated. The units cropping out in the study area are represented by Precambrian gneiss and schists, late Paleozoic schists, Paleozoic-Mesozoic marbles and locally schists, lower-middle Eocene volcanics and sedimentary rocks of the Maden Complex, Eocene plutonic rocks, clastics and carbonates. The studied plutonic rocks were emplaced within the volcanic and sedimentary rocks of the lower-middle Eocene Maden Complex. The plutonic rocks examined petrographically are grayish and blackish in color, fine-medium and very coarse-grained in hand samples, with diorite composition and are represented by fine-grained, light-colored granite composition rocks. Felsic mineral assemblage

of diorite is characterised by plagioclase, and mafic mineral assemblage is dominated by amphibole and opaque minerals. Microscopically, plagioclase crystals are observed as subhedral or euhedral, short or long primatic crystals. Although albite and polysynthetic twinning are common, twinning lamellae cannot be clearly observed in some crystals due to the intense alteration observed in the rocks. Amphiboles; It is mostly in the form of subhedral, prismatic or hexagonal crystals, characterized by green pleochroism in single nicol and vivid interference colors in double nicol. Conversions to tremolite-actinolite minerals were observed in some crystals. Diorites examined generally show holocrystalline texture and porphyritic holocrystalline texture. These rocks; plagioclase phenocrysts contain imbalance textures such as sieve texture and gnawing texture. Light colored granites have quartz, plagioclase and K-feldspar as main minerals, amphibole and opaque mineral content as mafic minerals. Alteration is observed less frequently than diorites. Quartz; It is in the form of anhedral crystals in white-grayish tones. Plagioclases were observed as inclusions in K-feldspar crystals. These rocks texturally display holocrystalline texture, porphyritic holocrystalline texture and poiklitic texture. The poiklitic textures seen in the rocks indicate magma mixing processes.

Keywords: Petrography, Gülümuşağı, Malatya.

Allium guttatum subsp. *sardoum* BİTKİSİNİN BİYOAKTİF MOLEKÜLLERİNİN VE ENZİM İNHİBİTÖR ETKİLERİNİN ARAŞTIRILMASI

INVESTIGATION OF BIOACTIVE MOLECULES AND ENZYME INHIBITORY EFFECTS OF *Allium guttatum* subsp. *sardoum*

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Özet

Birçok *Allium* türü, önemli nutrasötik içerikleri ve besin değerleri nedeniyle eski çağlardan beri sebze, baharat ve doğal tedavi edici olarak kullanılmaktadır. Mevcut çalışmada, akne, siğil tedavisi ve solunum yolu hastalıkları gibi geleneksel tıpta kullanılan *Allium guttatum* subsp. *sardoum* türü fitokimyasal profili ve enzim inhibitör aktiviteleri açısından araştırılmıştır. Fenolik bileşikler, bitkilerdeki sekonder metabolitlerin en büyük gruplarından biridir ve çeşitli enzimlere karşı inhibitör moleküllerdir. Bu türün soğan, gövde ve çiçek kısımlarında toplam fenolik ve flavonoid içerikleri spektrofotometrik olarak belirlenmiş ve yirmi altı adet biyoaktif fenolik bileşiğin LC-ESI-MS/MS ile miktar tayini gerçekleştirilmiştir. Toplam fenolik ve flavonoid içerikleri (sırasıyla 25.17 mg GAE/g, 3.42 mg QE/g ekstre) bakımından soğan ekstresi en zengin örnek olarak bulunmuştur. Tüm ekstrelerin içinde, fenolik asit yapısına sahip olan moleküller diğer fenolik bileşiklere göre daha yüksek konsantrasyonlarda tespit edilmiştir. Fenolik asit olarak *p*-kumarik asit bileşiği (1101.4 µg/gram ekstre) çiçek kısımlarının içinde ve flavonoid olarak kemferol bileşiği (104.0 µg/gram ekstre) gövde kısımlarının içinde majör bileşiklerdi. Örneklerin asetilkolinesteraz, butirilkolinesteraz ve tirozinaz enzimlerine karşı inhibe edici potansiyelleri, 96 kuyucuklu bir mikroplaka okuyucu kullanılarak gerçekleştirilmiştir. Numunelerin kolinesteraz inhibe edici aktiviteleri, modifiye edilmiş Ellman yöntemine göre gerçekleştirildi ve ekstreler, asetilkolinesteraz için 26.54 ile 38.81 µg/mL (IC_{50}) arasında, butirilkolinesteraz için 19.32 ile 36.11 µg/mL (IC_{50}) arasında değişen önemli inhibe edici aktiviteler sergiledi. Örneklerin antitirozinaz aktivitesinin belirlenmesi amacıyla modifiye edilmiş dopakrom yöntemi uygulandı ve örneklerin IC_{50} değerleri 56.50 ile 208.97 µg/mL arasında değişti. Sonuç olarak, *Allium guttatum* subsp. *sardoum* bitkisinin üç farklı kısmının karşılaştırmalı olarak araştırıldığı bu çalışmada, bu türün biyoaktif molekülleri ve enzim inhibitör aktiviteleri nedeniyle terapötik doğal ürün olma potansiyeline sahip olduğu ortaya konmuştur.

Anahtar Kelimeler: *Allium* türleri, fenolik bileşikler, antikolinesteraz aktivite, antitirozinaz aktivite

Abstract

Many *Allium* species have been used since ancient times as vegetables, spices and natural therapeutics owing to their significant nutraceutical contents and nutritional values. *Allium guttatum* subsp. *sardoum* which is traditionally used in medicine such as acne, warts treatment and respiratory tract diseases, was investigated in terms of phytochemical profile and enzyme inhibitory activities in the present study. Phenolic compounds are one of the biggest groups of secondary metabolites in plants and are inhibitor molecules against several enzymes. In the bulb, stem, and flower parts of species, the total phenolic and flavonoid contents were determined spectrophotometrically and twenty-six bioactive phenolic compounds were quantified by LC-ESI-MS/MS. Bulb extract was found to be the most rich sample in total phenolic and flavonoid contents (25.17 mg GAE/g, 3.42 mg QE/g extract, respectively).

Molecules with the phenolic acid structure were detected in higher concentrations than the other phenolic compounds, for all extracts. *p*-Coumaric acid (1101.4 μg/gram extract) in the flower parts as phenolic acid and kaempferol (104.0 μg/ gram extract) in the stem parts as flavonoid were the major compounds. The inhibitory potentials of samples against acetylcholinesterase, butyrylcholinesterase and tyrosinase were performed using a 96-well microplate reader. Cholinesterase inhibitory activities of samples were performed according to the modified Ellman method and extracts displayed significant inhibitory activities that ranged from 26.54 to 38.81 μg/mL (IC_{50}) for acetylcholinesterase, from 19.32 to 36.11 μg/mL (IC_{50}) for butyrylcholinesterase. The modified dopachrome method was applied for the purpose of determination of antityrosinase activity af samples and IC_{50} values varied from 56.50 to 208.97 μg/mL. Conclusively, this study, which investigated comparatively three different parts of *Allium guttatum* subsp. *sardoum*, presented that this species has the potential to be a therapeutic natural product due to its bioactive molecules and enzyme inhibitory activities.

Keywords: *Allium* species, phenolic compounds, anticholinesterase activity, antityrosinase activity.

EOSEN YAŞLI ÇALTI ve BİZMİŞEN PLÜTONLARI'NIN MİNERALOJİK ve PETROGRAFİK ÖZELLİKLERİ, KB KEMALİYE (ERZİNCAN, TÜRKİYE)

MINERALOGICAL and PETROGRAPHIC CHARACTERISTICS of EOCENE ÇALTI and BİZMİŞEN PLUTONS, NW KEMALİYE (ERZİNCAN, TURKEY)

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Özet

Bu çalışmada, Torid-Anatolid Platformu'nun doğusunda yer alan Çaltı ve Bizmişen Plütonları'nın mineralojik ve petrografik özellikleri incelenmiştir. İnceleme alanında Mesozoyik yaşlı karbonatlı kayaçlar, Kretase yaşlı ofiyolitik kayaçlar ve ofiyolitik melanj, Eosen yaşlı plütonik kayaçlar, Miyosen yaşlı volkanik kayaçlar ve Oligosen-Pliyosen yaşlı sedimanter birimler yer almaktadır. Üst Kretase ofiyolit melanjını kesen Eosen yaşlı Çaltı ve Bizmişen Plütonları, Erken Miyosen yaşlı Kemah Formasyonu'nun tortul kayaçları tarafından uyumsuz olarak örtülmektedir. Çaltı plütonik kayaçları petrografik olarak inceden iri taneliye kadar değişen boyutlarda granit, granodiyorit, kuvars diyorit ve tonalit bileşiminde olup içerisinde farklı boyut ve şekillerde mafik mikrogranüler anklavlar içermektedir. Birim farklı boyutlarda koyu renkli diyabaz daykları tarafından yer yer kesilmektedir. Bizmişen plütonik kayaçları orta taneli granit, granodiyorit ve kuvars diyoritlerle temsil edilmektedir. Özellikle granit ve granodiyorit bileşimindeki kayaçlarda farklı şekil ve boyutlarda mafik mikrogranüler anklavlar görülmektedir. Çaltı ve Bizmişen plütonik kayaçlarının mineral parajenezleri plajiyoklas, K-feldispat, kuvars, hornblend, biyotit ve opak minerallerden oluşmaktadır. Genel olarak prizmatik yarı özşekilli veya özşekilli kristaller şeklinde gözlenen plajiyoklaslar, albit, albit+karlsbat ve polisentetik ikizlenmeleriyle karakteristiktir. Bazı plajiyoklas kristallerinde zonlanma görülmekle birlikte alterasyonun olduğu örneklerde ikiz lamelleri net olarak gözlenememektedir. Bazı plajiyoklas kristallerinde dengesiz kristallenmeyi ifade eden kemirilme ve elek dokuları görülmektedir. K-feldispatlar genel olarak özşekilsiz kristaller halinde olup, K-feldispatların içerisinde hornblend, plajiyoklas ve kuvars mineralleri mineral kapantıları şeklinde bulunmaktadır. Özşekilsiz kristaller halinde görülen kuvarslar dalgalı sönme göstermektedir. Hornblendler özşekilli veya yarı özşekilli, prizmatik veya altıgen şekillerde görülmektedir. Bazı hornblend kristallerinde plajiyoklas mineral kapantıları mevcuttur. Biyotitler levhamsı-prizmatik özşekilli/yarı özşekilli kristaller halinde gözlenmektedir. İncelenen kayaçlar dokusal olarak holokristalen, porfirik holokristalen, poikilitik ve grafik dokuları sergilemektedir. Kayaçlarda görülen mafik mikrogranüler anklavların varlığı ve dokusal olarak poikilitik ve grafik dokuların görülmesi bu kayaçların oluşumunda magma karışımı süreçlerinin varlığına işaret etmektedir.

Anahtar Kelimeler: Çaltı Plütonu, Bizmişen Plütonu, Petrografi

Abstract

In this study, the mineralogical and petrographic characteristics of the Çaltı and Bizmişen Plutons located to the east of the Tauride-Anatolide Platform were investigated. The geological units are Mesozoic carbonate rocks, Cretaceous ophiolitic rocks and ophiolitic melange, Eocene plutonic rocks, Miocene volcanic rocks and Oligocene-Pliocene sedimentary rocks in the study area. The Eocene Çaltı and Bizmişen Plutons intruded the Upper Cretaceous ophiolite melange are unconformably overlain by sedimentary rocks of the Early Miocene Kemah Formation. The Çaltı Plutonic rocks are petrographically in the composition of granite, granodiorite, quartz

diorite and tonalite in sizes ranging from fine- to coarse-grained and contain mafic microgranular enclaves of different sizes and shapes. The unit is partially cut by dark-coloured diabase dykes of different sizes. The unit is partially cut by dark-colored diabase dykes of different sizes. The Bizmişen Plutonic rocks are represented by medium-grained granite, granodiorite and quartz diorites. Mafic microgranular enclaves of different shapes and sizes are seen mainly in rocks with granite and granodiorite composition. Mineral paragenesis of the Çaltı and Bizmişen plutonic rocks consists of plagioclase, K-feldspar, quartz, amphibole, biotite and opaque minerals. Plagioclases commonly observed as prismatic subhedral or euhedral crystals are characteristic with albite, albite+carlsbad and polysynthetic twinning. Although zoning is observed in some plagioclase crystals, twin lamellae cannot be clearly observed in samples with alteration. In some plagioclase crystals, embayed and sieve textures expressing disequilibrium crystallization are observed. K-feldspars are generally in the form of anhedral crystals, and hornblende, plagioclase and quartz minerals are found in the K-feldspars as mineral inclusions. Quartz minerals, which is seen as anhedral crystal, shows wavy extinction. Hornblend minerals occur in euhedral or subhedral, prismatic or hexagonal shapes. Plagioclase mineral inclusions are present in some hornblende crystals. Biotites are observed as micaceous-prismatic euhedral/subhedral crystals. The investigated rocks texturally display holocrystalline, porphyric holocrystalline, poikilitic and graphic textures. The presence of mafic microgranular enclaves in the rocks and the texturally poikilitic and graphic textures indicate the presence of magma mixing processes in the formation of these rocks.

Keywords: Çaltı Pluton, Bizmişen Pluton, Petrography

DİYABETTE *SCORZONERA CINEREA*'NIN BÖBREK FONKSİYON TEST PARAMETRELERİNE ETKİSİ

EFFECT OF *SCORZONERA CINEREA* ON KIDNEY FUNCTION TEST PARAMETERS IN DIABETES

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Özet

Son zamanlarda tıbbi ve yabani yenilebilir bitkiler, hem önemli bir besin kaynağı hem de çeşitli rahatsızlıklara doğal çareler sundukları için dikkatleri üzerine çekmiştir. Ayrıca, büyük ölçüde kompleks karbonhidratlar, mineral tuzlar, vitaminler ve polifenolik bileşiklerin varlığı nedeniyle besleyici ve diyetetik değere sahiptirler. Scorzonera türleri Avrupa, Çin, Tibet, Moğol ve Türk geleneksel ve halk tıbbında akciğer hastalıkları, soğuk algınlığı, ateş, mide-bağırsak rahatsızlıkları ve paraziter hastalıklara karşı, galaktagog ve iştah açıcı olarak, karaciğer ağrıları, apse, böbrek hastalıkları, romatizma ve şeker hastalığında kullanılmaktadır. Bu çalışma deneysel diyabette *Scorzonera cinerea*'nın (Sc) böbrek fonksiyon test parametreleri üzerine etkisini araştırmayı amaçlamaktadır.

Bu çalışmada 40 Wistar albino erkek sıçan 5 gruba (n=8) ayrıldı. Deneysel diyabet için 45 mg/kg bw *i.p* streptozosin (STZ) uygulandı. STZ uygulandıktan 3 gün sonra ≥200 mg/dL kan glukoza sahip olan sıçanlar diyabetik sayılmıştır. Kontrol grubuna sadece 1 mL sitrat tamponu *i.p*, Diyabet grubuna tek doz STZ, Diyabet+Sc Kuru grubu diyabetik sıçanlara hergün 100 mg/kg bw oral Sc kuru ekstraktı, Diyabet+Sc Donmuş grubu diyabetik sıçanlara hergün 100 mg/kg bw oral Sc donmuş ekstraktı, ve Diyabet+Akarboz grubu diyabetik sıçanlara hergün 50 mg/kg bw oral akarboz 21 gün boyunca uygulandı. Serumda böbrek fonksiyon testlerinden Na^+, K^+, Cl^-, P^+, Mg^+ elektrolit değerleri, kreatinin, üre ve total protein analizi yapıldı.

Diyabet grubunda kreatinin, üre, Na^+ ve albümin seviyeleri kontrol grubuna kıyasla istatistiksel olarak anlamlı yükseldi. Diğer taraftan Diyabet grubuna göre Sc-Kuru grubunda üre, K^+, P^+ ve albümin istatistiksel olarak anlamlı şekilde azaldığı görüldü. Ayrıca Diyabet grubuna göre Sc-Donmuş grubunda da üre, Na, K^+, P^+ ve albümin seviyeleri istatistiksel olarak anlamlı şekilde azaldı (p<0.05). Ayrıca Mg^+ seviyesinin diyabet, Sc-Kuru, Sc-Donmuş ve Akarboz gruplarında kontrol grubuna göre anlamlı olarak azaldığı bulundu. Mg^+ seviyesi sadece Sc-Kuru grubunda diyabet grubuna göre anlamlı olarak yükseldiği tespit edildi.

Sonuç olarak, diyabetik nefrotoksisiteden dolayı böbrek fonksiyonlarının bozulması sonucu, *Scorzonera cinera* ekstrakları uygulamasının böbrek fonksiyon test parametrelerinin iyileşmesine katkı sağlayabileceği görülmüştür. Tıbbi ve yenilebilir yabani bitkiler özellikle diyabet gibi pek çok hastalıkta terapötik etkiler sunarak doku patafizyolojilerinin düzeltilmesinde etkili olabilirler.

Anahtar Kelimeler: Diabetes Mellitus, Nefrotoksisite, *Scorzonera cinerea*, Yabani yenilebilir bitkiler, Yemlik.

Abstract

Recently, medicinal and wild edible plants have attracted attention as they offer both an important source of nutrients and natural remedies for various ailments. They also have nutritional and dietetic value, largely due to the presence of complex carbohydrates, mineral salts, vitamins and polyphenolic compounds. Scorzonera species are used in European, Chinese, Tibetan, Mongolian and Turkish traditional and folk medicine is used against lung diseases, colds, fever, gastrointestinal disorders and parasitic diseases, as galactagogue and appetizer, liver pain, abscess, kidney diseases, rheumatism and diabetes. This study aims to investigate the effect of *Scorzonera cinerea* (Sc) on renal function test parameters in experimental diabetes.

In this study, 40 Wistar albino male rats were divided into 5 groups (n=8). To create experimental diabetes, 45 mg/kg bw *i.p* streptozocin (STZ) was administered to the rats. Rats with blood glucose of ≥200 mg/dL 3 days after STZ administration were considered diabetic. Control group was given 1 mL citrate buffer *i.p* only. Diabetic group was administered single dose STZ i.p. Diabetic+Sc-Dried group where diabetic rats was treated daily with 100 mg/kg bw of Sc dry extract orally. Diabetic+Sc-Frozen group where diabetic rats was treated daily with 100 mg/kg bw of Sc frozen extract orally. Diabetic+Acarbose group where diabetic rats was treated daily with 50 mg/kg bw of acarbose orally. The expreriment continued for 21 days. Na^+, K^+, Cl^-, P^+, Mg^+ electrolyte values, creatinine, urea, and albumin analysis were performed in serum.

The creatinine, urea, Na^+ and albumin levels in the diabetes group significantly increased compared to the control group. On the other hand, urea, K^+, P^+ and albumin were significantly found to be decreased in the Sc-Dried group compared to the Diabetic group. In addition, urea, Na^+, K^+, P^+ and albumin levels were significantly decreased in the Sc-Frozen group in comparison to the Diabetic group (p<0.05). Mg^+ level was significantly found to be lower in Diabetic group, Sc-Dried, Sc-Frozen and Acarbose groups compared to the control group. However, it was determined that the Mg^+ level was significantly increased only in the Sc-Dried group compared to the Diabetic group.

As a result, it has been observed that the administration of *Scorzonera cinera* extracts may contribute to the improvement of renal function test parameters as a result of impaired renal function due to diabetic nephrotoxicity. Medicinal and wild edible plants can be effective in improving tissue pathophysiology by offering therapeutic effects in many diseases, especially diabetes.

Keywords: Diabetes Mellitus, Nephrotoxicity, *Scorzonera cinerea*, Wild edible plant, Yemlik.

PHOENIX DACTILIFERA L. SEED: AN ALTERNATIVE SOURCE OF EDIBLE OIL

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Abstract

The date palm (Phoenix dactylifera L.) grows in the world's arid and semi-arid regions, particularly in the majority of Middle Eastern countries. It has played an important role in the survival of many ancient civilizations. It is regarded as a valuable nutrient, but it also plays an important role in the economies of date-producing countries. Dates palm seeds are commonly described as waste after consuming their pulp by industries or individuals. However, date pits contain a valuable source of edible oil characterized by a high content of unsaturated fatty acids, sterols, tocopherols, and tocotrienols. It also possesses many valuable substances such as carbohydrates, dietary fiber, bioactive compounds, and natural antioxidants. The purpose of this research is to look into the extraction of palm seed oil as a low-cost feedstock for producing bio-oil. The yield ranged from 3% to 11% pertaining to variety. Gas chromatography coupled to mass spectroscopy (GC/MS) and high-performance liquid chromatography (HPLC) were used to determine the fatty acids, sterols, and tocols (tocopherols and tocotrienols) composition in the extracted oil. An important amount of unsaturated and poly-unsaturated fatty acids was detected in all studied seeds. Due to the high content of oleic and lauric acid date seed oil is considered as oleic-lauric type oil. Likewise, a high amount has been recorded in tocols. Indeed, alpha-tocotrienols and alpha-tocopherols were the predominant tocols in date seed oil. Also, the chemical parameters such as Iodine values (IV) and Saponification value (SV) of oils were used as indicators of the quality and safety, and oxidative status of consumable oils. The oils demonstrated a high oxidative and thermal stability. Regarding to its high content of MUFA and SFA date seed can be considered as Valuable source of neutraceutical and edible oil, It is also a rich source of tocol, with many different benefit According to the findings, date seed oil has the potential to be used in the food industry as a cheap alternative to palm olein.

Keywords: Chemical parameters; date seed oil; oxidative status; *Phoenix dactylifera L.*; tocopherols.

SODA-KİREÇ ATIK CAM İLAVESİNİN VİTRİFİYE SERAMİK ÖZELLİKLERİNE ETKİLERİ

EFFECTS OF SODA-LIME WASTE GLASS ADDITION ON THE PROPERTIES OF SANITARYWARE CERAMICS

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Özet

Bu çalışmada, şişe cam parçalarının geri kazanımasından elde edilen ağırlıkça %3, %5 ve % 8 soda kireç atık camını, kuvars ile yerdeğiştirecek şekilde içeren vitrifiye seramikler, 1100 °C pişirme sıcaklığı kullanılarak üretilmişlerdir. Soda-kireç atık camının vitrfiye seramiklerinin pişme küçülmesi, su emme, yoğunluk, sertlik ve eğme mukavemeti özelliklerine etkileri araştırılmıştır. Pişirme işleminden sonra seramiklerin mikro yapılarını araştırmak için SEM analizi yapılmıştır. Standart numuneye göre ağırlıkça %5 soda-kireç atık cam ilavesinden sonra seramiklerin su emme değerleri azalırken, ağırlıkça %8 cam atığı ilavesi ile sertlik değerleri yaklaşık 2,5 kat artmıştır.

Anahtar Kelimeler: Vitrifiye seramikler, Soda-kireç atık cam, Eğme mukavemeti, Sertlik

Abstract

In this study, sanitaryware ceramics containing 3wt.%, 5wt.% and 8 wt.% of soda-lime waste glass, from the recovery of bottle glass cullet, in partial repleacement of quartz were fabricated using the firing temperature of 1100˚C. The effects of soda-lime waste glass on firing shrinkage, water absorption, density, hardness and flexural strength properties of sanitaryware ceramics were investigated. SEM analysis was carried out to investigate the microstructures of ceramics after firing process. While the water absorption values of the ceramics were decreased after addition of 5 wt.% soda-lime waste glass, the hardness values were increased almost 2.5 times with the addition of 8 wt.% glass waste compared to the standard sample.

Keywords: Sanitaryware ceramics, Soda-lime waste glass, Flexural strength, Hardness

CRYPTOGRAPHY IS CHANGING THE PICTURE OF CLOUD COMPUTING

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Abstract

As we know that data is most important today, so we want our data to be safe. It cannot be damaged by any unauthorized means nor can any outsider make any changes on it. Before uploading data to cloud everyone wants to confirm that the data that person or any organization is uploading to cloud will be safe from unauthorized access. Hence the new term emerged, known as cloud cryptography, which assures the organization or user that the data will remain secure. Most cloud computing infrastructures do not having any protection system against untrusted cloud operators, which is a concern for all the organizations that want to store sensitive, confidential information and impactful business data. In today's time where cloud computing is expanding its scope, there are many cloud computing companies adopting cloud cryptography to meet demands and challenges related to the security of cloud. It is actually a combination of two different important technology, which is cloud computing and cryptography. Through this you can access all those cloud computing services as well as the organization can now be assured of the security of the data. It allows users to access all cloud services reliably as all data is protected using cryptography techniques. In cloud computing, efforts are made to strengthen the security of your data without compromising on the speed of data transfer, and availability of data. In this, general data is made incomprehensible, as well as we can limit the views of the transferred data. In this, first the plain data is changed to cipher data and it is transferred to the user in the form of cipher text itself and after going to the user with the help of key, data is converted back to plain text. Lot of work has done in cloud computing cryptography, but there is still a lot of research work going on so that our sensitive data in the cloud can be kept secure.

Keywords: Cloud computing, cryptography, key, data, cipher text, plain text

ANTALYA İLİ'NDEKİ TRAFİK KAZALARININ DESTEK VEKTÖR MAKİNELERİ İLE İNCELENMESİ

INVESTIGATION OF TRAFFIC ACCIDENTS IN ANTALYA PROVINCE WITH SUPPORT VECTOR MACHINES

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Özet

Ulaştırma sistemi, ileri teknolojilere dayanarak güvenli, etkili ve entegre bir ulaşım ortamı oluşturan sistemdir. Ulaştırma sisteminin önemli bir parçasını, trafik kazalarının olduğu yer, yol tipi, kaplama tipi, yol sınıfı, hava durumu, yol yüzeyi, aydınlatma ve yol işaretlerinin tespiti ile merkezi bir tesiste işlenmek üzere gerçek zamanlı trafik verilerin toplaması oluşturmaktadır. Destek vektör makineleri (SVM), iki ya da daha fazla sınıflı kategorik verilerin sınıflandırılmasında kullanılan en popüler denetimli makine öğrenme algoritmalarından biridir. Bir düzlem üzerindeki noktaları sınıf sayısı kadar gruba ayırmak için, grupların noktaları arasındaki uzaklığın maksimum yapılması prensibine dayanmaktadır. İki grup olması halinde iki grubu ayıran fonksiyona en yakın olan gözlemler arasındaki mesafenin maksimum olması amaçlanmaktadır. Son dönemlerde istatistiksel öğrenme teorisi içerisinde görüntü tanıma uygulamaları başta olmak üzere birçok uygulama alanına sahiptir. SVM algoritmasının temel prensibi, girdi olarak kullanılan vektörlerin veya veri setinin, doğrusal olarak veya doğrusal olmayan bir şekilde eşlenmesine dayanır. SVM, iyi genelleme yeteneği, yüksek tahmin doğruluğu, daha hızlı eğitim hızı gibi bazı özellikler nedeniyle oldukça popüler hale gelmiştir. SVM, küçük ve orta büyüklükteki örneklem ile çalışılması durumunda etkin sonuçlar sağlamaktadır. SVM'de doğrusal, polinom, radyal temel ve sigmoid olarak bulunan dört çekirdek fonksiyon türü bulunmaktadır. Bu çalışmada, yapay zeka yaklaşımlarından olan destek vektör makineleri (SVM) kullanılarak, Antalya İli'ndeki trafik kaza verilerinin analizi gerçekleştirilmiştir. Veri seti olarak 2012 ile 2016 yılları arasında Antalya ili ve ilçelerinde sonucu ölümlü ve yaralanmalı olarak gerçekleşen 2999 trafik kazası ele alınmıştır. Ele alınan SVM yöntemlerinin performansları çeşitli ölçütlere göre karşılaştırılmıştır. Sonuç olarak trafik kazalarının sınıflandırılmasında en yüksek doğrulukla sınıflandırma yapan yöntemin radyal temelli SVM olduğu tespit edilmiştir.

Anahtar Kelimeler: Trafik, Kaza, Sınıflandırma, Destek vektör makineleri.

Abstract

The transport system is that safe, effective and integrated transportation based on advanced technologies. The important part of the transportation system is the collection of real-time traffic data to be processed in a central facility with the detection of road type, coating type, road class, weather, road surface, lighting and road signs. Support vector machines (SVM) is one of the most popular supervised machine learning algorithms used in the classification of two or more classified data. To separate the points on a plane to the group as many as the

number of classes is based on the maximum distance between the points of the groups. In the event of two groups, it is aimed to be the maximum distance between observations that are closest to the function that separates two groups. Recently, there are many application areas, including image recognition practices in the statistical learning theory. The basic principle of the SVM algorithm is based on the vector of the vectors or data set used as input, linear or non-linear way. SVM has become very popular due to some features such as the ability to generalize, high forecast accuracy, faster training speed. SVM provides effective results if it is working with small and medium sample sizes. There are four kernel function types in SVM in linear, polynomial, radial base and sigmoid. In this study, the analysis of traffic accident data in Antalya province using support vector machines (SVM) from artificial intelligence approaches. As a data set, 2999 traffic accidents were discussed in Antalya province between 2012 to 2016. The performances of the SVM methods discussed were compared to various criteria. As a result, the method of classifying the highest accuracy in the classification of traffic accidents is radial-based SVM.

Keywords: Traffic, Accident, Classification, Support vector machines.

KATEGORİK VERİLER İÇİN ANOMALİ TESPİTİ

ANOMALY DETECTION FOR CATEGORICAL DATA

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Özet

Aykırı değerler bir veri seti içerisindeki verilerin çoğundan farklı yapıdaki gözlemlerdir. Aykırı değerler, farklı bir mekanizma tarafından üretildiğine dair şüphe uyandıracak kadar diğer gözlemlerden çok sapan bir gözlemlerdir. Gerçek hayat uygulamalarında nadir gözüken olaylardır. Bir veri tabanı için aykırı değer, olağan dışı kayıt anlamına gelmektedir. Günümüz uygulamalarında bir sisteme izinsiz girişlerin tespiti, sistemin olağan dışı arızası, nadir görülen bir hastalığın belirlenmesi, finansal dolandırıcılık durumunun tespiti gibi uygulamalar için kullanılmaktadır. Veri madenciliği başta olmak üzere istatistiksel öğrenme algoritmalarında ilk olarak aykırı değerlerin tespit edilmesi gerekmektedir. Aykırı değerler kullanılacak yöntemin geçerlilik ve güvenilirliğini azaltıcı bir etkiye sahiptir. Aykırı değerlerin tespiti, tüm istatistiksel analizlerde olduğu gibi verinin yapısına bağlı olarak iki sınıfa ayrılmaktadır. Çoğu aykırı değer tespit yöntemi sayısal veriler için geliştirilmiştir. Ancak veri tabanı uygulamalarının çoğunda kategorik veriler söz konusudur. Kategorik veriler için aykırı değerler anomali olarak adlandırılmaktadır. Ülkemizde trafik kazalarına bağlı ölümlerin oranı dünya ortalamasının çok üzerindedir. Bu nedenle trafik kazalarına sebep olan faktörlerin belirlenmesi konusu uygulanacak önlemlerin belirlenmesi için her dönem güncelliğini korumaktadır. Bu çalışmaların çoğunda kaza tutanaklarından yararlanılmaktadır. Karayolları trafik kaza veri tabanı kullanılarak yapılacak modelleme çalışmalarına başlamadan önce anomali tespiti yapılmalıdır. Bu çalışmada kategorik veri analizinde kullanılan anomali tespit yöntemlerinden AVF (Attribute Value Frequency) ve NAVF (Normally Distributed Attribute Value Frequency) yöntemleri ele alınmıştır. 2018 yılı Eskişehir ili merkezinde meydana gelen ölümlü ve yaralanmalı kazalar içerisindeki anomali gözlemler tespit edilmiştir.

Anahtar Kelimeler: Trafik kazaları, Anomaly Detection, Özellik Değer Frekansı, Normal Dağılımlı Özellik Değer Frekansı.

Abstract

Outliers are observations different from most of the data in a data set. The outliers are observations that are very deviating from other observations, enough to evoke the suspicion that it is generated by a different mechanism. In real-life practices, are rare events. The value for a database means unusual registration. In today's applications, the identification of unauthorized entries in a system is used for applications such as the unusual fault of the system, the determination of a rare disease, the determination of financial fraud. In statistical learning algorithms, especially data mining, the outliers must be determined. Outliers have a reducing effect on the validity and reliability of the method to be used. The detection of outliers is divided into two classes depending on the structure of the data as in all statistical analyzes. Most outlier

detection method has been developed for numeric data. However, most of the database applications are categorical data. Outliers for categorical data are called an anomaly. The ratio of deaths due to traffic accidents in our country is high above the world average. For this reason, it maintains each period to determine the measures to be applied with the determination of the factors that cause traffic accidents. In most of these studies, accident reports are used. Before you start the modelling studies using the traffic accident database, the anomaly should be determined. In this study, AVF (Attribute Value Frequency) and NAVF (Normally distributed Attribute Value Frequency) methods used in categorical data analysis were discussed. In 2018, anomalies in the mortal and injury accidents occurring in the centre of Eskişehir Province were determined.

Keywords: Traffic accidents, Anomaly detection, Attribute Value Frequency, Normally Distributed Attribute Value Frequency.

ASSESSMENT OF THE EFFECT OF METAL ARTEFACT ON THE ACCURACY OF CBCT LINEAR MEASUREMENTS IN DIFFERENT VOXEL RESOLUTIONS

METAL ARTEFAKTIN FARKLI VOKSEL ÇÖZÜNÜRLÜĞÜNDE ELDE EDİLEN KIBT GÖRÜNTÜLERİNDEKİ LİNEER ÖLÇÜM DOĞRULUĞUNA ETKİSİNİN DEĞERLENDİRİLMESİ

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Abstract

The aim of this study is to determine the effect of metal artefact in different voxel sizes on the linear accuracy of measurements made on Cone-Beam Computed Tomography (CBCT) images.

Two phantoms; one including 11 spherical balls (5 mm in diameter) and one including round metal plate (1mm in weight) in the center were scanned five times by CBCT (Planmeca, Promax 3D, Findland) with 0.40 mm. and 0.20 mm voxel sizes. The predetermined radiographic distance measurements were made by one observer. Lineer measurements accuracy between materials of phantoms were confirmed by using digital caliper by repeating five sessions. Measurement of the CBCT images was determined as the mean of the five measurements obtained in different times. Measurements were compared with gold standard and between each other. Measurements were compared with gold standard by using equal variance statics test.

CBCT measurements of round metal plate including phantom were consistent with the gold standard whereas no consistence was detected in phantom including spherical metal balls ($p \geq 0.05$). Measurement accuracy of 0.2 mm and 0.4 mm voxel sizes was not different between each other ($p \geq 0.05$) for the both phantom groups.

An increased voxel resolution had no effect on the accuracy of CBCT linear measurements. However, increasing number and weight of metal structure shows a distorting effect on measurement accuracy.

Keywords: Voxel; Linear Measurement; Cone Beam Computed Tomography; Metal Artefact.

Özet

Bu çalışmanın amacı, farklı voksel boyutlarındaki Konik Işınlı Bilgisayarlı Tomografi (KIBT) görüntülerinde yapılan lineer ölçümlerin doğruluğunda metal artefakt etkisinin belirlenmesidir.

5 mm çapında 11 adet metal top ve merkezinde 1mm kalınlığında metal plaka içeren iki farklı fantom, KIBT (Planmeca, Promax 3D, Finlandiya) cihazı ile 0,2 mm ve 0,4 mm voksel boyutlarında 5 seans tarandı. Önceden belirlenmiş radyografik mesafe ölçümleri tek bir gözlemci tarafından yapıldı. Fantomlardaki materyallerin lineer ölçüm doğruluğu, dijital kumpas ile 5 defa tekrarlanarak oluşturuldu. KIBT görüntülerinin ölçümleri farklı zamanda yapılan 5 ölçümün ortalaması olarak belirlendi. Ölçümler gold standart ve birbirleri ile kıyaslandı. Ölçümlerin gold standart ile karşılaştırılmasında varyansların eşitliği testi kullanıldı.

Yuvarlak metal plaka içeren fantomun KIBT ölçümleri gold standard ile uyumlu olarak izlenirken bu uyum yuvarlak metal bilyeler içeren diğer fantomda yakalanamamıştır ($p \geq 0.05$). Her iki fantomda da, 0.2 mm ve 0.4 mm voksel boyutlarındaki ölçüm doğruluğu birbirinden farklı izlenmemiştir ($p \geq 0.05$).

Artan voksel çözünürlüğü KIBT görüntüleri üzerindeki lineer ölçüm doğruluğunu ekilememiştir. Ancak, metal yapıların sayı ve kalınlığının artması ölçüm doğruluğunu bozucu etki göstermektedir.

Anahtar Kelimeler: Voksel, Lineer ölçüm, Konik Işınlı Bilgisayarlı Tomografi, Metal Artefakt

BURULMAYA MARUZ ALIN EĞRİSEL BORU BİNDİRME BAĞLANTILARININ MEKANİK ÖZELLİKLERİNİN İNCELENMESİ

INVESTIGATION OF MECHANICAL PROPERTIES OF PIPES WITH BUTT CURVED LAP JOINTS SUBJECTED TO TORSION

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Özet

Bu çalışmada akrilik yapısal yapıştırıcı (DP-810) ile birleştirilmiş çelik boru bağlantılarında, farklı bindirme uzunlukları ve eğrisel yarıçapları göz önünde bulundurularak burulma altındaki mekanik özellikleri incelenmiştir. Bunun için ØD = 21.3 mm dış, Ød =15.9 mm iç çaplı St-37 galvanizli çelik borular erkek ve dişi şeklinde 8, 10, 12 mm bindirme uzunluğunda ve alın bölgelerine 30, 40 ve 50 mm eğrisel yarıçaplar oluşturularak üç boyutlu olarak modellenmiştir. Oluşturulan modellerin nümerik analizleri ANSYS Workbench programında gerçekleştirilmiş olup, nümerik analizlerinin doğrulanması için ise bindirme uzunluğu 10 mm olan numuneler CNC (Computer Numerik Control) tezgâhında hazırlanmıştır. Hazırlanan erkek ve dişi numuneler, nemli ortamlara dayanıklı, oda sıcaklığında kürleşebilen 3M (Scotch–Weld) firmasının ürettiği akrilik esaslı DP810 yapısal yapıştırıcı kullanılarak birleştirilmiştir. Yapıştırılan numunelerin toplam boyu 160 mm olup yapıştırıcı kalınlığı ise 0,2 mm'dir. Numunelerin her iki ucuna test cihazına bağlantı yapılabilmesi için altıgen çelik çubuklar monte edilmiş ve cıvata bağlantısı ile sabitlenmiştir. Yapıştırma işleminden sonra hazırlanan numuneler ile Shimadzu AG – X marka ve model burulma cihazında doğrulama deneyleri yapılmıştır. Yapıştırıcı bölgesindeki gerilmeleri nümerik olarak karşılaştırmak için tüm numuneler 100 Nm sabit yükte burulmaya maruz bırakılmıştır. Yapıştırıcı ile birleştirilmiş çelik boruların yapışma bölgesindeki gerilme analizleri, bindirme uzunluğu ve eğrisellik yarıçapı gibi parametreler ile değerlendirilmiştir. Yapılan çalışma sonrası elde edilen nümerik ve deneysel veriler, aynı bindirme uzunluğunda fakat farklı eğrisel yarıçapında burulma momentine maruz boru bindirme bağlantılarının taşımış oldukları yük miktarında önemli ölçüde değiştiği göstermiştir. Ayrıca, bindirme uzunluğu arttıkça yapıştırıcı ile birleştirilmiş çelik boruların taşımış oldukları yük miktarının arttığı gözlenmiştir. Ayrıca, hasarlı yapıştırıcı bölgeleri incelendiğinde, hasarın yapıştırıcı iç kuvvetinden (Kohezyon) kaynaklandığı görülmüştür. Dahası, malzeme yüzeyi ile yapıştırıcı arasında ayrılmanın (Adhezyon) daha az olduğu görülmüştür.

Anahtar Kelimeler: Boru, Burulma, Yapısal yapıştırıcı, Eğrisel yüzeyli bağlantılar, Sonlu elemanlar

Abstract

In this study, the mechanical properties of steel pipe joints bonded with an acrylic adhesive under torsion were investigated, considering different overlap lengths and curvilinear radii. For this purpose, St-37 galvanized steel pipes with ØD = 21.3 mm outer and Ød = 15.9 mm inner diameters were modeled in three dimensions by creating 8, 10, 12 mm overlapping lengths in male and female form and 30, 40 and 50 mm curvilinear radii on the forehead regions. Numerical analyzes of the created models were carried out in the ANSYS Workbench program, and samples with an overlap length of 10 mm were prepared on the CNC (Computer Numerical Control) bench to verify the numerical analysis. Prepared male and female specimens were joined using acrylic-based DP810 structural adhesive produced by 3M (Scotch-Weld) firm, which is resistant to humid environments and can be cured at room temperature. The bonded samples have a total length of 160 mm and an adhesive thickness of 0.2 mm. Hexagonal steel bars were mounted on both ends of the samples to connect to the test device and fixed with bolts. Confirmation tests were carried out on the Shimadzu AG – X brand and model torsion device with the samples prepared after the bonding process. To compare the stresses in the adhesive zone numerically, all samples were subjected to torsion at a constant load of 100 Nm. Stress analyzes in the bonding region of adhesively bonded steel pipes were evaluated with parameters such as overlap length and radius of curvature. Numerical and experimental data obtained after the study showed that pipe lap joints subjected to torsional moment with the same lap length but different curvilinear radius vary significantly in the amount of load they carry. In addition, it was observed that the amount of load carried by the adhesive bonded steel pipes increased as the overlap length increased. In addition, when the damaged adhesive areas were examined, it was seen that the damage was caused by the adhesive internal strength (Cohesion). Moreover, it was observed that there was less separation (Adhesion) between the material surface and the adhesive.

Keywords: Pipe, Torsion, Structural adhesive, Curvilinear connections, Finite elements.

LOJİSTİK FAALİYETLER İÇİN DİNAMİK VE ESNEK ENTEGRASYON YÖNETİM PLATFORMUNUN GELİŞTİRİLMESİ

DEVELOPMENT OF A DYNAMIC AND FLEXIBLE INTEGRATION MANAGEMENT PLATFORM FOR LOGISTICS ACTIVITIES

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Özet

Lojistik sektöründe çeşitli proseslerin ve işlem süreçlerinin hatasız ve daha verimli bir şekilde işlemesi için dağıtım merkezleri, nakliyeciler, ulaştırma taşıyıcıları ve diğer endüstri firmalarının birbirleri ile iletişim kurması ve entegrasyon sağlaması kilit öneme sahiptir. İşletmeler arasındaki veri entegrasyonu hem büyüme hem de alt satırda performans için gereklidir. Ancak özellikle günümüzün giderek artan küresel realitesinde uygulamak ve sürdürmek zorlu, karmaşık ve masraflıdır. Buradan genel maliyetleri düşüren, aynı zamanda müşteriler ve ortaklar için iş performansını geliştiren, eşsiz bir entegrasyon yeteneği olan, yüksek teknoloji kullanımlı ve işletmenin söz konusu bu belirlenen ihtiyaçlarını en iyi şekilde karşılayabilecek yazılım modellerinin geliştirilmesi ihtiyacı ortaya çıkmaktadır. Son zamanlarda yapılan teknolojik gelişmeler ile internetin kullanım alanlarının yaygınlaşması; iletişim ve entegrasyon problemleri için düşük maliyetli yazılımsal çözümler geliştirilmesini mümkün kılmıştır.

Bu çalışmada Alışan Lojistik bünyesindeki tüm operasyon işlemlerinde ana veri yönetimi, sipariş bilgilerinin alınması, operasyon adımlarının ve durumlarının bildiriminin EDI (Electronic Data Interchange / Elektronik Veri Değişimi) servis alt yapıları ile yapılması ve online/offline şekilde çalışan sistemsel olarak iletişim kuracak sistemin geliştirilmesi amaçlanmıştır. Çalışma kapsamında aşağıdaki yazılım modülleri geliştirilmiştir:

1-Mal kabul

2-Depo içi hareketler

3-Envanter sayımı

4-Mal çıkış

Program yazılım dili olarak MS C# .net MVC ile birlikte destekleyici olarak Telerik Kendo ve database olarak Oracle kullanılmıştır. Ayrıca native script özellği ile ios ve android tabanlı cihazlarla uyumluluğu sağlanmıştır. Yazılım işlemleri sonrası sistem uyumluluk çalışmaları

için power user'lar belirlenerek testler gerçekleştirilmiştir. Uygulama süreçlerinde karşılaşılması muhtemel senaryolar oluşturularak özellikle veri ilişkisinin doğruluğu ve verinin doğru iletişimle çıkıp çıkmadığı kontrol edilmiştir. Farklı uygulama kullanan müşterilerden entegrasyon yapıları ve veri modelleri, geliştirilen dinamik entegrasyonda işlenip sonuçlar kontrol edilmiştir. Verinin doğru iletişimle çıkıp çıkmadığı kontrol edilmiştir.

Kontrol sonrasında geliştirilen sistemin operasyonlarda görev alan herkes tarafından etkin bir şekilde kullanılmaya başlanmıştır. Devreye alındıktan sonra depo müşterileri ile iletişime geçilmiş olup mal kabul, depo içi hareketler, envanter sayımı ve mal çıkış süreçlerinde dinamik entegrasyon yapısı kullanılmıştır. Sistem, yeni gelecek olan müşterilerin veya üçüncü şahısların sistemleri ile entegre olabilme ihtiyacını yönetmek için parametrik çalışabilmektedir. Ayrıca platform bağımsız olarak teknik yönetilebilirliği yüksek bir yapının kurulması ve güncel teknoloji ile sistemin sürekli gelişimi de sağlanmıştır.

Anahtar Kelimeler: Lojistik yazılımı, Entegrasyon, Elektronik Veri Değişimi.

Abstract

Communication and integration of distribution centers, forwarders, transport carriers and other industrial companies with each other have key importance for the correct and more efficient operation of various processes and operation processes in the logistics sector. Data integration between businesses is essential for both growth and bottom line performance. However, it is difficult, complex and costly to implement and maintain, especially in today's increasingly global reality. Thus, there is a need to develop software models that reduce overall costs, improve business performance for customers and partners, have a unique integration capability, use high technology, and meet these determined needs of the business in the best way. With the recent technological developments, the widespread use of the internet; It has made it possible to develop low-cost software solutions for communication and integration problems.

In this study, it was aimed to perform master data management, order information retrieval, notification of operation steps and status with EDI service infrastructure in all operations operations within the structure of Alışan Logistics and to develop a system that will communicate online/offline systemically. Within the scope of the study, the following software modules were developed:

1- Goods receiving

2- In-warehouse movements

3- Stocktaking

4- Goods issue

MS C# .net MVC as the program software language, Telerik Kendo as the support and Oracle as the database were used. In addition, compatibility with iOS and Android-based devices has been achieved with the native script feature. After software operations, power users were determined for system compatibility studies and tests were performed. Scenarios that are likely to be encountered in application processes have been created, in particular, the accuracy of the data relationship and whether the data comes out with the correct communication have been checked. Integration structures and data models from customers using different applications were processed and the results were checked in the dynamic integration developed. It was checked whether the data came out with the correct communication.

The system developed after the control has been used effectively by everyone involved in operations. After commissioning, the warehouse customers were contacted and the dynamic

integration structure was used in the processes of goods receiving, in-warehouse movements, stocktaking and goods issue. The system can work parametrically to manage the need to integrate with the systems of new customers or third parties. In addition, the establishment of a structure with high technical manageability independently of the platform and the continuous development of the system with up-to-date technology have also been achieved.

Keywords: Logistics software, Integration, Electronic Data Interchange.

KOBİLER İÇİN YAPAY ZEKA PLATFORMUNUN GELİŞTİRİLMESİ VE LASTİK TAKİBİ ÜZERİNDE UYGULANMASI

DEVELOPMENT OF ARTIFICIAL INTELLIGENCE PLATFORM FOR SMEs AND IMPLEMENTATION ON TIRE TRACKING

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Özet

Yapılan araştırmalar küresel anlamda firmaların müşterilerin özel taleplerini karşılaması, doğru ürünü doğru zamanda markete getirmesi, karlılıklarını artırma, maliyetlerini azaltma gibi stratejik faaliyetleri için makine öğrenimi ve yapay zeka tekniklerini kullandığını göstermiştir. Sektörde özellikle küçük ve orta ölçekli firmalar için bu eğitimi almış personellerden oluşan yapay zeka birimleri kurmak hem stratejik olarak hem maliyetleri artırma açısından pek tercih edilebilir olmamaktadır. Bu durumda küçük ve orta ölçekli firmalar rekabet avantajı açısından, yapay zeka destekli karar destek sistemlerini içselleştirmede SAP gibi firmaların ücretli servisleri ile ya da 3. parti firmalara yüksek ücretlerle yapabilmektedir. Buradan yapay zeka sistemleri dahil verilerin toplanılması, analiz edilmesi, yorumlanması, yeni özelliklerin çıkarılması ve birliktelik analizi, bütçe tahminlemesi gibi kendi sektörlerinde çok yaygın kullanılan modellerin geliştirilmesi ve uygulanabilmesini sağlayacak platformun gerekliliği ortaya çıkmaktadır.

Bu çalışmada bahsi geçen işlemleri yapabilmek için istatistik, matematik, yapay zeka modellemeleri ya da kod yazabilme gibi konularda alt yapı oluşturacak yapay zeka platformunun geliştirilmesi amaçlanmıştır. Platform temelde veriyi tanıma (ön işleme) ve sektöre özel makine öğrenimi modeli işletme olmak üzere 2 aşamadan oluşmaktadır. Veri tanıma aşamasında kayıp değerler için aksiyon belirleme, veri tipleri, korelasyon, varyans, aykırı değerler, kümeleme, sınıflandırma, veri dönüşümleri ya da önerileri gibi veri keşfinde kullanıcı yönlendirilir. Platform tarafından alternatif önerilerde bulunularak veri setinin içerisindeki öz nitelikler üzerinde kullanıcıya aksiyon aldırmayı hedefler. Veriyi tanıma sonrasında ilgili sektöre özel stratejik hedefe göre platforma dahil edilen modern makine öğrenmesi yöntemleri belirlenir ve kullanıcıya optimum makine öğrenmesi yöntemleri sunulur. Kullanıcının isteği doğrultusunda seçilen yöntem uygulanır.

Çalışmanın KOBİ'ler için fayda yaratabileceğini ve uygulanabilirliğini görmek adına lastik sektöründe uygulanması amaçlanmıştır. Platform lastik sektöründe uygulanarak değerlendirmelerin doğrulukları analiz edilmiş ve sonuçlar incelenmiştir. Lastik markası, ebadı, modeli, yaşı ve durum takibi başta filo operatörleri olmak üzere birçok araç kullanıcısı

için kritik öneme sahiptir. Bu veriler kullanılarak veri tanıma aşaması tamamlandıktan sonra Tensorflow, YoloV4, CNN, Opencv, DNN, PyTorch, Keras gibi derin öğrenme yöntemleri arasında en iyi doğruluk derecesine sahip model belirlenip o modele uygun en iyi parametreler ile modeli geliştirilerek kullanıcıya sunulmuştur. Modelin gerçek zamanlı, resim ve video üzerinde (hareket halindeki tekerlek) test edilmesi, yetersiz görüldüğü durumda veri çoğaltma, görüntü ön işleme, modelin güçlendirilmesi gibi işlemler yaparak doğruluk düzeyinin arttırılması sağlanmıştır.

Anahtar Kelimeler: Yapay zeka, makine öğrenmesi, görüntü işleme.

Abstract

Research has shown that global companies use machine learning and artificial intelligence techniques for strategic activities such as meeting the special demands of customers, bringing the right product to the market at the right time, increasing their profitability and reducing their costs. In this sector, especially for small and medium-sized companies, it is not very preferable to establish artificial intelligence units consisting of staff with this training both strategically and in terms of increasing costs. In this case, small and medium-sized companies can internalize artificial intelligence (supported decision support systems) with paid services of companies such as SAP or with high fees to 3rd party companies in terms of competitive advantage. Therefore, the necessity of a platform emerges that will enable the development and implementation of widely used models in their own sectors such as collecting, analyzing, interpreting data, including artificial intelligence systems, extracting new features and association analysis, budget estimation.

In this study, it was aimed to develop an artificial intelligence platform that will create a infrastructure for topics such as statistics, mathematics, artificial intelligence modeling or code writing in order to perform the operations mentioned. The platform basically consists of 2 stages: data recognition (preprocessing) and an industry-specific machine learning model business. In the data recognition stage, the user is guided in data discovery such as action determination for missing values, data types, correlation, variance, outliers, clustering, classification, data transformations or suggestions. It aims to make the user take action on the attributes in the data set by making alternative suggestions by the platform. After data recognition, modern machine learning methods included in the platform are determined according to the strategic target specific to the relevant sector and optimum machine learning methods are presented to the user. The selected method is applied according to the user's request.

It is aimed to apply the study in the tire industry in order to see that it can be beneficial and applicable for SMEs. The platform was applied in the tire industry and the accuracy of the evaluations was analyzed and the results were examined. Tire brand, size, model, age and condition tracking are critical for many vehicle users, especially fleet operators. After completing the data recognition stage using these data, the model with the best accuracy among deep learning methods such as Tensorflow, YoloV4, CNN, Opencv, DNN, PyTorch, Keras was determined, and the model was developed with the best parameters suitable for that model and presented to the user. The accuracy level was increased by performing real-time, image and video testing of the model (moving wheel), data replication in case of insufficient visibility, image preprocessing, and model strengthening in order to increase the accuracy level.

Keywords: Artificial intelligence, machine learning, image processing.

TEDAŞ SOKAK AYDINLATMA ŞARTNAMESİ ME 3 SINIFINA UYUMLU 16'LI BLOK OPTİK LENS TASARIMI

16-BLOCK OPTICAL LENS DESIGN COMPATIBLE WITH TEDAŞ STREET LIGHTING SPECIFICATION ME 3 CLASS

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Özet

Optik materyallerin gelişmesine paralel olarak aydınlatma sektöründe de önemli dönüşümler yaşanmaktadır. Bu materyallerden standartları karşılayabilecek lens tasarımları da sektörde önemli bir konu haline gelmiştir. Sokak aydınlatmada kullanılan lenslerde kamaşma, ağırlık ve düşük soğuma performansı başlıca problemlerdir. Bu çalışmada yol aydınlatma sistemlerinde kullanılmak üzere düşük maliyetli ve yüksek verimli 16'lı blok optik lens tasarımı ve prototip üretimi amaçlanmıştır. Çalışmada TEDAŞ'ın Yol Aydınlatma Armatürleri Teknik Şartnamesi, ME3 standartı ile uyumlu ve bu standarta sahip yollarda aydınlatmada ihtiyacı karşılayabilecek lens tasarımı yapılmıştır. ME standart grubu, EN 13201-2'ye göre yol aydınlatması parıltı düzeyine göre yol yüzeyinin kuru olduğu durumlar için altı sınıftan oluşmaktadır. ME sınıfları bölgelerde parlaklık 0.3-2 cd/m^2 aralığında değişmektedir. Bu çalışmada kullanılan ME3 standardı parlaklak değeri 1.0 cd/m^2'dir. Lensin tasarım ve üretim faaliyetleri ve işlem sırası aşağıdaki gibidir:

Ön hazırlık ve taslak model çalışmaları

Optik tasarım & Dialux simulasyonları

Kalıp öncesi Dialux simulasyonları

Kalıp tasarımı ve kalıp onayı

Prototipleştirme & gonyofotometri ölçümleri

Birim entegrasyon ve standart testleri

Ön seri üretim, FMEA ve hataların revizesi

Lens tasarımını gerçekleştirmek için öncelikle malzeme seçimi yapılmıştır. PMMA, lens için teknik şartnamede istenen malzeme olduğundan çalışmada tercih edilmiştir. PMMA termoplastik bir polimerdir ve optik özellikleri oldukça iyi olduğundan genellikle lens tasarım ve üretiminde en çok tercih edilen malzemedir. Kullanılacak malzeme belirlendikten sonra ilgili programlarda tasarım yapılmıştır. Ardından lensin aydınlatma performansını anlamak için belirli programlarda (Zemax, Dialux) simülasyonlar yapılmışve elde edilen bilgilerle tasarımın üretime uygun olup olmadığı belirlenmiştir. Enerji tasarrufunu analiz etmek için Dialux simülasyonları yapılmıştır. Tasarım parametrelerinde yapılan iyileştirmeler sayesinde benzer işlevde lenslerden 2 gr daha hafif ürün elde edilmiştir. Kamaşma (UGR) sınırlaması sayesinde

fotobiyolojik zararlardan korunma sağlamıştır. Elde edilen sonuçlar, standartları karşılayacak öngörülen değerlerin sağlandığını göstermiştir.

Anahtar Kelimeler: Optik, Lens tasarım, Aydınlatma sistemleri, Dialux.

Abstract

With the development of optical materials, there are significant transformations in the lighting industry. Lens designs that can meet the standards of these materials have also become an important topic in the industry. In this study, it is aimed to design and prototype low-cost and high-efficiency 16-block optical lenses to be used in road lighting systems. In the study, a lens design that complies with TEDAŞ Yol Aydınlatma Armatürleri Teknik Şartnamesi, ME3 standard and can meet the need for lighting on roads with this standard has been designed. The ME standard group consists of six classes for dry road surface conditions according to the level of illumination of the road according to EN 13201-2. In ME class, the brightness varies in the range of 0.3-2 cd/m^2. The ME3 standard brightness value used in this study is 1.0 cd/m^2. The design and manufacturing activities of the lens and the order of operation are as follows:

1. Preparation and draft model studies
2. Optical design & Dialux simulations
3. Pre-mold Dialux simulations
4. Mold design and mold confirmation
5. Prototyping & goniophotometric measurements
6. Unit integration and standard testing
7. Pre-mass production, FMEA and revision of errors

In order to realize the lens design, the material selection was made first. PMMA was preferred in the study because it is the material requested in the technical specification for the lens. PMMA is a thermoplastic polymer and it is generally the most preferred material in lens design and production due to its very good optical properties. After the material to be used was determined, the design was made in the relevant programs. Then, in order to understand the lighting performance of the lens, simulations were performed in related programs (Zemax, Dialux), and with the information obtained, it was determined whether the design was suitable for production. Dialux simulations were made to analyze the energy savings. Thanks to the improvements made in the design parameters, 2 g lighter product was obtained than lenses with similar functions. Due to the limitation of glare (UGR), it has provided protection from photobiological damage. The obtained results have shown that the prescribed values are provided that will meet the standards.

Keywords: Optics, Lens design, Lighting systems, Dialux.

FARKLI ALKALİ İŞLEMLERİN TEMİZLİK KAĞIDI ÖZELLİKLERİ ÜZERİNE ETKİLERİNİN İNCELENMESİ

INVESTIGATION OF THE EFFECT OF DIFFERENT ALKALINE TREATMENT ON TISSUE PAPER PROPERTIES

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Özet

Bu çalışmada, sodyum bikarbonat, sodyum hidroksit ve sodyum bikarbonat-sodyum hidroksit(hibrit) karışımının kütlece farklı yüzdelerde kağıt üretiminde kullanılması ile gerçekleştirilen alkali işlemlerin temizlik kağıdının özellikleri üzerine etkisi incelenmiştir. Bunun için öncelikle çalışmada matris yapı olarak kullanılacak selüloz laboratuvar şartlarında öğütülmüştür. Su ile solüsyon haline getirilen kağıt hamuru süspansiyonuna ayrı ayrı farklı oranlarda ve farklı türlerde alkali işlem uygulanmıştır. Ayrıca, alkali işlem uygulanan kağıt hamuru örneklerine bekletme ile yaşlandırma işlemi de uygulanmıştır. Bunun için, örnekler 3 saat süre ile bekletilmiş ve yaşlandırma süresi sonunda laboratuvar ortamında kağıt örnekleri üretilmiştir. Yaşlandırma işlemi uygulanmayacak kağıt hamuru numuneleri ise kağıt yapımı için kullanıldı ve laboratuvar ortamında kağıt örnekleri üretildi. Üretilen tüm kağıt numunelerinin mekanik özellikleri çekme testi, morfolojik özellikleri taramalı elektron mikroskobu (SEM) ve kimyasal yapı özellikleri Fouirer Transform Infrared Spektrofotometre (FTIR) ile incelenmiştir. Yapılan çekme testine göre 3 saat süre ile yaşlandırılmış olan numuneler arasında en yüksek yaş kopma dayanımı değeri kütlece %1 sodyum hidroksit ile alkali işleme tabi tutulan kağıt numunesinde elde edilmiştir. Bekletme süresi uygulanmadan elde edilen kağıt örneklerinde en iyi yaş kopma dayanımı kütlece % 0,5 sodyum hidroksit ve % 0,5 sodyum bikarbonat karışımı ile yapılan hibrit alkali işlem sonucunda elde edilmiştir. En yüksek kuru kopma dayanımı ağırlıkça %4 sodyum bikarbonat ile yapılan alkali işlem sonucunda elde edilmiştir. Sodyum bikarbonat kütle yüzdesi %8 yapılarak gerçekleştirilen alkali işlem sonrasında kuru kopma dayanımı sabit kalmış ve kütlece %16 sodyum bikarbonat ile gerçekleştirilen alkali işlem sonucunda elde edilen kuru kopma dayanımı azalmıştır. Taramalı elektron mikroskobu analizinde ham selülozun morfolojik yapısı ile alkali işlem sonrası elde edilen yapılar kıyaslanmıştır. Kağıt yapma işlemi sırasında selülozun mekanik öğütülmesi nedeniyle, selülozun yapısında bulunan hemiselüloz, lignin gibi safsızlıklar açığa çıkmıştır ve elyafta fibrilasyon gözlenmiştir. Alkali işlem ile lif yüzeylerinde pürüzsüzlüğün arttığı belirlenmiştir.

Anahtar Kelimeler: Selüloz, Alkali İşlem, Sodyum Bikarbonat, Sodyum Hidroksit

Abstract

In this study, the effect of different alkaline treatments performed by using sodium bicarbonate, sodium hydroxide and bicarbonate-sodium hydroxide (hybrid) mixture at different percentages by mass in paper production was investigated on the properties of tissue paper. For this, firstly, the cellulose to be used as a matrix structure was ground under laboratory conditions. Alkaline treatment was applied to the pulp suspension, which was dissolved with water, at different rates

and in different types. In addition, the aging process was applied to the pulp samples treated with alkaline treatment. For this, the samples were kept for 3 hours, and paper samples were produced in the laboratory environment at the end of the aging period. The pulp samples that will not be aged were used for paper making and paper samples were produced in the laboratory environment. The mechanical properties of all produced paper samples were examined by tensile test, morphological properties by scanning electron microscope (SEM) and chemical structure properties by Fouirer Transform Infrared Spectrophotometer (FTIR). According to the tensile test, the highest wet tensile strength value among the samples aged for 3 hours was obtained in the paper sample subjected to alkali treatment with 1wt% sodium hydroxide. In the paper samples obtained without the application of the aging time, the best wet tensile strength was obtained due to the hybrid alkali treatment made with a mixture of 0.5wt% sodium hydroxide and 0.5wt% sodium bicarbonate. The highest dry tensile strength was obtained as a result of the alkali treatment with 4 wt% sodium bicarbonate. After alkali treatment with sodium bicarbonate of 8 wt%, the dry tensile strength remained constant, and it has decreased by 16 wt% sodium bicarbonate treatment. In scanning electron microscopy analysis, the morphological structure of raw cellulose and the structures obtained after alkali treatment were compared. Due to the mechanical grinding of the cellulose during the papermaking process, impurities such as hemicellulose and lignin in the structure of the cellulose were exposed and fibrillation was observed in the fiber. Besides, it was determined that the smoothness of the fiber surfaces increased with the alkali treatment.

Keywords: Cellulose, Alkali Process, Sodium Bicarbonate, Sodium Hydroxide

YENİDOĞAN RATLARDA SEVOFLURAN ANESTEZİSİNİN MEDULLA SPİNALİS ÜZERİNE ETKİSİ

THE EFFECT OF SEVOFLURANE ANESTHESIA ON MEDULLA SPINALIS IN NEWBORN RATS

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Özet

Anestezi, yenidoğan rat beyninde nöroapoptozise ve uzamış nörokognitif bozukluklarına neden olmaktadır. Bu hasarın oluşum mekanizması tam olarak bilinmemekle beraber sinaptogenez sırasında sinaptik aktivitenin inhibisyonu, ortaya atılan hipotezlerden biridir. Anestezinin indüklediği hasarın santral sinir sisteminde ne kadar geniş bir alanı etkilediği halen bilinmemektedir. Sevofluran yenidoğan ve küçük çocukların hem anestezi indüksiyonunda hem de idamesinde sıklıkla kullanılmakta olan bir inhalasyon ajanıdır. Deneysel çalışmalarda sevofluranın da izofluran ve desfluran gibi nörotoksisite potansiyeli olduğu gösterilmiştir. İzofluran anestezisinin yeni doğan ratların spinal kord hasarına neden olup olmadığı araştırılmıştır. Bu çalışmada yeni doğan ratlarda sevofluranın anesteziye bağlı hasarın ortaya çıkması muhtemel yerlerden biri olan spinal kord hasarına bağlı motor fonksiyon bozukluğuna neden olup olmadığının araştırılması planlanmıştır.

Etik kurul onayı alındıktan sonra çalışmaya postnatal yedinci günde olan, Wistar albino suşu, ağırlıkları 9-11 gr arasında değişen, 24 adet yavru rat alınmıştır.

Kontrol grubu (n=6): Ratlar 6 saat boyunca oda havasında solutulmuştur.

Sevofluran grubu (n=6): Ratlara 6 saat boyunca 6 L. dk-1 akım hızında oksijen içinde % 2,5 sevofluran solutulmuş, altı saatin sonunda sevofluran kesilip %100 O2 solutularak derlenmeleri sağlanmıştır. Derlendikten sonra annelerinin yanına alınan ratların motor fonksiyonlarının değerlendirilebilmesi amacıyla postnatal 8, 15 ve 30. günde tailflick testi uygulanmıştır.

Her iki grupta 8 ve 30. günlerdeki kuyruk çekme süreleri arasında anlamlı fark saptanmıştır (p=0,036). Kontrol ve sevofluran grupları arasında anlamlı bir fark bulunamamıştır (p=0,053).

Çalışmamızın sonucunda yenidoğan döneminde uygulanan sevofluran anestezisinin medulla spinalisin fonksiyonel işlevine önemli bir etkisi saptanmamıştır. Ancak hücresel düzeydeki etkilerini görebilmek için ileri çalışmalara ihtiyaç vardır.

Anahtar Kelimeler: yenidoğan, sevofluran, medulla spinalis

Abstract

Anesthesia causes neuroapoptosis and prolonged neurocognitive disorders in the neonatal rat brain. Although the mechanism of this damage is not known exactly, inhibition of synaptic activity during synaptogenesis is one of the hypotheses put forward. It is still unknown how extensive the damage induced by anesthesia affects the central nervous system. Sevoflurane is an inhalation agent that is frequently used for both induction and maintenance of anesthesia in newborns and young children. Experimental studies have shown that sevoflurane has neurotoxicity potential like isoflurane and desflurane. The effect of isoflurane on the spinal cord of newborn rats was investigated. In this study, it was planned to investigate whether sevoflurane causes apoptosis in the spinal cord, which is one of the possible sites of anesthesia-related damage in newborn rats.

After the approval of the ethics committee, 24 puppies of Wistar albino strain, weighing between 9-11 gr, on the postnatal seventh day were included in the study.

Control group (n=6): Rats were ventilated in room air for 6 hours.

Sevoflurane group (n=6): The rats were inhaled 2.5% sevoflurane in oxygen for 6 hours at a flow rate of 6 L.min-1, at the end of six hours, sevoflurane was discontinued and 100% O2 was inhaled to ensure their recovery. Tailflick test was applied on postnatal 8th, 15th and 30th days in order to evaluate motor functions.

Results: There was a significant difference between the tail pulling times on the 8th and 30th days in both groups (p=0.036). No significant difference was found between the control and sevoflurane groups (p=0.053).

As a result of our study, no significant effect of sevoflurane anesthesia applied in the neonatal period on the functional function of the spinal cord was detected. However, further studies are needed to see its effects at the cellular level.

Keywords: newborn, sevoflurane, medulla spinalis

BASINÇ DESTEKLİ SİNTERLEME İLE Ti6Al4V ALAŞIMI ÜZERİNE Ti-HA BİYOKOMPOZİT KAPLANMASI

COATING OF Ti-HA BIOCOMPOSITE ON Ti6Al4V ALLOY BY PRESSURE ASSISTED SINTERING

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Özet

Titanyum esaslı malzemeler sahip oldukları üstün biyouyumluluk, yüksek spesifik mukavemet, korozyon direnci ve düşük elastisite modülü gibi özellikleriyle metalik biyomalzemeler arasında yaygın bir şekilde tercih edilmektedirler. Bu üstün özelliklerine rağmen titanyum alaşımlarının vücut içerisindeki biyoişlevsel özelliklerinin arttırılmasına ve zayıf olan aşınma özelliklerinin geliştirilmesine yönelik yapılan çalışmaların sayısında sürekli bir artış gözlenmektedir. Beklenen bu özelliklerin geliştirilmesi için ortaya konan çalışmaların birçoğu farklı kaplama malzemesi ve tekniklerinin uygulanmasını içermektedir. Kaplama malzemesi olarak biyoaktif malzemeler arasında yer alan hidroksiapatit (HA), kemik ve diş yapının ana bileşenini oluşturması sebebiyle dikkat çekmektedir. Saf Ti ve Ti alaşımlarının HA ile kaplanmasının kemik–implant arayüzeyinde gerçekleşen etkileşimi arttırdığı yapılan çalışmalar ile kanıtlanmış olmasına rağmen HA-Ti arayüzeyinin mekanik kararlılığı cerrahi operasyon ya da implantın kullanımı sırasında sorun çıkartabilmektedir. Bu çalışmada bu tarz problemlerin önüne geçmek için basınç destekli sinterleme ile titanium esaslı malzemelerin HA-Ti biyokompozit bileşimi ile kaplanabilirliği incelenmiştir. Altlık malzeme olarak titanium esaslı malzemeler içinde en fazla kullanılan Ti6Al4V alaşımı seçilmiştir. Bu doğrultuda çalışma kapsamında farklı oranlarda (% ağ. 2.5, 5, 7.5 ve 10) HA ile saf Ti bilyalı değirmen kullanılarak homojen bir karışım haline getirilmiş ve Ti6Al4V alaşımı üzerine kaplanmıştır. Kaplama işlemi ile tozların yoğunlaştırılması eş zamanlı olarak vakum destekli sıcak pres cihazında gerçekleştirilmiştir. Altlık ve kaplama takabasından oluşan tozlar sıcak pres cihazında 950°C'de 45 dak sinterlenmiştir. Numune üretimleri 50 MPa basınç ve 10^{-4} mbar vakum atmosferi altında yapılmıştır. Üretimlerin ardından ilk olarak yoğunluk ölçümleri yapılmış ardından numuneler metalografik olarak hazırlanmıştır. Kaplama tabakası ile altlık arasındaki etkileşim incelenmiş ve arayüzeyde güçlü bir bağlantı gözlenmiştir. Ayrıca elde edilen kaplamanın aşınma özelliklerine etkiside incelenerek sonuçlar detaylı bir şekilde paylaşılmıştır.

Anahtar Kelimeler: Biyomalzemeler, Biyokompozit Kaplama, Titanyum, Hidroksiapatit, Toz Metalurjisi

Abstract

Titanium-based materials are widely preferred among metallic biomaterials due to their superior biocompatibility, high specific strength, corrosion resistance and low modulus of elasticity. Despite these outstanding properties, a continuous increase is observed in the number of studies conducted to increase the biofunctional properties of titanium alloys in the body and

to improve their weak wear properties. Many of the studies on the development of these expected properties involve different coating materials and different technical implementation. Hydroxyapatite (HA), which is among the bioactive materials as a coating material, draws attention because it constitutes the main component of bone and tooth structure. Although it has been proven by studies that the coating of pure Ti and Ti alloys with HA increases the interaction at the bone-implant interface, the mechanical stability of the HA-Ti interface may cause problems during surgical operation or the use of the implant. In this study, to avoid such problems by pressure assisted sintering and titanium-based materials coatability of with HA-Ti biocomposite composition were investigated. Ti6Al4V alloy, which is the most widely used among titanium-based materials, was chosen as the base material. In this direction, within the scope of the study, HA in different proportions (2.5, 5, 7.5 and 10 wt%) and pure Ti were made into a homogeneous mixture using a ball mill and coated on Ti6Al4V alloy. The coating process and the condensation of the powders were carried out simultaneously in a vacuum assisted hot press device. The powders consisting of the base and the coating layer were sintered in a hot press device at 950°C for 45 minutes. Sample productions were carried out under 50 MPa pressure and 10^{-4} mbar vacuum atmosphere. After the productions, density measurements were made first, and then the samples were prepared metallographically. The interaction between the coating layer and the base was examined and a strong connection was observed at the interface. In addition, the effect of the obtained coating on the wear properties was examined and the results were shared in detail.

Keywords: Biomaterials, Biocomposite Coating, Titanium, Hydroxyapatite, Powder Metallurgy

KOMPOZİT MALZEMELERİN YAPIŞTIRILMASINDA KARMA YAPIŞTIRICI KULLANIMININ DEĞERLENDİRİLMESİ

AN ASSESSMENT OF USING MIXED ADHESIVE IN COMPOSITE MATERIALS

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Özet

Kompozit malzemeler başta havacılık, uzay ve otomotiv endüstrileri olmak üzere hafiflik ve dayanım gereken tüm alanlarda kullanılmaktadır. Kompozit malzemelerin kendileriyle veya başka malzemelerle birleştirilmesinde yapıştırma tekniği yaygınca kullanılan bir yöntemdir. Yapıştırma bağlantılar yapıştırılan malzemeye zarar vermeden çok daha iyi bir gerilme dağılımı sağlamakta ve aynı zamanda estetik görünmektedir. Fakat her bağlantı yönteminin olduğu gibi yapıştırma bağlantılarının da dezavantajları vardır. Yapıştırma bağlantılarında gerilme yığılmaları, büyük ölçüde bindirme bölgesinin uç kısımlarında meydana gelmektedir ve bu uç bölgelerde soyulma şeklinde hasar başlayarak bağlantının orta noktasına doğru ilerlemektedir. Yapıştırma alanının uç kısımlarındaki gerilme yığılmalarının azaltılması ve bağlantı mukavemetinin arttırılmasında karma yapıştırıcılı bağlantıların kullanılması önemli avantajlar sağlamaktadır. Karma yapıştırıcı bağlantı konfigürasyonunda, sert ve kırılgan yapıştırıcı bindirme uzunluğunun merkezinde, düşük modüllü ve esnek yapıştırıcı ise bindirme uzunluğunun uçlarında yer almaktadır. Bu yöntemle bağlantı alanının kenar kısımlarındaki gerilme yığılmaları esnek yapıştırıcı sayesinde azaltılabilir, bindirme bölgesi boyunca homojen bir gerilme dağılımı oluşturulabilir ve hasar yükü yüksek bir bağlantı elde edilebilir. Bu çalışmada, 2 ve 3 mm kalınlığındaki cam elyaf takviyeli kompozit malzemelerin tek tesirli yapıştırma bağlantılarında ön darbe sonrası çekme deneyleri yapılmıştır. Tek yapıştırıcılı ve karma yapıştırıcılı bağlantıların darbesiz duruma göre enine darbe sonrası bağlantı dayanımları incelenmiştir. Kompozit malzemelerin yapıştırılmasında rijit yapıştırıcı olarak Araldite AV138 ve esnek yapıştırıcı olarak 3M DP8005 yapıştırıcıları kullanılmıştır. 50 mm bindirme uzunluğuna sahip tek yapıştırıcılı ve 1/2 oranlarında (esnek/rijit) karma yapıştırıcılı bağlantılara 2,5 ve 3,5 J ön darbe uygulandıktan sonra 1 mm/min hızda çekme deneyleri yapılmıştır. Araldite AV138'in tek başına kullanıldığı bağlantılarda 2,5 J ön darbe sonrasında bindirme bölgesinin kenarlarından ayrılmalar gözlenmiştir. Sonrasında yapılan çekme deneyinde darbesiz duruma göre hasar yükü yaklaşık 3 kat düşmüştür. DP8005'in ise tek yapıştırıcılı bağlantılarında ön darbe yükü arttıkça hasar yükü de darbesiz duruma göre kademeli olarak artış göstermiştir. En yüksek hasar yüküne karma yapıştırıcı uygulanan numunelerde ulaşılmıştır. Rijit ve sünek yapıştırıcıların tek olarak kullanıldığı numunelere göre yaklaşık olarak hasar yükü 2 kat artmıştır. Karma yapıştırıcılı bağlantılarda da ön darbe sonrası hasar yükünde düşüşler meydana gelmiştir. Fakat bu durumda dahi tek yapıştırıcılı bağlantılara göre daha yüksek hasar yükü elde edilmiştir Karma yapıştırıcılı bağlantılarda, 3 mm kalınlığında malzemelerin kullanıldığı bağlantıların hasar yükü, 2 mm kalınlığındaki bağlantılara göre kayda değer bir artış göstermiştir.

Anahtar Kelimeler: Kompozit malzeme, yapıştırma bağlantıları, karma yapıştırıcı, ön darbe.

Abstract

Composite materials are used in all areas where lightweight and strength are required, especially in aeronautical, automotive and aerospace industries. Adhesive bonding is a widely used for bonding composite adherends with similar or dissimilar adherends. Adhesive joints provide a much better stress distribution without damaging the adherends also have aesthetic. However, just like other joining methods, adhesive joints also have disadvantages. Stress concentrations in adhesive joints occur generally at the ends of the overlap, and peeling begins at these ends of the overlap and progresses towards the center. The use of mixed adhesive joints provides significant advantages in reducing stress concentrations at the ends of overlap and increasing joint strength. In the mixed adhesive joint configuration, the stiff and brittle adhesive should be in the centre of the overlap length, while the low-modulus and flexible adhesive is located at the ends of the overlap length. With this method, stress concentrations at the ends of overlap can be reduced by the flexible adhesive, uniform stress distribution can be along the overlap length and high failure load can be obtained. In this study, tensile tests were carried out after pre-impact on single lap joints of 2 and 3 mm thickness glass fiber reinforcement plastic adherends. The joint strength of mono and mixed adhesive joints after transverse impact were investigated according to the non-impact condition. Araldite AV138 as stiff adhesive and 3M DP8005 adhesive as flexible adhesive were used for bonding composite materials. Tensile tests at a speed of 1 mm/min were carried out after 2.5 and 3.5 J pre-impact to the joints with mono and 1/2 ratio (flexible/stiff) mixed adhesive joints with 50 mm overlap length. In the joints where Araldite AV138 is used mono, peeling from the edges of the overlap region was observed after a 2.5 J front impact. In the tensile test performed afterwards, the failure load decreased approximately 3 times compared to the non-impact condition. On the other hand, as the pre-impact load increased in the mono adhesive joints of DP8005, the failure load increased gradually compared to the non-impact condition. The highest failure load was found in the mixed adhesive joints. The failure load increased approximately 2 times compared to the joints in which stiff and flexible adhesives were used mono one. There was also a decrease in the failure load after the pre-impact in the mixed adhesive joints. However, even in this case, a higher failure load was obtained compared to mono adhesive joints. In mixed adhesive joints, the failure load of using 3 mm thickness adherend obtained a significant increase compared to using of 2 mm thickness adherend.

Keywords: Composite adherends, adhesive joints, mixed adhesive, pre-impact.

SOLVABILITY OF TRANSFER PROBLEMS WITH AN ABSTRACT LINEAR OPERATOR CONTAINED IN THE EQUATION

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Abstract

Sturm-Liouville type eigenvalue problems arises as a mathematical model in solving of many problems of mathematical physics by separation of variables method, so-called, Fourier's method. For example, many proceses in natural science, such as heat and mass transfer, electrodynamics of complex medium, vibrating of string etc. are modelled by various type Sturm-Liouville problems. There are volumunous literature devoted to the investigation of Sturm-Liouville type problems. Particularly, many-interval Sturm-Liouville problems, including an additional transfer conditions arises in electromagnetics, geophysics, elasticity, toroidal and free vibrations of the Earth's solid mechanics etc. The simplest example of a Sturm-Liouville operator is the constant-coefficient second-derivative operator, whose eigenfunctions are trigonometric functions. Many other important special functions, such as Airy functions and Bessel functions, are associated with variable. In this work we shall investigate some spectral characteristics of a new type Sturm-Liouville problem defined on two disjoint interval $(-1,0)$ and $(0,1)$, which differs from tha classical Sturm-Liouville problems in that it contains an abstract linear operator in the equation an additional transfer conditions at an interior point of interaction $x = 0$. The classical Sturm-Liouville theory did not cover such type problems. We developed a new techniques for Hilbert space formulation, in particular, the coercive solvability and resolvent operator in a direct sum of Sobolev type Hilbert spaces.

Keywords: Sturm-Liouville problems, resolvent operator, transmission conditions.

COMPLETENESS OF THE SYSTEM OF ROOT FUNCTIONS FOR BOUNDARY VALUE PROBLEMS INVOLVING TRANSMISSION CONDITIONS

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Abstract

Self-adjoint boundary value problems (BVPs, for short) are of significant importance in many models of applied mathematics and quantum mechanics in spherical and cylindrical geometries. Among these BVPs, the Sturm-Liouville problems is a typical one. Many physical processes, such as the vibration of strings, the interaction of atomic particles, electrodynamics of complex medium, aerodynamics, polymer rheology or the earths free oscillations yields Sturm-Liouville eigenvalue problems. Generally, the separation of variables method was applied on the two-order partial differential equation to obtain a Sturm-Liouville problem for each independent variable. These problems involve self-adjoint (diferential) operators which play an important role in the spectral theory of linear operators and the existence of the eigenfunctions. The development of classical, rather than the operatoric, Sturm-Liouville theory in the years after 1950 can be found in various sources; in particularin the texts of Atkinson, Coddington and Levinson, Levitan and Sargsjan and Naimark. Spectral problems associated with differential operators having only a discrete spectrum and depending polynomially on the spectral parameter have been considered by Gohberg and Krein and by Keldysh.They studied the spectrum and principal functions of such problems and showed the completeness of the principal functions in the corresponding Hilbert function space. There are a lot of studies about the spectrum of such operators. In this study we shall investigate some spectral properties of a new type Sturm-Liouville problems (SLPs) involving an abstract linear operator (nonselfadjoint and unbounded, in general) in the equation. We prove a selfadjointness of the pure differential problem and completeness of a system of root function of the main problem

Keywords: Sturm-Liouville problems, abstract linear operator, transmission conditions.

SOFT SEMI-TOPOLOGICAL HYPERGROUPS

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Abstract

The uncertainty which appeared in engineering, economics, medical science, environmental science, social science, and so on is too sophisticated to be solved within a traditional mathematical framework. In order to overcome this condition, some approaches including fuzzy set theory, probability theory, rough set theory , vague set theory have been developed The notion of soft sets has been initiated in 1999 by Molodtsov as an effective mathematical approach for dealing with uncertainties and imprecision. After Molodtsovs study, many research articles have appeared on the algebraic and topological features of soft set theory, which have been of great interest to mathematicians in particular. The other fundamental theory is the hyperstructure theory, which was born by Marty in 1934 when he introduced the concept of hypergroup. Hypergroup theory is a natural extension of group theory. Subsequently, many researcher worked on this new field and constructed some other generalizations such as hyperrings, hypermodules, and hyperfields. Semi-topological hypergroups, one of the concepts of this theory, include both algebraic and topological structure. The concept of semi-topological hypergroups is presented as a generalization of semi-topological groups. In the general framework, the main aim of this study is to examine the concept of a soft semi-topological hypergroup In this perspective, some important results are obtained. The category of soft semi-topological hypergroups is also formed and soft semi-topological subhypergroups is proposed.

Keywords: Soft sets, hypergroups, semi-topological hypergroup, soft semi-topological hypergroups

ARI KOLONİLERİNDE SONBAHAR ÇALIŞMALARI

AUTUMN STUDIES IN HONEYBEE COLONIES

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Özet

Arıcılıktaki başarının temeli sonbahar mevsiminde yapılan çalışmalara bağlıdır. Bu nedenle arıcının en çok dikkat etmesi gereken sezondur. Sonbaharda yapılacak kontrollerde ana arı, besin maddesi, hastalık ve zararlıların durumu kontrol edilerek acilen gerekli olan önlemler alınır. Ana arının varlığı ve performansı, hastalık ve zararlılar ile besin kontrolü ve bütün bunlara karşı alınacak önlemler tıpkı ilkbahar sezonunda olduğu gibi yapılır. Burada teşvik beslemesinin önemi büyüktür.

İşçi arılar kuluçka ve ana arıyı beslemek için genç dönemlerinde yutak üstü bezlerinden bol miktarda protein ve yağ asidi içeren arı sütü salgılarlar. Yazın bu faaliyetleri nedeniyle yutak üstü salgı bezlerindeki protein miktarı ve vücut yağları azalır. Sonuçta işçi arıların ömrü azalır. Sonbaharda kuluçka olmadığı için işçi arılar uzun yaşar. Sonbaharda besleme yapılarak kışa sokulan işçi arıların yetiştirilme nedeni bu gerçeğe dayalıdır. Sonbaharda ana arıyı yumurtlamaya teşvik etmek, kolonileri genç arı ile kışlatmak, yeterli kış yiyeceği sağlamak ve kışı en az kayıpla geçirmek amacıyla teşvik beslemesi yapılır. Kolonide yeterli bal ve polen olsa dahi yeni kadro gelişimi için, 1 lt su ve 2 kg şekerden oluşan şurup veya çeşitli karışımla yapılan kekler ile beslenmelidirler.

Sonbahar teşvik yemlemesinin ilkbahar yemlemesi kadar yoğun ve uzun süreli olmasına gerek yoktur. Genellikle koloni başına günde yarım litre şurup verilerek 10-15 gün sürdürülen bir yemleme yeterlidir. Kış soğukları başlamadan bir ay öncesinden şuruplamaya başlamalıdır. Böylece arılar verilen şurubu gözlere koyup sırlayabilir. 20 kg şeker ile 15 kg bal üretilir. Arıların balı depolaması için, besleme sürekli fakat azar azar yapılmalıdır. Aksi halde aşırı kuluçka yapabilirler.

Anahtar Kelimeler: Sonbahar Çalışmaları, Teşvik Beslemesi Bal Arıları

Abstract

The basis of success in beekeeping depends on the work done in the autumn season. For this reason, it is the season that the beekeeper should pay the most attention to. In the controls to be made in the autumn, the status of the queen bee, nutrients, diseases and pests are checked and the necessary measures are taken immediately. The presence and performance of the queen bee, disease and pest control and the precautions to be taken against all these are done just like in the spring season. Incentive feeding is of great importance.

Worker bees secrete royal jelly containing plenty of protein and fatty acids from their suprapharyngeal glands during their young period to feed the brood and the queen. Due to these activities in the summer, the amount of protein and body fat in the suprapharyngeal glands decreases. As a result, the lifespan of worker bees is reduced. Worker bees live longer because there is no brood in autumn. The reason for raising worker bees, which are fed into the winter by feeding in the fall, is based on this fact. Incentive feeding is done in order to encourage the queen to lay eggs, to overwinter the colonies with young bees, to provide sufficient winter food and to spend the winter with minimum loss. Even if there is enough honey and pollen in the

colony, they should be fed with syrup consisting of 1 lt water and 2 kg sugar or cakes made with various mixtures for the development of new staff.

Autumn incentive feeding does not need to be as intense and prolonged as spring feeding. Generally, a feeding of 10-15 days with half a liter of syrup per day per colony is sufficient. Syrup should be started one month before the onset of winter cold. So the bees can put the given syrup in the eyes and glaze it. With 20 kg of sugar, 15 kg of honey is produced. For bees to store honey, feeding should be done continuously but gradually. Otherwise, they may over-incubate.

Keywords: Autumn Studies, Incentive Feeding, Honey Bees

AŞINDIRICI SU JETİ PROSESİ İLE AISI 304 ÖSTENİTİK PASLANMAZ ÇELİĞİN İŞLENEBİLİRLİĞİ

MACHINABILITY OF AISI 304 AUSTENITIC STAINLESS STEEL BY THE ABRASIVE WATERJET PROCESS

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Özet

AISI 304 paslanmaz çelik, dünya paslanmaz çelik üretim ve tüketiminin yaklaşık yarısını oluşturmaktadır. Endüstride yoğun kullanım nedeniyle paslanmaz çeliklerin işlenebilirlik özelliklerinin iyileştirilmesi önemlidir. Bu çalışmada, AISI 304 malzemesinin su jeti tornalamada işleme parametrelerinin yüzey pürüzlülüğü üzerindeki etkisi araştırılmıştır. Test parametreleri; nozul besleme hızı, aşındırıcı akış hızı, aynanın dönüş hızı ve nozul mesafesi olarak belirlenmiştir. Deneysel çalışma sırasında pompa basıncı (380 MPa), aşındırıcı boyutu (120 mesh) ve meme çapı (0.76 mm) sabit tutulmuştur. Deneylerden elde edilen sonuçlara göre; torna aynası devir hızı 75 dev/dak'dan 225 dev/dak değerine çıkarılınca ortalama yüzey pürüzlülük değeri % 22 oranında azalmış, nozul ilerleme hızı 50 mm/dak'dan 200 mm/dak'a arttırıldığında ortalama yüzey pürüzlülüğü % 31 seviyesinde artmış, aşındırıcı akış hızı 150 g/ dak'dan 225 g/dak'a artırıldığında ortalama yüzey pürüzlülüğü % 45 oranında azalmış ve nozul mesafesi 2 mm'den 8 mm'ye çıkartıldığında ortalama yüzey pürüzlülük değeri % 23 oranında artmıştır. Aşındırıcı su jeti ile tornalama işlemi, ısıl etkilerin oluşmaması sebebiyle dikkat çeken bir ileri imalat prosesidir. Özellikle işlenebilirliği zor olan malzemelerde en etkili yöntemlerden biri olduğu söylenebilir. Takım seçimi, kaplaması ve maliyetiyle ilgili faktörleri ortadan kaldırması da ciddi bir avantaj oluşturmaktadır. Fakat prosesin dezavantajları arasında tezgah kurulumunun güçlüğü ile sızdırmazlık problemleri, çok hassas değerlerde yüzey kalitesi elde etmenin zorluğu ve su jeti tornalama tezgahı çalışırken oluşan yüksek gürültü sayılabilir.

Anahtar Kelimeler: AISI 304, aşındırıcı su jeti, tornalama, yüzey pürüzlülüğü.

Abstract

AISI 304 stainless steel accounts for about half of the world's stainless steel production and consumption. It is important to improve the machinability properties of stainless steels due to intensive use in industry. In this study, the effect of machining parameters on the surface roughness of AISI 304 material was investigated in water jet turning. Test parameters; nozzle feed rate, abrasive flow rate, chuck rotation speed and nozzle distance. During the experimental study, the pump pressure (380 MPa), abrasive size (120 mesh) and nozzle diameter (0.76 mm) were kept constant. According to the results obtained from the experiments; When the chuck rotation speed was increased from 75 rpm to 225 rpm, the average surface roughness value decreased by 22%, when the nozzle feed rate was increased from 50 mm/min to 200 mm/min, the average surface roughness value was 31%. The average surface roughness decreased by 45% when the abrasive flow rate was increased from 150 g/min to 225 g/min, and the average

surface roughness value increased by 23% when the nozzle distance was increased from 2 mm to 8 mm. Turning with abrasive water jet is an advanced manufacturing process that attracts attention due to the absence of thermal effects. It can be said that it is one of the most effective methods, especially in materials that are difficult to process. It is also a serious advantage that it eliminates the factors related to tool selection, coating and cost. However, the disadvantages of the process include the difficulty of machine setup and sealing problems, the difficulty of obtaining very precise surface quality, and the high noise generated when the water jet turning machine is operating.

Keywords: AISI 304, abrasive water jet, turning, surface roughness.

SEISMIC ANALYSIS OF GROUND SUPPORTED STEEL LIQUID STORAGE TANKS

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Abstract

Ground supported steel tanks are formed from thin walled steel members and generally used for storing liquids such as water, oil, chemical substances and also toxic materials. Steel tanks are located not only in industrial regions but also, they are constructed in residential sites. For this reason, any kind of substantial damage in these structures under earthquakes may cause catastrophic results. Shell buckling, roof damage, failure of tank support systems, foundation stability problems, fracture of piping are main type of damages that can occur due to strong ground motions. In some cases, the seismic performance of steel storage tanks is a matter of extraordinary importance, extending beyond the economic value of the tanks and contents. Therefore, fundamental performance target in seismic design codes is the protection of life and prevention of catastrophic collapse of the tanks. In this study, ground supported circular steel tanks that are used for liquid storage were investigated considering the effect of aspect ratio on the seismic behavior of the tank structures. Pursuant to this aim, practical calculations were conducted using Earthquake Regulation of Turkey for Pipeline Systems and Liquid Storage Tanks (2021). Steel tank behavior is considerably different from conventional steel buildings since liquid in the upper regions of the tank tends not to displace laterally towards to the tank walls under lateral accelerations and causes seismic waves or sloshing due to the vertical displacement of the liquid. In the paper, liquid storage tanks were idealized using spring mass models for evaluating hydrodynamic forces. In the first step, impulsive and convective periods were identified. Afterwards, impulsive and convective pressure distributions of ground supported steel liquid storage tanks on the tank wall were calculated and presented with graphics. The shear force between the roof and the wall and between the wall and the foundation was investigated. Likewise, overturning moment, sloshing height and some other critical parameters that are used in seismic design were determined for the tanks selected in the study. Finally, numerical analysis results were compared and importance of aspect ratio on the seismic behavior was presented.

Keywords: Steel storage tanks, seismic analysis, impulsive period, convective period, hydrodynamic forces.

MOTOR ÜST GRUBU İŞLEME TEKNOLOJİLERİ TASARIMI VE GELİŞTİRİLMESİ

DESIGN AND DEVELOPMENT OF MOTOR UPPER GROUP PROCESSING TECHNOLOGIES

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Özet

Sürekli gelişen teknolojiye paralel olarak otomotiv sanayi ihtiyaçları doğrultusunda motor üst grubu ve mil yatakları parçalarının tasarımı ve üretim prosesleri de gelişmektedir. Otomotiv endüstrisi altında traktör ve kamyon araçları için motor üst grubu ve mil yatakları üretimi en fazla Avrupa'da gelişmiş olup ülkemizde yerli üretim yapılmamaktadır. Bu doğrultuda bu parçaların endüstriyel ölçekte yerli kaynaklarla üretilebilmesine yönelik tasarım, analiz, test ve uyguluma çalışmalarından oluşan araştırma geliştirme faaliyetlerinin yapılması ihtiyacı ortaya çıkmaktadır. Bu çalışmada motor üst grubu olarak adlandırılan sistemi oluşturan mil, mil yatağı, piyano, fil ayağı, ayar cıvatası vb. komponentlerin malzeme seçimi, tolerans ve geometri oluşturulması, tasarımı ve prototipinin geliştirilmesi amaçlanmıştır. Motor komponentlerinde kanalların bulunması ve parça bağlantı yerlerinin çokluğu hassas ve teknolojik bir tasarımın yapılmasını ve doğru üretim süreçlerinin takip edilmesini zorunlu kılmaktadır. Tasarımlarda mikron mertebesinde hassasiyete sahip toleranslarla işleme yapılabilmesi ve komple sistem ihtiyaçlarını karşılayabilecek düzeyde yapılması sağlanmalıdır. Malzeme işlemelerinin hassas bir şekilde yapılması özel bir bilgi ve uzmanlık gerektirmekte olup, dünyada sayılı firmalar tarafından yapılabilmektedir. Yapılan çalışmada malzeme işleme tekniklerinin, ısıl işlem proseslerinin, özel işleme ve bağlantı aparat ve takımları ile uygun teknolojilerin kullanılması ülkemiz için bir ilki oluşturmuştur. Ayrıca malzeme seçimleri ve geliştirilen süreçler sayesinde diğer motor ve otomotiv parçalarının üretimi için de emsal teşkil edecektir.

Çalışmanın ilk aşamasında CAD programları vasıtasıyla komponentlerin şematik çizim taslakları oluşturulmultur. Ön tasarımlarının yapılması sonrasında, komponent geometrilerinin tasarımları ve toleranslandırma çalışmaları yapılmıştır. Çizim ve modelleri oluşturulan parçalar, Pro Engineer programı altında çalıştırılarak, parça boyutlarının doğruluğu teyit edilmiştir. Tüm ekipman ve malzemeler bu hedefe uygun optimum hız ve hassasiyette çalışabilecek şekilde tasarlanıp temin edilmesi sağlanmıştır. Kullanılacak malzeme, ekipman ve montaj grupları Creo Essential analiz programı ile tasarım/montaj analizi yapılmıştır. Sistemin çalışma esasları doğrulanarak, komponent prototipleri gerçeklenmiştir. Prototipleri elde edilen motor üst grubu

komponentlerinin motora entegrasyonu gerçekleştirilerek motor prototipinin test sürecinde performans testleri izlenmiştir. Komponent tasarımlarının, seçilen proseslerin, işleme tekniklerinin, bağlantı aparatlarının ve montaj prosedürlerinin uygunluğu ve tolerans çakışmaları değerlendirilmiştir. Sistemin bir bütün olarak işlerliğinin kontrolü yapılarak standart gereksinimlerine uygunluğu değerlendirilmiştir. Sanal testler ile fiziki verilerin karşılaştırılmıştır.

Anahtar Kelimeler: Motor üst grubu, Mekanik tasarım, Mekanik analiz.

Abstract

With the constantly developing technology, the design and production processes of the engine upper group and shaft bearing parts are also developing in line with the needs of the automotive industry. Under the automotive industry, the production of engine upper groups and spindle bearings for tractor and truck vehicles is most developed in Europe, and domestic production is not carried out in our country. Accordingly, the need arises to carry out research and development activities consisting of design, analysis, testing and application studies aimed at the production of these parts with domestic resources on an industrial scale. In this study, it is aimed to select the material, create tolerance and geometry, design and develop the prototype of the shaft, shaft bearing, piano, elephant foot, adjustment bolt components that make up the engine upper group system. The presence of channels in the engine components and the multiplicity of parts connection places make it necessary to make a precise and technological design and following the correct production processes. It should be ensured that the designs can be processed with tolerances with precision at the micron level and that they are made at a level that can meet the needs of the complete system. Precision material processing requires special knowledge and expertise, and it can be done by only a few companies in the world. In this study, the use of material processing techniques, heat treatment processes, special processing and connection devices and tools, as well as appropriate technologies, has created a first for our country. It will also set a precedent for the production of other engine and automotive parts, thanks to material selections and processes developed.

At the first stage of the study, schematic drawing sketches of components were created using CAD programs. After the preliminary designs were made, the designs of component geometries and tolerance studies were carried out. The drawings and models of the parts created have been run under the Pro Engineer program to confirm the accuracy of the part sizes. All equipment and materials have been designed and provided to work at the optimum speed and accuracy suitable for this purpose. The materials, equipment and assembly groups to be used were analyzed using the Creo Essential analysis program and the assembly-design analysis was performed. The operating principles of the system have been verified and component prototypes have been implemented. The performance tests of the engine prototype were monitored during the test process by integrating the engine upper components obtained from the prototypes into the engine. The operability of the system as a whole was checked and its compliance with the standard requirements was evaluated. Virtual tests and physical data were compared.

Keywords: Engine upper group, Mechanical design, Mechanical analysis.

TÜRKİYE - ELAZIĞ İLİN DE ENDEMİK OLAN BİTKİ *Centaurea urvillei* DC. *hayekiana Wagenitz*'in HASTALIK YAPAN MİKROORGANİZMALAR ÜZERİNE ANTİMİKROBİYAL ETKİLERİ

ANTIMICROBIAL EFFECTS OF *Centaurea urvillei* DC. hayekiana Wagenitz, THAT IS AN ENDEMIC PLANT IN TURKEY'S ELAZIG PROVINCE, ON DISEASE -CAUSING MICROORGANISMS

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Özet

Tüm dünyada alternatif tıbbın birincil kaynağı olan doğal tıbbi bitkiler, özellikle antibiyotik dirençli suşların neden olduğu enfeksiyon hastalıkları tedavi etmeleri yönünden potansiyellere sahiptir. Özellikle Türkiye'nin endemik tür bakımından zengin bir varlığa sahip olması yeni ilaçların geliştirilmesi için iyi bir aday olabilir. Ülkemizde endemik bitkiler üzerine yapılmış araştırmaların çoğu bölgesel ve etnobotanik çalışmalar olup, endemik türlerin antimikrobiyal aktivitesi üzerine yapılmış çalışmalar ise sınırlı sayıdadır. Hem endemik hemde tıbbi öneme sahip olan *Centaurea urvillei DC. hayekiana Wagenitz* türünün bu kapsamda değerlendirilmiş olması çalışmamızın özgünlüğünü vurgulamaktadır.

Bu çalışmada farklı özelliklerinden dolayı geleneksel tedavide kullanılan Elazığ da doğal olarak yetişen endemik *C. urvillei DC. hayekiana Wagenitz'in* kullanılabilir kısımlarının metanol ile hazırlanan solüsyonu ilaçlara dirençli enfeksiyonlara neden olan bakteri, maya, dermatofitler üzerinde disk diffüzyon ve mikrodilisyon yöntemi ile bu mikroorganizmaların üremesinde direnç gösterip göstermediği ve en düşük dozajda antimikrobiyal duyarlılık miktarını tanımlamak amaçlanmıştır. İncelenen dirençli mikroorganizmalara karşı *C. urvillei* DC. *hayekiana Wagenitz*'in metanol solüsyonlarının antimikrobiyal aktivitelerine bakıldığında disk diffüzyon metoduna göre; inhibisyon bölge çapı genel olarak tüm bakteriler ve dermatofitlerden sadece *Epidermophyton flococusum* üzerinde duyarlı (12.6 mm- 16.6 mm inhibisyon zon çapı$^{-1}$), mayalardan *Candida albicans* üzerinde ise dirençli (8.6 mm inhibisyon zon çapı$^{-1}$) antimikrobiyal bir etki oluşturmuştur. Bu bitkisel ajan standart antibiyotiklerin gösterdiği özellikten aynı ya da daha büyük bir antimikrobiyal özellik sergilemiştir. Mikroorganizma üremesinin olmadığı minimal inhibisyon konsatrasyonu (µL), niteliksel olarak değerlendirilmiş olup; bakteriyel büyüme olmayan en küçük konsantrasyon değerleri (MİK) 100-12.5 µL'dir. Endemik bitki solüsyonunun dermatofitlerden sadece *E. flococusum*'a karşı üreme göstermediği son tüp konsantrasyonu MİK: 5000µg=12.5 µL dir.

Elde edilen verilere göre *C. urvillei* DC. *hayekiana Wagenitz*'in özellikle *Escherichia coli, Staphylococcus aureus, Klepsiella pnenumoniae, Enterecoccus faecalis* gibi ilaca direnç gösteren bakterilerilere karşı bir alternatif bitkisel ilaç haline getiren terapotik etkisi ile tedavi uygulamalarında kullanılabileceği ortaya çıkmıştır. Bu veriler doğrultusunda bu bitkinin tedavi edici etkilerinin, özündeki biyoaktif ajan formüllerinden kaynaklanabileceği düşüncesi ile ileride yapılacak çalışmalara katkı sağlıyacaktır.

Anahtar Kelimeler: *Centaurea urvillei* DC. *hayekiana Wagenitz*, Endemik Bitki, Alternatif Bitkisel İlaç, Antibakteriyel ve Antifungal Aktivite, Patojen Mikroorganizma

Abstract

Natural medicinal plants, which are the primary source of alternative medicine all over the world, have the potential to treat infectious diseases especially caused by antibiotic resistant strains. Rich presence of Turkey in terms of endemic species may be a good candidate for the development of new drugs. Many of the studies on endemic plants in our country are regional and ethnobotanical as well as there are limited number of studies regarding antimicrobial activity of endemic species. Evaluating *Centaurea urvillei* DC. *hayekiana Wagenitz*, which is both endemic and medically important, in this context shows the originality of our study.

The solution of the usable parts of the endemic *C. urvillei* DC. *hayekiana Wagenitz* (which grows naturally in Elazig) prepared with methanol was applied on bacteria, yeast, dermatophytes that cause drug-resistant infections by disc diffusion and microdilution method, and it was aimed to define whether this solution shows resistance in the growth of microorganisms and also its antimicrobial sensitivity at the lowest dosage. Regarding the antimicrobial activities of *C. urvillei* DC. *hayekiana Wagenitz*'s methanol solutions, for the disc diffusion method, Inhibition zone diameter of all bacteria and dermatophytes in general, only sensitive on *Epidermophyton flococusum* (12.6 mm- 16.6 mm inhibition zone diameter^{-1}), while it produced a resistant (8.6 mm inhibition zone diameter^{-1}) antimicrobial effect on *Candida albicans* yeast. This herbal agent displayed the same or greater antimicrobial properties than standard antibiotics. The minimal inhibition concentration (µL) without microorganism growth was evaluated qualitatively; the minimum concentration values (MIC) without bacterial growth are 100-12.5 µL. The final tube concentration in which the endemic plant solution did not grow against dermatophytes only against *E. flococusum* was MIC: 5000µg=12.5 µL.

According to the data obtained, *C. urvillei* DC. *hayekiana Wagenitz* can be used in treatment applications with its therapeutic effect, which makes it an alternative herbal medicine against drug-resistant bacteria such as *Escherichia coli*, *Staphylococcus aureus*, *Klepsiella pnenumoniae*, *Enterecoccus faecalis*. With reference from data above, the thought that the therapeutic effects of this plant may be due to the bioactive agent formulas in its essence will contribute to future studies.

Keywords: *Centaurea urvillei* DC. hayekiana Wagenitz, Endemic Plant, Alternative Herbal Drug, Antibacterial and Antifungal Activity, Patogen Microorganizm

TUJ KOYUNUNDA ARTERİA CAROTİS EXTERNA VE SON DALLARI ÜZERİNE MAKROANATOMİK ÇALIŞMALAR

MACROANATOMIC INVESTIGATION OF EXTERNAL CAROTID ARTERY AND ITS TERMINAL BRANCHES OF TUJ SHEEP

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Özet

Bu araştırma Tuj koyununda baş bölgesinin arteriel vaskülarizasyonunu sağlayan a. carotis externa ve son dallarının makroanatomisini incelemek amacıyla yapıldı. Bu amaçla Kafkas Üniversitesi Veteriner Fakültesi Çiftliğinden cinsiyet farkına bakılmaksızın elde edilen 10 adet Tuj koyunu başı materyal olarak kullanıldı. Bu materyallerin incelenmesi için latex karışımı a. carotis communis'lerden verildi. Tuj koyununda a. carotis communis'in a. occipitalis'i verdikten sonra a. carotis externa olarak devam ettiği belirlendi. Çalışmamızda a. carotis externa'nın a. carotis communis'in devamı niteliğinde olduğu ve sırasıyla çaplarının ortalama 4.42±0.46 mm ve 4.53±0.44 mm olduğu belirlendi. A. carotis externa'nın ilk bölümünden, a. lingualis ve r. parotideus'un, orta bölümünden a. auricularis caudalis, r. massetericus'un, son bölümünden ise terminal dalları olan a. temporalis superficialis ile a. transversa faciei'nin ortak kökünü ile a. maxillaris'in orijin aldığı tespit edildi. Tuj koyununda r. lacrimalis'in a. temporalis superficialis'ten farklı şekillerde orijin aldığı belirlendi. Özellikle boynuzlu koyunlarda a. cornualis'lerin daha kalın olduğu ve a. cornualis'lerin boynuz etrafında semisirkumfleks bir seyir izleyerek boynuzu besleyen çok sayıda ince dallar verdiği belirlendi. Boynuzlu koyunlarda a. temporalis superficialis'ten orijin alan en kalın dalın a. cornualis olduğu saptandı. Gl. parotis'in arteriyel beslenmesine r. parotideus, a. auricularis rostralis, a. transversa faciei ve a. temporalis superficialis'in ortak kökü ile a. transversa faciei'nin katıldığı tespit edildi. A. maxillaris'in, a. infraorbitalis ve a. malaris ortak kökü ile a. palatina descendens ve a. sphenopalatina ortak köküne ayrıldığı belirlendi. A. ophthalmica externa'nın tek kök halinde a. maxillaris'ten orijin aldığı saptandı. Çalışmada aa. ciliares posteriores longae, aa. ciliares anteriores, aa. episclerales ve aa. conjunctivales anteriores bulunamadı. Sonuç olarak Tuj koyununda a. carotis externa'nın baş bölgesindeki dağılımı genel olarak diğer küçük ruminantlarla benzerlik göstermesine rağmen a. carotis externa'dan orijin alan dalların orijin noktaları, seyirleri ve verdikleri alt dalların sayılarında bazı farklılıklar tespit edilmiştir. Çalışmanın bu konu ile ilgili eksikliği nispeten gidereceğini ve bundan sonra yürütülecek diğer araştırmalara referans olacağını düşünüyoruz.

Anahtar kelimeler: Arteria carotis externa, Tuj koyunu, Makroanatomi

Abstract

This study was conducted to aim of macroanatomical investigation of a. carotis externa and the last branches which provide arterial vascularization of head region in Tuj sheep. For this purpose, 10 Tuj sheep (regardless of gender) heads obtained from Veterinary Faculty Farm of Kafkas University were used as study material. Latex mixture was infused into a. carotis

communis to investigate of the materials. It was found that a. carotis communis continues as a. carotis externa after giving a. occipitalis in Tuj sheep. In the present study, a. carotis externa was found as a continuation of a. carotis communis and the widths were 4.42±0.46 mm and 4.53±0.44 mm, respectively. It was detected that a. carotis externa gives some branches which include a. lingualis and r. parotideus in first part, a. auricularis caudalis and r. massetericus in center part and the common roots of a. temporalis superficialis and a. transversa faciei and a. maxillaris in the last part as the terminal branches. It was determined that r. lacrimalis was originated from a. temporalis superficialis in different ways in Tuj sheep. Especially in the horned developed sheep it was determined that a. cornualis were thicker and a. cornualis followed semicircumphlex course around the horn and gave many fine branches feeding the horn. In the horn-developed sheep, it was determined that a. cornualis was the thickest branch originating from a. temporalis superficialis. It was found that the common root of r. parotideus, a. auricularis rostalis, a. transversa faciei and a. temporalis superficialis and a. transversa faciei participated to arterial feeding of gl. parotis. A. maxillaris was branched to a common root of a. infraorbitalis and a. malaris and to a common root of a. palatina descendens and a. sphenopalatina. A. ophthalmic externa was originated from a. maxillaris as a single root. Aa. ciliares posteriores longae, aa. ciliares anteriores, aa. episclerales and aa. conjunctivales anteriores were not detected in this study. As a result, although a. carotis externa of Tuj sheep shows an overall similar progress when compared with the other small ruminants, some differences were detected in the point of origins, progress and the number of sub-branches. We think that the worker will be relatively concerned about this issue and will be a reference to other researches to be conducted thereafter.

Keywords: External carotid artery, Tuj sheep, Macroanatomy

ÇANAKKALE / ÇAN KARADAĞ DAĞI KUŞLARI

ÇANAKKALE / ÇAN KARADAĞ MOUNTAIN BIRDS

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Özet

Bu çalışma, Çanakkale ili Çan ilçesinde bulunan Karadağ Dağında belirlenmiş olan 12 gözlem noktasında yapılmıştır. Karadağ bölgesindeki habitat farklılığı ve büyük bir sulak alanın bulunması bu alanı kuşlar için önemli üreme ve beslenme habitatlardan biri haline getirmektedir. Böylece bu alanı kullanacak tür sayısının da fazla olacağı tahmin edilmektedir. Yapılan çalışmada, Çanakkale'nin önemli doğal alanlarından olan farklı habitatlara sahip Karadağ Dağı bölgesinde bulunan kuşların incelenmesini amaçlamıştır. Çalışma, 2019-2020 yılları Mart - Ekim ayları Aralığında 44 günlük arazi çalışması şeklinde gerçekleştirilmiştir. Ayda 4 kez olmak üzere her noktada 20'şer dakika gözlem yapılmıştır. Yapılan çalışmaların sonucunda toplamda 11 Familya, 60 cinse ait 85 tür gözlenmiştir. Kuşların en yoğun görüldüğü alanlar Karadağ dağının kuzeyinde bulunan Bakacak baraj gölü civarındaki 1,6 ve 12 numaralı gözlem noktaları olarak belirlenmiştir.

Anahtar Kelimeler: Kuş, Nokta Sayım, Habitat

Abstract

This study was carried out at 12 observation points determined in the Karadağ mountain region in the Çan district of Çanakkale province. The habitat diversity in the Karadağ region and the presence of a large wetland make this area one of the important breeding and feeding habitats for birds Thus, it is estimated that the number of species that will use this area will be higher. This study, it was aimed to examine the birds in the Karadağ Mountain region, which has different habitats, which is one of the important natural areas of Çanakkale. The study was carried out in the form of a 44-day field study between March - October 2019-2020. Observations were made for 20 minutes at each point, 4 times a month. As a result of the studies, a total of 85 species belonging to 11 families and 60 genera were observed. The areas where the birds are seen the most are determined as the observation points 1,6 and 12 around the Bakacak dam lake located in the north of Karadağ Mountain.

Keywords: Bird, Point Counting, Habitats

KARADAĞ DAĞI ÇANAKKALE / ÇAN BAZI ENDEMİK VE NADİR BİTKİLERİ

KARADAĞ MOUNTAIN ÇANAKKALE / ÇAN SOME ENDEMIC AND RARE PLANTS

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Özet

Araştırma alanı Çanakkale ili, Çan ilçesinde bulunan Karadağ 'ı ve çevresini kapsamakta olup çalışmada bu bölgelerin florası araştırılmıştır. Bunun sonucunda tezin bir kısmından alınan bilgiler ile bazı endemik ve nadir bitkiler incelenmiştir. Çalışma alanı Davis'in Grid kareleme sistemine göre A1 karesi içinde yer almaktadır. Çalışma alanından 2019-2020 yılları arasında yapılan 24 farklı arazi çalışması kapsamında 602 bitki örneği toplanmış ve teşhisi yapılan bitkilerin arasından bazı endemik ve nadir olan bitkiler ve bu bitkilerin tehlike kategorileri belirlenmiştir. Toplanan bu endemik ve nadir bitkiler içerinden 6 familyaya ait tür ve tür altı takson tespit edilmiştir. Bu türler *Centaurea olympica C. Koch (LC), Crepis rubra L.* (VU), *Rorippa thracica (Griss.) Fritsch* (EN), *Campanula lyrata Lam. subsp. Lyrata* (LC), *Hypericum heterophyllum Vent*. (LC), *Crocus candidus E.D. Clarke* (VU), *Thymus zygioides Griseb. var. , lycaonicus (Celak.) Ronniger* (LC)'dir.

Anahtar Kelimeler: Endemik, Nadir, Bitki

Abstract

The research area covers Karadağ and its surroundings in Çan district of Çanakkale province, and the flora of these regions was investigated in the study. As the result, some endemıc and rare plants were examined with the information obtained from a part of the thesis.The study area is located in the A1 square according to David's grid system. 602 plant samples were collected from the study area within the scope of 24 differet field studies carried out between 2019-2020, and some endemic and rare plants, the danger categories of these plants were determined among the identified plants.Among these collected endemic and rare plants, species, and subspecies taxa belonging to 6 families were determined. Bu These species; *Centaurea olympica C. Koch (LC), Crepis rubra L.* (VU), *Rorippa thracica (Griss.) Fritsch* (EN), *Campanula lyrata Lam. subsp. Lyrata* (LC), *Hypericum heterophyllum Vent*. (LC), *Crocus candidus E.D. Clarke* (VU), *Thymus zygioides Griseb. var. , lycaonicus (Celak.) Ronniger* (LC)

Keywords: Endemic, Rare, Plants

THE ADOMIAN DECOMPOSITION METHOD FOR SOLVING WAVE EQUATION USING MAPLE

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Abstract

In this paper focuses on studying the adomian decomposition method (ADM) and using it to solve the wave equation. A wave is a disturbance that travels through a medium without causing it to change, such as a medium like water. There is no permanent displacement; on the whole, the progressive wave is the common name for these waves if the disturbance is perpendicular to the wave's propagation direction. The wave is referred to as transverse. If the turbulence is traveling in the same direction as the waves, it's known as longitudinal. At every given time, perturbation is a function of time, and at any given moment, perturbation is a function of time. The position of the point determines the amount of turbulence. Turbulence is a phenomenon that occurs in sound waves. It's the pressure difference in the middle. When light is transmitted to a material or a vacuum, the Turbulence results from the opposing forces of the electric and magnetic fields. We have given many examples that show the adomian decomposition method (ADM) to solve the wave equation using the Maple program. By comparing the exact and numerical solutions to the wave equation through tables and graphics, we obtained accurate and effective results that proved the studied method's accuracy, strength, and effectiveness.

Keywords: Adomian Decomposition Method, Wave equation, Maple18.

SOIL COMPACTION INFLUENCED SOIL PHYSICAL PROPERTIES AND SOYBEAN (GLYCINE MAX.) YIELD IN OGBOMOSO, SOUTHWESTERN NIGERIA

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Abstract

Compaction is one of the major threats to soil sustainability as it can have negative effects on soil physical properties. Therefore, field experiments were conducted at Ladoke Akintola University of Technology Teaching and Research Farm, Ogbomoso, South-western Nigeria, in 2015 and 2016 to evaluate the influence of soil compaction on selected soil physical properties, growth, yield and nutrient uptake of soybean. The experiment was arranged in a randomized complete block design and replicated three times. There were four treatments which consisted of 0 (no pass of tractor wheel), 4, 8, and 14 passes of tractor wheel totaling 16 treatments. Soil physical properties determined were; bulk density, total porosity, macroporosity and saturated hydraulic conductivity .While data recorded on soybean were plant height, stem girth, number of leaves, biomass and grain yield. Data collected were subjected to Analysis of Variance and significant means were compared using Least Significant Difference at 5% level of probability. Although not significant, soil physical properties decreased with increased levels of soil compaction in both years of study. Growth of soybean was significantly reduced by soil compaction with 14 passes producing the shortest plant (91.46, 29.10 cm) compared to the control (103.96, 30.27 cm) respectively, for 2015 and 2016. Grain yield of soybean significantly decreased by 12, 27, 44% respectively, for 4, 8 and 18 passes of tractor wheel. The study indicates that soil compaction as result of tractor wheel passes should be minimized on agricultural fields in order to reduce the adverse effects on soil physical properties and soybean growth and yield.

Keywords: Soil compaction, physical properties, soybean yield, nutrient uptake

VALORIZATION OF MOROCCAN BENTONITE DEPOSITS: "PURIFICATION AND TREATMENT OF MARGIN BY THE ADSORPTION PROCESS"

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Abstract

The main objective of this work was to contribute to the reduction in the contamination of phenolic compounds contained in margin by an adsorption process on two types of raw bentonite. The margin used in the studies was collected from a semi-modern oil mill located in the Nador–Morocco region. The results of the physico-chemical analyses showed that the effluents of the oil mills showed that they are highly polluted, particularly in terms of the total suspended solids (TSS), chemical oxygen demand (COD), and iron content of around 154.82 (mg/L), and copper content of 31.72 (mg/L). The mineralogy of bentonites studied by X-ray diffraction (XRD) reveals the existence of two types of montmorillonite; theoretically, the diffraction peak (001) of the montmorillonite appears at 15 Å, with a basal spacing that corresponds to a calcium pole, and the diffraction peak (001) appears at 12Å, with a basal spacing that corresponds to a sodium pole. The specific surface area of the bentonite used is characterized by a large specific surface area, varying between 127.62 m2•g−1 and 693.04 m2•g−1, which is due to the presence of hydrated interleaved cations. This surface is likely to increase in aqueous solution depending on the solid/liquid ratio that modulates the degree of

hydration. With a high cation exchange capacity (CEC) (146.54 meq/100 g), samples of margin mixed with raw bentonites at different percentages vary between 5% and 100%. The potential of Moroccan bentonite for the phenol adsorption of 9.17 (g/L) from aqueous solutions was investigated. Adsorption tests have confirmed the effectiveness of these natural minerals in reducing phenolic compounds ranging from 8.72% to 76.23% contained in the margin and the efficiency of heavy metal retention through microelements on raw bentonites. The very encouraging results obtained in this work could aid in the application of adsorption for the treatment of margin.

Keywords: raw bentonites; retention; margin; heavy metal; adsorption; phenolic compound.

CONTEXTUALIZED TEACHING IN MATHEMATICS, PERCEPTIONS AND ATTITUDES TOWARDS PROBLEM-SOLVING

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Abstract

This study aimed to review an evidence of contextualization defined as an instructional approach with its two degrees, localization and indigenization processes and its impact to the students' perceptions and attitudes towards problem-solving in mathematics. It sought to determine as to how it can create an impact to the thriving negative influence on the students' perceptions and attitudes towards problem-solving. This descriptive-correlational survey design was conducted at Molave Vocational Technical School (MVTS) A.Y. 2018-2019 with Senior High School students being surveyed considering their exposure to contextualized teaching. The study utilized a validated self-formulated questionnaire and the adapted and modified Perceptions and Attitudes towards Problem Solving in Mathematics Scales (PTMS) and (ATMS) in gathering necessary data to determine its statistical significant relationships. The results revealed that students have high exposure to contextualization. In addition, it has influenced very high perceptions and high attitudes towards problem solving in mathematics. Also, it is manifested statistically the evident correlation between the aforementioned variables despite its methodological limitations. Contextualization is viewed by students as an aid in connecting situations and problems, promote critical thinking and deeper understanding and perform real-world activities. Further, it is implied that contextualization has the potential to accelerate the progress of underprepared students towards a more globally competitive higher education fora. Teachers are highly encouraged in the utilization of the contextualization process.

Keywords: contextualization, localization, indigenization, Perceptions and Attitudes, towards Problem Solving in Mathematics Scales (PTMS) and (ATMS)

INFLUENCE OF THE RECTANGULAR GROOVE AMPLITUDE ON REDUCING THE WIND LOAD OF A STEADY FLOW AROUND A CIRCULAR CYLINDER.

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Abstract

The subject matter of this research is that of revealing the effects of the roughness on the hydrodynamic of the fluid around a grooved cylinder, by examining the groove shape and amplitude. The present study devoted to a numerical investigation of laminar steady flow around a rectangular grooved cylinder. The current paper concerns the two-dimensional flow of a Newtonian fluid across rectangular grooved cylinder of diameter *D*. The present study reports on grooves amplitude (δ) of 1/100, 1/50 and 1/25, while the rectangular grooves was chosen to be 20, equally distributed around the circumference of the cylinder, over a Reynolds number range of ($0.1 \leq \mathrm{Re} \leq 40$). The numerical algorithm used in this simulation is based on the finite volume method on resolution of 480x240 grid points in the radial and circumferential direction respectively.

The present study carried out to investigate the effects of the wall roughness on the hydrodynamic behavior of the fluid around a rectangular grooved cylinder, via examining the drag coefficient, the length of the wake and the pressure coefficient.

The predicted results showed an excellent agreement with the available results of literature for validation. The emerged results suggest that at a fixed Reynolds number, the drag coefficient exhibits a pronounced reduction over the rectangular grooved cylinder compared to the smooth one, this trend is more pronounced as the groove amplitude increases, while the pressure coefficient exhibits a slight increase with increasing the groove amplitude.

Keywords: Drag Coefficient, Groove Amplitude, Grooved Cylinder, Steady flow.

KAMU HİZMET BİNALARININ BAKIM VE ONARIM MALİYETLERİNİN REGRESYON YÖNTEMİ İLE ÖN TAHMİNİ

EARLY ESTIMATION OF MAINTENANCE AND REPAIR COSTS OF PUBLIC SERVICE BUILDINGS WITH REGRESSION METHOD

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Özet

Türkiye'de kamu yapı stoğu gün geçtikçe yaşlanmakta ve mevcut binaların bakım ve onarımı için her geçen gün bütçeden önemli bir kaynak aktarılmasına ihtiyaç duyulmaktadır. Kısıtlı mali kaynaklar nedeniyle kamu hizmet binalarının bakım ve onarım maliyetlerinin doğru bir şekilde tahmin edilmesi gerekmektedir. Ancak, personelin iş yükü, bakım ve onarım işlerinin bünyesinde pek çok belirsizliği barındırması gibi nedenler sağlıklı bir şekilde maliyet tahmini yapılmasına imkan vermemektedir. Bu bağlamda kamu binalarının bakım ve onarım maliyetlerinin önceden doğru bir şekilde tahmin edilebilmesi hem gerçekçi bir bütçe oluşturulması için hem de işin planlama ve kontrolü için önem arz etmektedir. Bu, sadece kamu kurumunun bütçe planlamaları için değil aynı zamanda işi yapacak olan yüklenici firmalariçinde önemlidir. Bu çalışmada, regresyon analizi yöntemi ile kamu hizmet binalarının bakım ve onarım maliyetlerinin ön tahmini için modeller geliştirilmiştir. Modellerin geliştirilmesinde uzun yıllardır kullanımda olan 50 adet kamu hizmet binasına ait veriler kullanılmıştır. Kamu hizmet binalarının projeleri ve bina bilgi kartlarından yararlanılarak bina oturum alanı, kat sayısı, kullanım süresi, binayı kullanan yıllık ortalama kişi sayısı ve gerçek maliyet verileri parametre olarak belirlenmiştir. Belirlenen bu parametreler kullanılarak doğrusal regresyon analizleri yapılmış ve sonuçta geliştirilen tahmin modellerinden korelasyon katsayısı $R^2 = 0,863$ olan ve seçilen tüm parametrelerin kullanıldığı model en başarılı sonucu vermiştir. Çalışma sonuçlarının, kamu hizmet binalarının bakım onarımı için planlanan ödeneklerin doğru bir şekilde ihale öncesinde belirlenmesine ve bu ödeneklerin daha etkin ve verimli bir şekilde kullanılabilmesine imkân vereceği değerlendirilmiştir.

Anahtar Kelimeler: Regresyon Analizi, Maliyet, Maliyet Tahmini

Abstract

The public building stock in Turkey is getting older day by day and an important resource is needed from the budget for the maintenance and repair of existing buildings. Due to limited financial resources, the maintenance and repair costs of public service buildings need to be accurately estimated. However, reasons such as the workload of the personnel and the many uncertainties in the maintenance and repair works do not allow a reliable cost estimation. In this context, it is important to be able to accurately predict the maintenance and repair costs of public buildings both for the creation of a realistic budget and for the planning and control of the work. This is important not only for the budget planning of the public institution, but also for the contractor companies that will do the work. In this study, models have been developed for the

preliminary estimation of maintenance and repair costs of public service buildings with the regression analysis method. Data belonging to 50 public service buildings, which have been in use for many years, were used in the development of the models. By using the projects of the public service buildings and the building information cards, the building area, the number of floors, the usage period, the annual average number of people using the building and the actual cost data were determined as parameters. Linear regression analyzes were performed using these determined parameters, the model with correlation coefficient $R^2 = 0.863$ and using all selected parameters, among the estimation models developed, gave the most successful result. It has been evaluated that the results of the study will allow the appropriations planned for the maintenance and repair of public service buildings to be determined correctly before the tender and to use these appropriations more effectively and efficiently.

Keywords: Regression Analysis, Cost, Cost Estimation

ELECTRONIC AND MOLECULAR DOCKING STUDIES ON 5-(TRIFLUOROMETHYL)PYRIDINE-2-THIOL

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Abstract

The B3LYP and WB97XD functionals of time dependent-density functional theory (TD-DFT) with LANL2DZ basis set were used to determine optimized molecular geometry, the highest occupied molecular orbital (HOMO) – the lowest unoccupied molecular orbital (LUMO) energies, absorption wavelengths, and electronic properties of 5-(trifluoromethyl)pyridine-2-thiol. Global reactivity descriptors (hardness, softness and electronegativity, etc.) were evaluated using the DFT (B3LYP and WB97XD) method with the LANL2DZ basis set. Therefore, in this work, the ionization potential (I), electron affinity (A), electronegativity (χ), chemical hardness (η), softness (s), and electrophilic index (w) were investigated for 5-(trifluoromethyl)pyridine-2-thiol. The indicator used in the computational bio-activity study of the molecule is the electrophilic index. In addition, the toxic potential of substances can be estimated by calculating the electrophilic index. The DNA interaction of 5-(trifluoromethyl)pyridine-2-thiol was analyzed by molecular docking simulations. AutoDock4 program was used to generate the binding energy of 5-(trifluoromethyl)pyridine-2-thiol. Out of thirty docked confirmations obtained for 5-(trifluoromethyl)pyridine-2-thiol, one which has lowest binding energy was selected. The comparatively low HOMO- LUMO energy gap suggests that the charge transfer may occur within 5-(trifluoromethyl)pyridine-2-thiol. The title compound may be used as reagents or precursors in many fields such as physics, chemistry, pharmacology, and materials science.

Keywords: 5-(trifluoromethyl)pyridine-2-thiol, DFT, Molecular Docking

COVİD-19 İÇİN YAPILAN AŞI SONRASI GELİŞEN VİTİLİGO, KOLLARDA UYUŞMA

VITILIGO DEVELOPING AFTER VACCINATION FOR COVID-19, NUMBNESS IN THE ARMS

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Özet

COVID-19 pandemisi, tüm dünyada ciddi bir halk sağlığı sorunu olarak ortaya çıkmış ve yanıt verilmesi gereken bir sürecin başlatılmasına neden olmuştur. 11 Mart 2020 tarihi itibarıyla da Dünya Sağlık Örgütü bu olayı Uluslararası Sağlık Tüzüğü'ne istinaden halk sağlığı acili olarak ilan etmiştir. COVID-19 pandemisine yanıt vermek amacıyla devletimiz tarafından gerçekleştirilmesi planlanan müdahalelerden biri de kitlesel COVID-19 aşılamasıdır. Hastalığa maruz kalma, hastalığı ağır geçirme ve bulaştırma riskleri ile hastalığın toplumsal yaşamın işleyişi üzerindeki olumsuz etkisi değerlendirilerek COVID-19 aşısı uygulanacak gruplar belirlenmiş olup aşılama başlatılmıştır. Bugüne kadar COVID-19 aşılarına yönelik gerek yürütülen klinik çalışmalarda gerekse mevcut aşı uygulamalarında ciddi yan etkilere rastlanmamıştır. Bunlardan bazıları; ateş, şişlik, kızarıklık, kırgınlık, baş ağrısı, eklem ağrısı, ishal-kusma nadirde olsa alerjik reaksiyonlar görülebilir.

Birincisi 45 ve ikincisi 20 yaş, erkek ve kadın hasta, covid aşısı sonrası 1.haftada gelişen kollarda uyuşma ve vücutta oluşan dermatolojik lezyonlar nedenli hastane başvurularında: Genel durum orta-iyi, şuuru açık, oryante ve koopere. TA: 120/80 mmHg, NDS: 64/dk, ritmik, V.sıc: 36,3^{0}C civarı tesbit edildi. Kalp sesleri ritmik, solunum sesleri doğal, vücutta özlellikle baş ve kollarda cilt döküntüleri mevcut. PTÖ yok, Kas gücü 5/5. Laterizasyon yok. Patolojik refleks yok idi. Hasta yapılan dermatolojik muayeneden sonra lezyonların vitiligo olduğu ve hastanın bakılan laboratuar değerlerinde patoloji görülmedi. Hastanın diğer tetkikler doğaldı. Hastaya vitiligo için steroid içerikli pomad, ateş ve kollardaki uyuşma ve karıncalanma için parasetamol ve istirahat önerildi. Hastanın dermatolojik lezyonları iki haftanın sonunda kayboldu ve iyileşti. Kollardaki uyuşma ve karıncalanma 10.gün sonunda kayboldu.

Aşılama sonrasında görülen yan etkiler sıklıkla hafiftir. Bunlar; yorgunluk, baş ağrısı, ateş, titreme, kas/eklem ağrısı, kusma, ishal, aşı uygulanan bölgede ağrı, kızarıklık, şişlik gibi hafif yan etkilerdir. Ancak nadir de olsa başka patolojiler ve alerjik reaksiyonların olabileceği unutulmamalıdır. Covid-19 aşısı uygulamasından sonra bunlar ve bunların dışında aşıyla ilişkili olabileceği düşünülen bir ciddi rahatsızlık hissedilmesi durumunda en yakın sağlık kuruluşuna başvurulmalıdır.

Anahtar Kelimeler: cilt döküntüsü, vitiligo, kollarda uyuşma

Abstract

The COVID-19 pandemic has emerged as a serious public health problem all over the world and has led to the initiation of a process that needs to be responded to. As of March 11, 2020, the World Health Organization declared this event as a public health emergency in accordance with the International Health Regulations. One of the interventions planned by our government to respond to the COVID-19 pandemic is mass COVID-19 vaccination. The groups to be vaccinated against COVID-19 were determined by evaluating the risks of exposure to the

disease, the risks of severe and transmission of the disease, and the negative impact of the disease on the functioning of social life, and vaccination was initiated. To date, serious side effects have not been encountered in the clinical studies and current vaccine applications for COVID-19 vaccines. Some of those; fever, swelling, redness, malaise, headache, joint pain, diarrhea-vomiting, although rare, allergic reactions may occur.

The first 45 and the second 20 years old, male and female patients, at the hospital admissions due to numbness in the arms and dermatological lesions in the body that developed in the 1st week after the covid vaccine: General condition is moderate-good, conscious, oriented and cooperative. TA: 120/80 mmHg, NDS: 64/min, rhythmic, V.temp: around 36.30C. Heart sounds are rhythmic, breathing sounds are natural, there are skin rashes on the body, especially on the head and arms. No PTO, Muscle strength 5/5. There is no laterization. There was no pathological reflex. After the dermatological examination of the patient, the lesions were vitiligo and no pathology was observed in the laboratory values of the patient. Other examinations of the patient were normal. The patient was recommended steroid-containing ointment for vitiligo, paracetamol for fever and numbness and tingling in the arms, and rest. The patient's dermatological lesions disappeared and healed at the end of two weeks. The numbness and tingling in the arms disappeared at the end of the 10th day.

Side effects seen after vaccination are often mild. These; These are mild side effects such as fatigue, headache, fever, chills, muscle/joint pain, vomiting, diarrhea, pain in the injection area, redness and swelling. However, it should be kept in mind that there may be other pathologies and allergic reactions, albeit rare. In case of any serious discomfort that is thought to be related to the vaccine after the administration of the Covid-19 vaccine, the nearest health institution should be consulted.

Keywords: skin rash, vitiligo, numbness in arms

ALKALİ AKTİVATÖR KULLANILARAK ÜRETİLEN BETONLARDA KARBONATLAŞMA ETKİSİNİN İNCELENMESİ

INVESTIGATION OF CARBONATION EFFECT IN CONCRETES PRODUCED USING ALKALINE ACTIVATOR

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Özet

Yapıların kullanım ömrü boyunca güvenli bir şekilde hizmet vermesi, dış etkilere karşı dayanıklı olması doğru bir tasarımla mümkün olabilir. İnşaat sektöründe yoğun olarak kullanılan betonarme taşıyıcı sistemler, temelde iki ana bileşenden (Beton ve Betonarme çeliği) oluşmaktadır. Karışım tasarımı çevresel koşullar göz önünde bulundurularak yapılmış, minimum boşluk yapısına sahip geçirimsiz bir beton, betonarme çeliğini korozyona karşı koruyarak yapının kullanım ömrü boyunca güvenle hizmet vermesini sağlar Donatının korozyona karşı korunmasında beton tasarımı önemli bir rol oynar. Asit içerikli sıvılar ve klorür iyonları, yetersiz pas payı ve karbonatlaşma etkisi ile donatının korozyona uğramasına yol açabilir. Karbonatlaşma etkisi ile donatıların korozyona uğraması, $Ca(OH)_2$ 'nin ortamda bulunan CO_2 ile tepkimeye girerek $CaCO_3$ dönüşmesi ile açıklanır. Bu tepkime sonucunda betonun pH seviyesi $Ca(OH)_2$'nin tükenmesi ile yaklaşık 12,6'dan 8,3 seviyesine düşer. Ortamda bulunan CO_2 miktarından tutunda karışıma giren malzemelerin özelliklerine varıncaya kadar birçok parametre karbonatlaşma ile ilişkilidir. Nüfusun yoğun olduğu şehirlerde yüksek CO_2 miktarı nedeniyle donatının karbonatlaşma etkisiyle korozyona uğrama riski artar. Çimento kullanılarak üretilen betonarme sistemlerde betonun karbonatlaşma etkisinin araştırıldığı yeterli sayıda çalışma yapılmıştır. Fakat son yıllarda dikkat çeken çevre dostu çimentosuz betonun karbonatlaşma etkisini araştıran çalışmaları karşılaştıran ve özetleyen yeterli çalışma bulunmamaktadır. Alkali aktivatörler kullanılarak üretilen ve atıkların çevre dostu yeni kompozit ürünlere dönüşümüne olanak sağlayan yapı malzemeleri, giderek yaygınlaşmaktadır. Bu aktivatörler ile üretilen yapı malzemelerinin mekanik, fiziksel ve dayanıklılık özelliklerinde geleneksel betona göre daha kısa sürede daha iyi sonuçlar elde edilebilmektedir. Geçirimsiz ve yüksek mukavemetli betonlarda, karbonatlaşma derinliğinin daha az ilerlediği söylenebilir. Sonuç olarak bu çalışma kapsamında geopolimer beton, alkali ile aktifleştirilmiş çimento, alkali ile aktifleştirilmiş beton, cüruf beton vb. daha önce farklı terminoloji ile gerçekleştirilen ve karbonatlaşmanın etkisini inceleyen çalışmalar derlenmiş ve karşılaştırmalı bir analiz yapılarak sunulmuştur.

Anahtar Kelimler: CO_2, Çimento, Geopolimer beton, Karbonatlaşma

Abstract

With the right design, it is possible for the buildings to serve safely throughout their lifetime and to be resistant to external influences. Reinforced concrete carrier systems, which are used extensively in the construction industry, basically consist of two main components (Concrete and Reinforcement). An watertight concrete with a minimum void structure, the mixture design of which is made by considering the environmental conditions, can serve safely throughout the life of the structure by protecting the reinforcement against corrosion. Concrete design plays an important role in protecting the reinforcement against corrosion. Acid-containing liquids and chloride ions can lead to corrosion of the reinforcement with insufficient concrete cover and carbonation effect. Corrosion of the reinforcements with the effect of carbonation is explained

by the transformation of $Ca(OH)_2$ into $CaCO_3$ by reacting with the CO_2 in the environment. As a result of this reaction, the pH level of the concrete drops from approximately 12.6 to 8.3 with the depletion of $Ca(OH)_2$. Many parameters, from the amount of CO_2 in the environment to the properties of the materials entering the mixture, are related to carbonation. In cities where the population is populous, the risk of corrosion of the reinforcement due to carbonation increases due to the high amount of CO_2. Numerous studies have been conducted to investigate the carbonation effect of concrete in reinforced concrete elements produced using cement. However, there are not enough studies comparing and summarizing the studies investigating the carbonation effect of environmentally friendly cementless concrete, which has attracted attention in recent years. Building materials, which are produced using alkaline activators and enable the transformation of wastes into environmentally friendly new composite products, are becoming more and more common. Better results can be obtained in a shorter time compared to conventional concrete in the mechanical, physical, and durability properties of building material produced with these activators. It can be said that carbonation depth progresses less in impermeable and high-strength concretes. As a result, geopolymer concrete, alkali-activated cement, alkali-activated concrete, slag concrete, etc. Previous studies, which were carried out with different nomenclature and examined the effect of carbonation, were compiled and presented by making a comparative analysis.

Keywords: CO_2, Cement, Geopolymer concrete, Carbonation

BİTKİ ÇİMLENMESİ VE KÖKLENDİRİLMESİ İÇİN ALTERNATİF TOPRAKSIZ TARIM MATERYALİNİN ARAŞTIRILMASI

RESEARCH OF ALTERNATIVE SOILLESS AGRICULTURAL MATERIAL FOR PLANT GERMINATING AND ROOTING

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Özet

Bitkilerin çimlenmesi, köklendirilmesi ve yetiştirilmesi için kullanılan verimli toprakların yüz ölçümü gün geçtikçe azalmaktadır. Aynı coğrafyada bile farklılaşan verimlerde veya verimsizlikte toprakların olduğu görülmektedir. Ayrıca günümüzde tarım, bahçecilik ve peyzaj konularında popüler ticari ve araştırma alalarından birisi de yapay toprak veya topraksız tarım uygulamalarıdır. Topraksız tarım özellikle ekilebilir toprağın olmadığı/bitki yetiştirmeye uygun olmadığı durumlarda tercih edilmektedir. Böylece bitkilerin çimlenmesi, kök atması ve kök bölgesinin gelişmesi için fiziksel ve kimyasal açıdan ideal bir ortam sağlanması, bitki yetiştiriciliğinde risklerin minimize edilmesi, bitki kalitesinde artış öne çıkan yönlerindendir. Ulusal ölçekte topraksız tarım uygulamalarında genelde ithal orjinli torf, cocopeat vb. materyaller kullanılmaktadır. Bu çalışmada, alternatif topraksız tarım için yeni bir ürün geliştirilecek olup poliüretan esaslı atıklardan bitki ekimi için yatak kompozisyonlar belirlenecektir. Yeni ürünlerinde bitkinin büyüme ve gelişmesine etkisi incelenecektir. Ayrıca çalışmanın başarıya ulaşması endüstriyel atık geri dönüşümü açısından büyük öneme sahip olacaktır. Böylece zirai amaçlı daha ucuz ve emsallerine benzer niteliklerde toprak alternatif materyali geliştirilecektir. Ziraat alanında ithal kullanılan torf, cocopeat ürünlere ödenen yüksek miktardaki döviz kaybı engellenmesinin yanında ihraç edilerek ihraç edilecektir.

Sonuç olarak, çeşitli poliüretan türleri ve dansitelerdeki kompozisyonlar bitki ekimleri sonrası büyüme çimlenme ve köklenme süreçleri zamana bağlı olarak değerlendirilmiştir. Yapılan ekimlerde topraksız tarım için geliştirilen sünger kompozisyonlarında bitki köklerinin yumuşak sünger yapısında daha hızlı ilerleyebildiği, daha fazla su ve besin kaynağına ulaşabildiği görülmüştür. Ayrıca alternatif olan ithal ticari ürünlerin cocopeat gibi ithal malzemelerle kıyaslandığında süngerin kendi doğası gereği yüksek yüzey alanına sahip olması ve iç yapısının çok daha uzun süre nem tutabilmesi sebebiyle çimlenme ve köklenme sürecini desteklediği görülmüştür. Ayrıca kimyasal içeriği sebebiyle bitkinin gelişimine olumsuz etki edecek zararlı olan organizma (böcek vb.) ve unsurları da barındırmaması gereksiz zirai ilaç kullanımınında önüne geçecektir. Yapılan bu çalışmada ithal olarak topraksız tarımda kullanılan cocopeat veya çeşitli özelliklere sahip olan (ph) torf bileşenlerine alternatif bir malzeme olan süngerin bitkilerin büyüme zamanlarında ciddi oranda kısalma ve verimlerinde de ciddi oranda artış görülmüştür.

Anahtar Kelimeler: Poliüretan, sünger atık, topraksız tarım, köklenme, çimlenme

Abstract

The area of fertile soils used for the germination, rooting and cultivation of plants is decreasing day by day. Even in the same geography, it is seen that there are soils with varying yields or infertility. In addition, one of the popular commercial and research areas in agriculture, horticulture and landscaping today is artificial soil or soilless farming applications. Soilless agriculture is preferred especially in cases where there is no arable land/not suitable for growing

plants. Thus, providing an ideal physical and chemical environment for the germination, rooting and development of the root zone, minimizing the risks in plant cultivation, and increasing plant quality are among the prominent aspects. In national scale soilless agriculture applications, imported origin peat, cocopeat etc. are generally used. materials are used. In this study, a new product will be developed for alternative soilless agriculture and bed compositions will be determined for planting from polyurethane-based wastes. The effect of new products on the growth and development of the plant will be examined. In addition, the success of the study will be of great importance in terms of industrial waste recycling. Thus, soil alternative material for agricultural purposes, inexpensive and similar to its alternatives, will be developed. In addition to preventing the high amount of foreign currency loss paid to peat and cocopeat products used in agriculture, it will be exported and exported. As a result, various polyurethane types and compositions in densities were evaluated according to the growth, germination and rooting processes after planting. In the sponge compositions developed for soilless agriculture, it has been observed that plant roots can progress faster in the soft sponge structure and reach more water and nutrient sources. In addition, when compared to imported materials such as cocopeat, the alternative imported commercial products support the germination and rooting process due to the fact that the sponge has a high surface area due to its nature and its internal structure can hold moisture for a much longer time. In addition, due to its chemical content, it does not contain harmful organisms (insects, etc.) and elements that will adversely affect the development of the plant, and it will prevent unnecessary use of pesticides. In this study, it was observed that the growth times of the plants were shortened significantly and the yields of the sponge, which is an alternative material to the imported cocopeat used in soilless agriculture or the (ph) peat components with various properties, were significantly increased.

Keywords: Polyurethane, sponge waste, soilless agriculture, rooting, germination

POLİÜRETAN SÜNGER EBATLAMASINDA İYİLEŞTİRME ÇALIŞMASI

IMPROVEMENT IN POLYURETHANE FOAM SIZING

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Özet

Ultrasonik kesim, ürün deformasyonunu engellemek için 20 kHz, 30kHz ve 40 kHz gibi yüksek frekanslarda titreşim sağlayarak yapılan kesme işlemidir. Ultrasonik kesim hamur, peynir ve et gibi gıda maddelerinin kesilmesi, yün, halı, köpük, kauçuk, hafif malzemeler, folyo veya tekstil gibi malzemelerin yıpranmadan veya çözülmeden ayrılması için dikey ve yatay kesim yöntemidir. Ultrasonik kesimde malzeme kaybının olmaması, malzeme yüzeylerinde yıpranma görülmemesi, yüksek derecede proses güvenliğinin olması tercih edilme sebebidir. Ultrasonik kesim hızlı, güvenilir ve maliyet açısından ucuz olması ile pek çok alanda kullanımı garanti eder. Ultrasonik kesici bıçağını saniyede 20.000 - 40.000 kez (20 - 40 kHz) titreştir. Bu hareket nedeniyle, ultrasonik kesici kolayca reçine, kauçuk, dokunmamış kumaş ve kompozit malzemeler kesebilir. Bakım konusunda mükemmel olmasının yanı sıra, ürünlerin herhangi bir kırıntı, atık su, gürültü veya dumanı önemli ölçüde boşaltmadıkları için çevre dostudur. Yapılan çalışmada, poliüretan kesim ve ebatlama çalışmalarında konvensiyonel olarak kullanılan yöntemlere alternatif olarak bu yöntemlerin dezavantajlarını ortadan kaldırmak amacıyla ultrasonik kesim yöntemi kullanılmıştır. Öncelikle sünger kesimde tespit edilen olumsuz yönler belirlenmiş, sonrasında ultrasonik kesim için optimum parametreler belirlenmiştir. Bu çalışma ile kesim sırasında en sık karşılaşılan problem olan kesim yapılan kesitlerdeki lokal tahribatların/deformasyonların sonraki proses aşamalarında ortaya çıkardığı ebatlama problemleri ve fazla yarı ürün kullanımı minimize edilecektir. Süngerler blok halinde üretildiğinde yan yüzeylerinde üretim prosesi gereği kabuklar oluşmaktadır. İstenilen ölçüde rulo kesim yapıldığında süngerdeki kabuklar her iki tarafta da kalmaktadır. Kullanım esnasında bu kabuklar arzu edilmemektedir. Bunun için dairesel bloklarla kesilerek istenilen net ölçü alınmakta ve kabuklar ayrılmaktadır. Bu kesimi ultrasonik kesim ile yaparak istenmeyen kabuklar alınmış olmuştur. Bununla beraber yüksek Hz de manyetik titreşim sağlayarak kesim yaptığından kesim yerinde alt-üst yüzeyler birbirine yapışması sağlanmakta ve kenarlar rijit kalmaktadır. Bu sayede rulo süngerlerin kullanımında bir makineye verildiğinde süngeri çekerek açmaktadır. Özellikle 0,2-0,8 cm kalınlığındaki süngerlerde çekme nedeniyle uzama oluşarak, en ölçüsünde daralma olmaktadır. Ultrasonik kesim ile sağlanan rijit kenarlar ölçü küçülmesini engeller. Bu sayede normal kullanım ölçüsünden 3 cm fazla kullanılması gerekirken, bu fazlalığa gerek kalmadan net ölçüde sünger kullanım imkanı sağlar. Bunun sonucunda süngerin fireye gitmesi engellenirken malzeme ve hammadde tasarrufu sağlanmış olur.

Anahtar Kelimeler: ultrasonik kesim, sünger, firede iyileşme

Abstract

Ultrasonic cutting is the cutting process by providing vibration at high frequencies such as 20 kHz, 30 kHz and 40 kHz to prevent product deformation. Ultrasonic cutting is a vertical and horizontal cutting method for cutting foodstuffs such as dough, cheese and meat, separating materials such as wool, carpet, foam, rubber, lightweight materials, foil or textiles without abrading or melting. The reason why it is preferred is that there is no material loss in ultrasonic cutting, no wear on the material surfaces, and a high degree of process safety. Ultrasonic cutting

is fast, reliable and cost-effective, ensuring use in many areas. The ultrasonic cutter vibrates its blade 20,000 - 40,000 times per second (20 - 40 kHz). On account of this movement, the ultrasonic cutter can easily cut resin, rubber, non-woven fabric and composites. Besides being excellent in maintenance, the products are environmentally friendly as they do not significantly discharge any crumbs, waste water, noise or fumes. In the study, ultrasonic cutting method was used as an alternative to the conventional methods used in polyurethane cutting and sizing studies in order to eliminate the disadvantages of these methods. First of all, the negative aspects detected in sponge cutting were determined, then the optimum parameters for ultrasonic cutting were determined. With this study, the most common problems encountered during cutting, the sizing problems caused by local destructions/deformations in the cut sections, and the use of excess semi-products in the next process stages will be minimized. When sponges are produced in blocks, crusts form on their side surfaces due to the production process. When the roll is cut to the desired size, the crusts on the sponge remain on both sides. These crusts are not desired during use. For this, the desired net size is taken by cutting with circular blocks and the shells are separated. By making this cut with ultrasonic cutting, unwanted crusts are removed. However, since it cuts by providing magnetic vibration at high Hz, the upper and lower surfaces are adhered to each other at the cutting site and the edges remain rigid. In this way, when it is given to a machine in the use of roller sponges, it opens the sponge by pulling. Especially in 0.2-0.8 cm thick sponges, elongation occurs due to shrinkage and narrowing occurs in the width. Rigid edges provided by ultrasonic cutting prevent size reduction. In this way, while it should be used 3 cm more than the normal usage size, it provides the opportunity to use a net sponge without the need for this excess. As a result, the sponge is prevented from going to waste, and material and raw materials are saved.

Keywords: ultrasonic cutting, sponge, recovery in waste

INVESTIGATION OF FLAME RETARDANT EFFECTS OF BORIC ACID AND BORAX ON CELLULOSIC FABRICS

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Abstract

Flame retardants are necessary in order to delay the spread of the flame into the product. The most commonly used flame retardants are alumina, magnesium hydroxide, antimony trioxide and phosphorus, boron, chlorine, nitrogen and bromine compounds. Boron compounds have a wide range of use as flame retardants and studies on their use as flame retardants are increasing day by day. Boron compounds provide the formation of a protective glassy layer that prevents carbon oxidation and suppress the combustion by covering the burning material in a way that cuts off its contact with oxygen. In this study, the flame retardant effects of boric acid and borax on cellulosic fabrics were investigated. Boric acid and borax solutions at different concentrations were prepared and impregnated into cellulosic fabrics. Seven different fabric samples were prepared. Flame retardant performances of boric acid, borax and their mixtures at different concentrations on cellulosic fabrics were determined by vertical flame test and limiting oxygen index (LOI) test methods. The results showed that boric acid and borax have very good flame retardant properties when impregnated separately into the fabrics. However, it has been observed that when boric acid and borax are used together, it gives the best results due to the synergistic effect. Since boric acid and borax are environmentally friendly and effective flame retardants, it is recommended to expand their uses as flame retardants in the textile industry and other industries.

Keywords: Boric acid, borax, flame retardant, LOI

THE APPLICATIONS OF MULTIMEDIA AND E-LEARNING TECHNOLOGY IN EDUCATION

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Abstract

E-learning technology based on multimedia has had a tremendous impact on our daily teaching and learning activities. It has centred the learning process on the student. E-learning has become more fascinating than traditional education systems due to the usage of multimedia technologies. It began in the 1980s and has continued to develop since then. This innovative technology provides pupils with the benefit of studying in a fresh way. E-learning approaches make education more engaging and fascinating. It has also had a bigger influence on our culture and school system. It is now simple to study and teach without being fatigued. E-learning creates virtual learning environments on the internet via teacher-student interactions, online assessment, and interactive multimedia-based course material dissemination. Interactive multimedia delivers various kinds of media and suitable content delivery based on learners' learning styles, which improves learners' learning effectiveness. This article discusses the rapidly evolving technology of "Multimedia and e-education." Smart teaching approaches are increasingly being used in schools, as well as other institutions and organisations. E-textbooks are electronic textbooks that are used in a learner's actual class. The digital textbook makes advantage of the most recent smart gadget and technology.

Keywords: Multimedia, Education, E- Learning, digital classroom

AISI 1040 ÇELİĞİNİN DÜŞÜK KESME HIZINDA TORNALANMASININ SONLU ELEMANLAR YÖNTEMİ İLE İNCELENMESİ

INVESTIGATION OF TURNING OF AISI 1040 STEEL AT LOW CUTTING SPEED BY FINITE ELEMENT METHOD

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Özet

Dönen silindirik bir iş parçasından kesici takım yardımı ile talaş kaldırılması ile oluşan tornalama işlemi, talaşlı imalatta en yaygın olarak kullanılan kesme tekniklerinden biridir. Bir tornalama işleminde ilerleme hızı, kesme hızı ve kesme derinliği gibi kesme parametrelerinin değerleri, verimliliği arttırmak ve toplam üretim maliyetinin azaltılması için dikkatli bir şekilde seçilmelidir. Kesme sırasında meydana gelecek kesme kuvvetleri takım ömrü doğrudan etkilemektedir. Bu nedenle, kesme parametreleri kontrol edilmelidir. Bu çalışmada, yüksek mukavemete sahip ve korozyona karşı direnci ile bilenen endüstride yaygın olarak kullanılan AISI 1040 paslanmaz çeliğinin tornalama sırasında meydana gelen kesme kuvvetlerinin sonlu elemanlar yöntemi ile incelenmesini içermektedir. İşleme deneyleri Sonlu elemanlar analiz yazılımı olan ThirdWave AdvantEdge yapılmıştır. Çok sayıda tasarım ve analiz aracı sağlayan bu program, kesme işlemlerini similasyonunu yapmak için özel olarak tasarlanmıştır. Nümerik analizler, sabit kesme derinliğinde (a) farklı ilerleme hızı (f) ve farklı kesme hızlarında gerçekleştirilmiştir. Analiz sonuçlarına göre artan ilerleme hızının (mm/devir) (f) elde edilen bileşke kesme kuvvetini arttırdığı kaydedilmiştir.

Anahtar Kelimeler: Tornalama; Kesme Kuvvetleri, Sonlu Elemanlar Yöntemi, AISI 1040

Turning, which consists of removing metal from the outside diameter of a rotating cylindrical workpiece, is one of the most common cutting techniques in machining. In the turning process, the values of cutting parameters such as feedrate, cutting speed and depth of cut must be carefully selected to increase productivity and reduce the total cost of production. The cutting forces that will occur during cutting will shorten the tool life; therefore, this parameter should be checked. In this study, the forces that occur during the turning of AISI 1040 stainless steel, which is widely used in the industry with high strength and resistance to corrosion, are examined by the finite element method. Processing experiments were performed with ThirdWave AdvantEdge, the finite element analysis software. Providing a large number of design and analysis tools, this program is specially designed for simulating cutting operations. Numerical analyzes were performed at constant depth of cut (a) at different feed rates (f) and different cutting speeds. According to the results of the analysis, it was noted that increasing feed rate (mm/rev) (f) increased the resultant cutting force.

Keywords: Turning; Cutting Force., Finite Element Method, AISI 1040

FARKLI YÜRÜME HIZLARININ TİBİA VE TİBİOTALAR EKLEM ÜZERİNE ETKİLERİNİN DEĞERLENDİRİLMESİ: SONLU ELEMANLAR ANALİZ YÖNTEMİ

EVALUATION OF THE EFFECTS OF DIFFERENT WALKING SPEEDS ON THE TIBIA AND TIBIOTAS JOINT: FINITE ELEMENT ANALYSIS METHOD

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Özet

Yürüme egzersizi günlük fiziksel aktivitelerin başında gelmektedir. Bu çalışmada, total diz protezi (TDP) uygulanan bir hastanın farklı yürüme hızlarında tibiada meydana gelen gerilme dağılımları ve tibiotalar eklem üzerine meydana gelen reaksiyon kuvvetleri sonlu elemanlar analizi yöntemi ile incelenmiştir.

Farklı yürüme hızlarında diz ekleminde oluşan yüklerin in vivo ölçümüne izin veren Telemeterik TDP uygulaması ile yürüme döngüsündeki tibia platosunda meydana gelen kuvvet değerleri kaydedilmiştir. Bir ölçüm seansında hasta 2 km/s, 3 km/s ve 5 km/s hızlarında yürütülerek diz ekleminde meydana gelen F_x, F_y ve F_z kuvvetleri ile M_x,M_y ve M_z moment değerleri kaydedilmiştir. Sağlıklı bir insanın alt ekstremite bilgisayarlı tomografi görüntüleri MIMICS ve Geomagic programları kullanılarak tibia ve tibiotalar eklem üç boyutlu olarak modellenmiştir. Elde edilen modeller sonlu elemanlar yazılımı olan ANSYS Workbench V19'a gönderildi. Talus alt bölgesinden sabit kabul edilerek tibia platosuna her üç durumda elde edilen kuvvet ve moment değerleri uygulanmıştır. Tibiada meydana gelen maksimum gerilme kuvvetleri ile Tibiotalar eklemde meydana gelen reaksiyon kuvvet değerleri kaydedilmiştir.

Analizler sonucunda tibiada meydana gelen von-mises stress değeri ve tibiotalar eklemde meydana gelen reaksiyon kuvvet değerleri kaydedilmiştir.

Operasyon sonrası alt ekstremite egzersizlerinin planlanmasında yönlendirici rol oynayabilir ve günlük yürüme aktivitesi esnasında alt ekstremiteye binen yükler hesaplanarak oluşabilecek komplikasyonlar ön görülebilir.

Anahtar Kelimeler: Yürüme, Total Diz Protezi, Sonlu Eleman Analizi

Abstract

Walking exercise is one of the daily physical activities. In this study, the stress distributions on the tibia and the reaction forces on the tibiotalar joint of a patient who underwent total knee replacement (TDP) at different walking speeds were investigated by the finite element analysis method.

With the Telemeteric TDP application, which allows in vivo measurement of the loads on the knee joint at different walking speeds, the force values occurring on the tibial plateau during the walking cycle were recorded. In one measurement period, the patient was walked at speeds of 2 km/h, 3 km/h, and 5 km/h, and the F_x, $F_{y,}$ and F_z forces and M_x, $M_{y,}$ and M_z moment values in the knee joint were recorded. The lower extremity computed tomography images of a healthy person were modeled in three dimensions using MIMICS and Geomagic programs. The resulting models were sent to the finite element software ANSYS Workbench V19. The force and moment values obtained in all three statuses were applied to the tibial plateau, assuming fixed support from the lower region of the talus. The maximum tensile forces in the tibia and the reaction force values in the tibiotalar joint were recorded.

As a result of the analysis, von-mises stress value in the tibia and reaction force values in the tibiotalar joint were recorded.

It can play a guiding role in the planning of the lower extremity exercises after the operation and the complications that may occur can be predicted by calculating the loads on the lower extremity during daily walking activity.

Keywords: Gait, Total Knee Prosthesis, Finite Element Analysis

DISSECTION THREE MAIN CHALLENGES FOR IRANIAN TEACHER TRAINING IN THE FIELD OF ENVIRONMENTAL EDUCATION

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Abstract

Teacher training is the starting point of any change in the education system. Environmental education (EE) at teacher training (TT) University is doubly important, because on the one hand, the student-teachers of this university, like other academics, form the future citizens of the society, and these trainings change their personal and family lifestyle, and on the other hand, due to the role of the future teachers has been in close contact with students for at least three decades, has a tremendous impact on the perspective and behavior of the next generation in relation to the environment. The present study tries to address three basic questions about teacher training in environmental education in the Iranian context with a documentary-analytical approach: The first is "why and how in the Teacher Training University of Iran should be given all teachers of general environmental education?" , second "The title" Human and the Environment "in the 11th grade, the second year of high school ignored its main prerequisite, namely the training of a specialist teacher to teach this course?" And third, "What is the status of in-service training for teachers that teach the environment course?". The results of this study indicate that in response to the first question, it should be said that although in the curriculum of some teacher training disciplines such as educational science departments, two optional environmentcourses have been seen, but this course is rarely offered to students and lacks priority. It is the presentation and teaching that in this regard, the policy makers of the teacher training curriculum should have a fundamental review. In response to the second question, it should be said that presenting the course "Human and Environment" as a common and general course for all disciplines in the 11th grade of Iranian education without anticipating teacher training for it, while ignoring specialization, shows a lack of understanding of complexities and it has the unique subtleties of environmental education in the formal structure of education. In response to the third question of this research, it should be stated that in-service training of teachers has been very effective in keeping teachers' professional knowledge up to date, but it is mostly neglected. The present study critiques the existing gaps, with an analytical-comparative approach, reviews the experiences of leading countries about teacher training in environmental education and tries to clarify the existential and functional philosophy of the teacher training system in environmental education and quantitative and qualitative development strategies of environmental education. Comparative analysis of the experiences of countries throughout the world is very helpful and its results help policymakers and executives to avoid testing the subjects and achieve the best theoretical and practical model for Iran by localizing successful examples.

Keywords: Teacher Training University, Environmental Education, Formal Environmental Education, In-Service Education, Student-Teacher.

PLAYING WITH SOIL; A COMBINATION OF GAME AND NATURE EXPERIENCE

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Abstract

Experiencing nature is a key solution to improve the quality of physical, mental, and emotional health and development of children's ecological and social identity. The aim of this study is to develop the discourse of indirect education through experience and direct communication with nature and to investigate the impact of such experiences on the development of children's ecological identity and their environmental actions in adulthood with the help of research literature in psychology and ecology after theoretical saturation. According to the findings of this study, by providing the opportunity for direct and indirect experience of nature, a potential opportunity is provided for children to enjoy the benefits of environmental microbiomes, phytoncides, negative air ions, sunlight, landscapes and sounds of nature. The creative combination of nature and play experience for children, what exactly happens on playing with soil, is very sweet and hearty; because in addition to responding to environmental motivations, it also helps to satisfy some kind of intrinsic motivation arising from childish curiosity. In addition, in the relationship between man and soil, there is an ancient, institutional, instinctive and deep connection that has been recorded in ancient human archetypes since ancient millennia. it becomes children's emotional and provides the necessary conditions for the development of their talents, tools, needs and communication. In the process of playing with soil, the child experiences, challenges, solves problems, has the opportunity to be creative in interaction with the environment, and in this context, practices cooperation with others. During playgrounds, children gain a deeper knowledge of themselves, their nature and their playmates. Therefore, understanding the philosophy and facilitating children's playing with soil helps to better design educational, training and treatment programs for families, kindergartens, schools and children's hospitals.

Keywords: Indirect environmental education, direct experience of nature, ecological identity, play therapy.

DEMOLITION WASTE: AN ALTERNATIVE OF CEMENT

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Abstract

Cement is the second most usable material in the world. Cement is obtained after mining, crushing and heating of limestone and dolomite. The cement manufacturing is highly energy intensive process. The manufacturing process led to emission of green house gases and cause environmental degradation. The construction waste utilization led to effective management of unwanted material generated out of either new construction to be carried out or from the demolition of old ones. The demolition waste can be blended with cement, gravel and sand. The blending proportion depends upon the proposed usage. The best out of waste technology should be parallel to the envirofriendly green technology utilization in today's world. This aggregate can be utilised for construction of paving block, readymade grills. The adaptation of new technology will be an alternate for cement. This new green initiative is aimed towards financial, economical and social benefit of society and mankind. This will save earth from mining and quarrying. This is more important in today's world, to make our world a place where all the people can live using sustainable technology.

Keywords: cement, mining, crushing, heating, green, sustainable

INTEREST RATE RISK OF SELECTED PUBLIC & PRIVATE SECTOR BANKS OF INDIA (WITH REFERENCE OF MATURITY GAP ANALYSIS)

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Abstract

Asset Liability management of a bank refers to strategic decision making and devising strategies with respect to mitigation of different types of risk with a core objective of risk minimization and profit maximization. Banks are exposed to varied types of risk such as Liquidity Risk, Interest Rate Risk, Credit Risk, Operational risk, Forex Risk, Off Balance Sheet Risk, etc. and enhancement in all the risks finally leads to the risk of insolvency and bankruptcy of a bank. Asset Liability Management committee of a bank works on management of Interest Rate Risk of a bank which is the most crucial risk aspect. The present paper analyzes the Interest Rate Risk of a bank using the Maturity Gap model. The maturity gap is the difference between Risk Sensitive Assets and Risk Sensitive Liabilities which is reviewed in eight time buckets as specified by RBI. Maturity Gap of 15 public and 15 private sector banks in eight time buckets as specified by RBI is analyzed using One-way Anova to see if there is significant difference in Maturity Gap among selected public and private banks. Students t-test is used to compare the two independent groups i.e., Public and Private sector banks Maturity Gap to know if there is significant difference in means of the two groups time-bucket wise. The t-test shows that there is significant difference in mean Maturity Gap in some time buckets & insignificant difference in mean Maturity Gap in some time buckets of public and private sector banks.

Keywords: Asset Liability management, Interest Rate risk, Maturity Gap, Time-Buckets

AN INTELLIGENT AUTOMATIC MONITORING SYSTEM FOR VIOLENCE DETECTION

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Abstract

The availability of visual information in the form of video does not cease to evolve exponentially, making manual processing very difficult and expensive. In order to facilitate efficient and fast automatic operation of rich information contained in a sequence video, semantic annotation and Automatic video analysis is now becoming a tool very useful or even inevitable to automatically and quickly detect certain acts of violence in public places. The purpose of this research topic is to realize an automatic system annotation and semantic analysis of the visual content of the video. This system will generally include several phases: preprocessing the video, segmenting the content of the video, extracting the descriptors and characteristics of the video content, and finally the classification and recognition concepts contained in the video in order to extract and recognize the situations of acts of violence, current surveillance and control systems still require human supervision and intervention. This work presents a novel automatic violence detection system in videos appropriate for both, surveillance and control purposes. We reformulate this detection problem into the problem of analyzing and detecting faces, objects and moves by building the key training data set guided by the results of a deep convolutional neural networks classifier, then assessing the best classification model.

Keywords: Machine learning, Object detection, Convolutional Neural Network, face recognition, Convolutional Neural Network (CNN)

A NOVEL TECHNO-ECONOMIC ANALYSIS OF HYBRID RENEWABLE ENERGY SYSTEMS USING ARTIFICIAL INTELLIGENCE OPTIMIZATION TECHNIQUES

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Abstract

The essential function of a modern electric power system is to provide an adequate electrical supply to its customers as economically as possible. This paper focuses on the optimization and operation of the renewable energy power sources for electrification of isolated rural city in Algeria desert. For this purpose, a system composed by photovoltaic (PV), wind turbine (WT), battery bank (BB) as well as for storing the energy in the electrical form and fuel cell (FC) with hydrogen gas tank (H_2 Tank) and electrolyzer (Elect) system for storing the energy in the chemical form is used to fulfill the need of the load. In the present paper we are interested in evolutionary algorithms for solving optimization problem of hybrid renewable energy system. However, a new heuristic algorithm namely whale optimization algorithm (WOA) is used to solve multi-objective optimization problem of cost of energy (COE), total net present cost (T_{NPC}) and loss power supply probability (LPSP). Two recent algorithms, particle swarm optimization (PSO) and grey wolf optimizer (GWO) are also implemented in this work. The results of simulations and comparison with other methods exhibit high accuracy and validity of the proposed whale optimization algorithm to solve multi-objective optimization problem of hybrid renewable energy system.

Keywords: COE, T_{NPC}, LPSP, WOA, Fuel cell, hybrid system

SURFACE ROUGHNESS MODELLING USING ARTIFICIAL INTELLIGENCE

THE EFFECT OF THE TOOL TRAJECTORY STRATEGY USING AN ARTIFICIAL NEURAL NETWORK MODEL

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Abstract

The roughness of a machined surface depends on several parameters such as the feed speed (**f**), the nose radius (**r**), the cutting speed (**Vc**), the spindle speed (**N**), the material of the part and the tool, tool wear (**Vb**), and others including uncontrollable parameters. Therefore, it is very difficult to model mathematically the roughness of a surface (**Ra**) according to all these parameters.

Several methods for modelling the surface roughness have been reported in different research works. These methods can be classified into, statistical, mathematical, and artificial intelligence techniques. Some of the researchers used the statistical techniques, or mathematical models, others used the neural network techniques, which they have chosen different cutting parameters, for example, feed rate (**f**), tool nose radius (**r**), cutting speed (**Vc**), axial depth (**Da**), and radial depth (**Dr**), or spindle speed (**N**), and feed rate (**f**).

In this work the roughness model based on the following parameters: cutting speed **Vc**, the depth of cut **ap**, feed rate **f**, and the type of tool path **TP**, to see the influence of **TP** on the roughness of the surface, using the artificial intelligence tools, especially Artificial Neural Network (**ANN**), then the comparison of the results obtained by ANN and those obtained by statistical methods. The outputs of the **ANN** are surface roughness Ra, the Material Removal Rate (**MRR**), and the Cutting Time (**CT**). ANN's learning is done by a reduced number of experiments determined by the Taguchi method.

Keywords: Face milling, surface roughness, Artificial Neural Network, tool path, cutting parameters.

RESEARCH ON MATERIALS USED FOR PRESSURE VESSELS

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Abstract

The study of micromechanisms plays a key role in the development of engineering metal alloys, in the manufacture and assessment of the mechanical integrity of pressure equipment. For example, in the steel industry, the development of new alloys takes place rapidly, as about half of existing compositions are replaced with new compositions every five years. In today's industry, two-phase steels and other multiphase steels are fast becoming one of the most popular and best materials. Currently, these steels are most commonly used in structural applications where they have replaced conventional high-strength steels with weak alloys. When choosing materials, the working conditions must be taken into account first of all: temperature, pressure, aggressiveness of thermal agents.

Keywords: pressure vessels, compositions, metal alloys.

STUDIES REGARDING COMPOSITE MATERIALS WITH POLYMERIC MATRIX

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Abstract

Polymer matrix composites (PMCs) have gained considerable interest mainly due to their low cost and higher specific strength and stiffness compared to conventional metallic alloys. In addition, PMCs offer greater design flexibility and superior resistance to corrosion and fatigue. Since their appearance, polyamides have known a growing use in various branches of engineering, such as aerospace engineering, machine building, robotics, etc. At present, over 80% of the structure of the products manufactured and used contain plastic parts, usually obtained by injection, although sometimes milling operations are also necessary to obtain the final part. These polyamides belong to the class of technical plastics and are thermoplastics with excellent mechanical properties, also used in the engineering industry. Research results are very useful for industrial scale processing, because they allow for the determination of the optimal parameters of the cutting condition with a view to obtaining a certain cutting force.

Key words: Modeling, composite, polyamide, polymer matrix composites.

NUMERICAL EVALUATION OF AN H-DARRIEUS TURBINE IN CONFIGURATION WITH EXTERNAL ACCESSORIES

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Abstract

Hydrokinetic Turbines are an alternative for small hydroelectric power plants. The H-Darrieus turbine are considered as low environmental impact, they don't require water dams, however, they have low self-starting capacity. With proper configuration or external accessories, the H-Darrieus turbine could increase or decrease its performance, because it affects the speed and pressure of the blades. The objective of this study is to evaluate by CFD the torque and power coefficient generated by three H-Darrieus rotors. The blade profile used was NACA 0018 with solidity 1, 1.35 y 1.79. Each rotor was configured with two accessories and without accessories to compare the improvement in the coefficients. The study was performed in ANSYS ® R2021.2. For the discretization, we worked in the ICEM CFD module. All meshes were superimposed by the Overset Mesh method, with which the cells of each component and their movements are controlled. The simulation was runner in FLUENT module, where the model was configured at constant and equal operating conditions for the three rotors. Overlapping meshes are used for the stationary and rotating domain configuration. The results show an improvement of the positive torque and a decrease of the negative torque when configuring the rotor with external accessories, the rotor configured with a Venturi-shaped accessory managed to obtain a 660% improvement in the power coefficient with respect to the rotor without accessories. Furthermore, Increased solidity equates to decreased tip speed ranges and increased maximum rotor power.

Keywords: Darrieus hydrokinetic turbine; numerical simulation; external accessories, efficiency, solidity.

SELENIUM-DOPED SILICON FOR PRODUCING N-TYPE SEMICONDUCTOR

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Abstract

Selenium ions were implanted into a silicon wafer with different bombardment energies using the SRIM program. As selenium is a donor element, the doped silicon becomes n-type semiconductor. The depth of the doped region is proportional to the ion beam energy where the mean ion ranges were 398, 705, and 1902 Å for the energies 50, 100, and 300 KeV, respectively. The introduction of selenium produces damage in the silicon target. In fact, this damage which is represented by the displacement of silicon atoms is attributed to the collision with selenium ions. Furthermore, the phonons amount increases as the ion beam energy increases. The highest rate of sputtered Si atoms is observed for 100 KeV. For higher energies as 300 KeV, the sputtering yield decreases since the ejected Si atoms from relatively high depths don't have enough energy to reach the silicon surface.

Keywords: Selenium, Silicon, Ion implantation, n type.

NUMERICAL SIMULATION OF A HYDRAULIC SAVONIUS TURBINE FOR IN-PIPE ENERGY HARVESTING

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Abstract

Drinking-water distribution systems for urban environments must maintain the pressure within ranges specified by the network operators to reduce losses of this precious liquid and avoid damage to the pipe structure due to overpressures. To carry out the pressure control process, the most used strategy is the implementation of Pressure Reducing Valves (PRV's). However, in recent years, turbine systems have been utilized in pipelines, which allow pressure regulation inside the networks, but with a substantial advantage, which is the use of the energy available in the fluid for hydropower generation. This represents a renewable and eco-friendly approach towards the 7th Sustainable Development Goal: affordable and clean energy.

In the present work, the fluid dynamic performance of a vertical axis Savonius turbine was analyzed. The turbine has a diameter of 68.2mm and is located inside a pipe of 76.2mm in diameter. For this purpose, a total of 81 steady-state simulations were performed parametrically, using the turbulence model RANS Standard $k-\varepsilon$ with a Frozen Rotor interface, where the mass flow of the fluid through the pipe and the angular velocity of the turbine are input parameters. The mechanical torque and the pressure difference at the inlet and outlet are the variables calculated by the CFX solver of the Ansys 2020 R1 software. The fluid dynamic characteristic curves of the investigated turbine were obtained for different working conditions varying in volumetric flow and rotational speed of the turbines. The Best Efficiency Point (BEP) of the Savonius turbine was identified for a maximum numerical hydraulic efficiency of 9.75 %, at a volumetric flow of 8×10^{-3} m^3/s, a pressure head of 3 m, and a mechanical power of 22.89 W.

Keywords: In-pipe turbines. Savonius. Computational fluid dynamics. CFD.

COMPARISON BETWEEN TWO METHODS OF EXTRACTING A WILD PLANT FROM THE ALGERIAN SAHARA

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Abstract

The extraction of medicinal plants is a necessary step to isolate the bioactive molecules. However, this method is carried out using chemical solvents which can extract the molecules but also pollute the extract. Traditional methods of extraction are more efficient and can produce pure and unpolluted molecules. In this study, two methods of extracting a medicinal plant are tested for efficiency, known as calotropis procera. The plant was obtained from the Sahara of Algeria. The first method was to extract the plant with chemical solvents. The plant powder was put in ethanol for 72 hours. After maceration, the ethanolic extract was filtered and the extract was decanted with solvents; chloroform, butanol and ethyl acetate. After filtration, the extracts appeared in transparent green color. The extracts were kept in glass bottles and stored in the refrigerator. The second method is a cold extraction of the calotropis procera plant without chemical solvents. The extract has not been filtered. A black to dark green extract was obtained. We put the extract in a UV-resistant bottle. The extracts obtained were immediately tested on rats and they were not stored in the refrigerator. The extracts of the calotropis procreatic plant obtained by the two methods were tested for their protective effects vis-à-vis the toxicity of mercury. The results of the histopathology study of the kidney and liver of male Wistar rats treated with Calotropis procera extract obtained by cold extraction show that the renal glomeruli are of normal structure. The extract obtained by cold extraction completely protected the liver of the rats. However, the extract obtained by chemical and hot extraction did not protect the kidneys and liver of rats from mercury toxicity.

The results of this study demonstrate that cold extraction is a key to obtaining pure and effective molecules that can protect vital organs like the kidney and liver. The purpose of this research is to show the importance of a new method of extracting plants used in the Sahara of Algeria, including the most delicate ones like calotropis procera.

Keyword: Cold extraction, chemical extraction, calotropis procera, antioxidants, kidney, liver.

SAĞLIKTA YAPAY ZEKA: KULLANIMI

ARTIFICIAL INTELLIGENCE IN HEALTH: PERSPECTIVES AND USES

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Özet

Dünyanın en hızlı büyüyen endüstrilerinden biri olan yapay zeka sektörü, 2018 yılında yaklaşık 1,2 trilyon dolar değerindeydi ve 2022 yılına kadar 4 trilyon dolara ulaşması bekleniyor. Yapay Zeka, normalde insanlar tarafından gerçekleştirilen görevleri daha kısa sürede ve daha az kaynakla gerçekleştirerek hastaların, doktorların ve hastane yöneticilerinin hayatlarını basitleştirir. Tıp alanındaki insan yeteneklerinin cephaneliğini tamamlayan araçlar olan eski teknolojilerin aksine, günümüzde yapay zeka, tıbbi görüntülemeden risk analizine ve sağlık teşhisine kadar çeşitli görevleri üstlenerek insan aktivitesini zaman bağlamında gerçekten artırabilir. Tıpta toplanan veri miktarı sürekli artmaktadır.

Böylece tüm bu bilgilerin hızlı ve verimli bir şekilde toplanması, analiz edilmesi ve sınıflandırılması gerekli hale gelmektedir. Derin öğrenmeye vurgu yapan yapay zeka (AI), bu alanda büyük umut vaat ediyor ve halihazırda temel araştırma, teşhis, ilaç geliştirme ve klinik denemeler için başarıyla kullanılıyor. İster genetik kodlar arasında yeni bağlantılar bulmak, ister cerrahi robotları kontrol etmek için kullanılsın, yapay zeka, modern sağlık hizmetlerini tahmin edebilen, anlayabilen, öğrenebilen ve harekete geçebilen makinelerle yeniden açıyor ve yeniden tanımlıyor.

Anahtar Kelimeler: yapay zeka, makine öğrenimi, nesnelerin interneti, veri madenciliği, robotik, algoritmalar, ilaç geliştirme.

Abstract

One of the fastest growing industries in the world, the artificial intelligence sector was estimated at about $1,2 billion in 2018 and is projected to reach $4 billion by 2022. Artificial intelligence simplifies the lives of patients, doctors, and hospital administrative staff by performing tasks that are usually performed by humans, but in less time and with less resources. Unlike outdated technologies, which are just tools that complement the Arsenal of human capabilities in the field of medicine, AI today can really increase human activity in the context of time, taking on tasks that range from medical imaging to risk analysis and diagnostics of patients ' health. The volume of data collected in medicine is constantly growing.

This makes it necessary to quickly and efficiently collect, analyze, and classify all this information. Artificial intelligence (AI), with an emphasis on deep learning, has great promise in this field and has already been successfully used for basic research, diagnostics, drug development, and clinical trials. Whether artificial intelligence is used to find new connections between genetic codes or to control surgical robots, it is rediscovering and giving new impetus to modern healthcare with machines that can predict, understand, learn and act.

Keywords: artificial intelligence, machine learning, Internet of things, data mining, robotics, algorithms, drug development.

STATIC AND DYNAMIC ANALYSIS OF HYBRID TALL STRUCTURAL SYSTEM

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Abstract

In this communication authors investigated the static and dynamic characteristics of multi-story building subjected to uniformly distributed load and wind load. Static and dynamic behavior of hybrid high rise buildings have been studied with considering a vertical cantilever flat panel under uniformly distributed load, wind load and combination of both. Firstly, linear and nonlinear bending response of vertical cantilever plates has been analyzed under triangular load. The finite element method is employed here based on first-order shear deformation theory with account of Green-Lagrange nonlinearity. Nine-node degenerated shell element is used to model the multi-story building as a vertical cantilever beams / plates and developed the FORTRAN program. Mixed Interpolation Tonsorial Components (MITC) approach is incorporated to eliminate spurious membrane and shear stresses. To incorporate MITC approach, first resolved direct strains ($\varepsilon_{ij}^{DI} = e_{ij} + \eta_{ij}$, e_{ij} and η_{ij} linear and nonlinear strain components; respectively) at Gaussian points, thereafter further interpolations has been done at trying points and calculated the assumed strains ($\varepsilon_{ij}^{AS}(\xi,\eta) = \sum_{k=1}^{n_{ij}} N_k^{ij}(\xi,\eta)\varepsilon_{ij}^{DI}(\xi,\eta)$, $N_k^{ij}(\xi,\eta)$ are shape functions (polynomials in isoparametric coordinates ξ and η)). Efficacy of developed FORTRAN code is tartan and compared the present numerical results with available published and ANSYS simulated results.

Nonlinear governing equations are solved using Newton Raphson iterative method and solution will be updated at sub-step. Thereafter, the dynamic characteristics of multi-story buildings have been investigated by considering the building as a vertical cantilever plates and the governing equations of motion are derived by employing Hamilton's principle. Free vibration behaviour of high rise building also being studied using the Matrix Amplitude Method (MAP) $\left[K_L + \frac{4}{3\pi} K_{NL1}(\delta_{\max}) + \frac{3}{4} K_{NL2}(\delta_{\max}, \delta_{\max}) - \theta^2 M \right] \{\delta_{\max}\} = \{0\}$.

Keywords: high rise building; wind load; static and dynamic analysis

INTERNATIONAL ENGINEERING SCIENCES AND APPLICATION

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Abstract

The grain growth kinetic and effect on mechanical behavior of plain carbon steel was investigated in this paper. Samples were normalized at temperatures ranging from 900 °C to 1100 °C in increments of 50 °C for 30, 60, 100, 150 and 200 minutes. Optical micrographs were taken to measure the grain size using Jefferies Planimetric Method. The mechanical properties such as yield strenght, tensile strenght, elongation and hardness of each grain size obtained by the conventional method. The results show that the increase in heating temperature and holding time causes grain growth. With increasing time, the growth rate decreases. The proportionality constant, K, and initial grain size D0 were determined where K= 2.26 [µm2/min] and D0 = 25.09 [µm] at 950 °C. The strength properties and hardness increase considerably with a decrease in grain size. Conversely a decrease in ductility with a decrease in grain size.

Keywords: grain growth kinetic, Jefferies Planimetric Method, austenitization temperature, holding time, mechanical properties.

EFFECTIVE FAULT TOLERANT CONTROL DESIGN FOR DOUBLE FED INDUCTION GENERATOR

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Abstract

The Double Fed Induction Generator (DFIG) has many faults that affect its performance, such as the load torque disturbance and the rotor resistance variation, for this reason, there are a lot of benefit to design FTC that compensates for the impact of this faults.

In this paper, a Passive Fault Tolerant Control (PFTC) based on non-linear sliding mode (SMC) control is proposed for a Double Fed Induction Generator (DFIG) under rotor resistance variation caused by the broken rotor bars faults In order to improve its reliability and availability.

Fault Tolerant Control systems can maintain particular closed-loop performance not only in normal situations, but also when the fault occur.

The suggested PFTC can ensure acceptable performance In the event of BRB, this approach ensures resilience against uncertainty and external disturbances and the effect of the BRB faults, a Model Reference Adaptive System (MRAS) is introduced to estimate the rotor resistance variation [4]. When the fault occur in the double fed induction generator the rotor resistance can be varied, this variation has an effect to the DFIG performances so we increase the gain of the SMC control gradually to compensate the fault effect.

The obtained results confirm that the proposed FTC has a better robustness against the BRB fault where the DFIG operates with acceptable performance in both active and reactive power.

Keywords: Passive Fault Tolerant control (PFTC), Double Fed Induction generator (DFIG), Sliding Mode Control (SMC), Model Reference Adaptive System (MRAS)

NUMERICAL ANALYSIS OF THE TEMPERATURE AND MECHANICAL FIELDS IN A FSW WELDING JOINT

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Abstract

Since the invention of Friction Stir Welding (FSW) in 1991 by The Welding Institute (TWI), the industries have been investigating the possibility to use this process instead of riveting. The Friction Stir Welding (FSW) is a solid-state welding process, without melting. The weld is fabricated thanks to the action of the tool made of a shoulder and a pin, positioned at the interface of the two pieces to be welded. The tool as two roles: heating of the material by friction of the shoulder, plastic deformation and mixing of the material due to the pin. This relatively new process is currently the subject of active research.

The present study focuses on numerical analysis of stress and strain fields due to the effort generated from the pin tool of friction stir welding, then appreciate the temperature distribution in joint welded by the finite element method using the ABAQUS software.

The numerical results have shown how fields of stresses and plastic deformation in the weld joint FSW seem to describe successfully the change in the state of the material (solid-state mixing state) taking into account the mechanical action of the tool.

Keywords: Welding FSW, generated effort, Plastic deformation, temperature.

EFFECT OF STRESS GRADIENT ON WEB BUCKLING STRENGTH OF FRP BOX-BEAMS

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Abstract

Fiber reinforced polymer (FRP) composites applications have increased in civil engineering because of their numerous favourable properties, especially their high strength and stiffness, light weight, and corrosion resistance. While box-beam applications have also been increased in bridges due to their high torsional stiffness, bending resistance and sectional integrity. The combination of FRP and box-beam is ideal in light weight bridges but being a thin-walled member, their designs are often governed by buckling criteria. Generally, in the FRP box-beam based on their elements two types of buckling's are possible i.e., web and flange buckling. Web buckling strength is greatly influenced by classical and secondary effects. In this paper, attempt is made to quantify the effect of stress gradient (secondary effect) on web buckling strength. Extensive parametric studies through simulations are conducted with the help of finite element analysis software 'ANSYS' by changing the fiber orientation, geometry and load case. Based on the generated database, generic curves are presented which will be helpful to the designers at the preliminary stage.

Keywords: FRP box-beam; Web buckling; Stability problem; Stress gradient; FE analysis

ELEMENTS OF VERNACULAR ARCHITECTURE. CASE STUDIES OLTENIA REGION

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Abstract

The numerous legislative changes in the nineteenth and twentieth centuries had multiple effects on social, economic, political, but especially cultural life. From some survivals of the devastated villages, to the co-operative type property, to the natural return to the private property, here are stages and fragmentations of some lives disturbed by laws that are not always correct with respect to certain natural rights. The communist period overturned value systems, disturbed social structures, so that the question: what has been kept in a natural order, returns to a rhetoric of a necessary ontological order. The co-operative roller has somewhat bypassed the old peasant court, and this becomes somewhat visible in the stubbornness of some traditional elements specific to them to withstand time at all costs. There are numerous outbuildings in the current village courtyards that diligently maintain the old times order. We will try to look with understanding at the inherent transformations that have taken place in these peasant courts that seem frozen in ancient times. We will not follow a classification, but a discovery of the "survivals" of the important ethnographic elements, specific to Oltenia.

The construction of a house, therefore, is a summation of symbolic gestures. Popular architecture offers many details meant to "talk" about a traditional mental horizon. Field researches from 2011-2013 carried out in Dolj county (Bulzeşti, Vulpeni), Olt, Gorj, but also in Argeş county, highlighted a series of in situ survivals of many households that keep the patriarchal air of the past by saving in time elements of traditional architecture: the slate roof, the porch, the gazebo or the perforated decorations, or the particular ways of joining the beams - these are just some of the signs that speak of a world that is still preserved, although insular, both material and spiritual - through ancient traditions and traditions.

Keywords:vernacular architecture, traditional houses, Oltenia region,

ENERGY MODELING AND OPTIMIZATION OF A WIND POWER SYSTEM IN THE ADRAR REGION

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Abstract

The production of Electrical energy from so-called renewable sources in general and wind energy in particular, continues to increase and becomes more and more significant. Currently, the problem is not just how much energy is produced from an unpredictable source but how much can be improved and optimized. Each wind power system contains three main subsystems which can be modelled independently: Turbine (aerodynamic power), Generator side converter (active and reactive power) and the grid side converter (injected power). Our objective in this article is to contribute to the improvement and optimization of the quality of energy produced taking into consideration the real wind speed in the Adrar region**.**

Keywords: wind; modeling; turbine; converter; Permanent magnet synchronous generator (PMSG).

ARTIFICIAL INTELLIGENCE AND AUTO-DIAGNOSIS OF ALZHEIMER'S DISEASE: STATE OF THE ART AND NEW RESEARCH DIRECTIONS

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Abstract

The Alzheimer's disease is a degenerative disease of the brain in which abnormal chemical substances accumulate and cause a progressive deterioration of memory and intellectual capacities. Currently, Alzheimer's affects 6% of people over the age of 65 worldwide. It is estimated that more than 850,000 people suffer from Alzheimer's type dementia and that each year nearly 200,000 new cases are diagnosed.

Nowadays, Artificial Intelligence is becoming more and more a multidisciplinary field that offers a variety of tools to make our lives easier. In particular, the exploitation of AI in the medical field has given a new lease of life to the latter by proposing the automation of several tasks such as the analysis of radio images, the prescription of treatments and even the accompaniment of patients.

However, the availability of data with a large mass, has allowed the field of artificial intelligence to take a large part as a very effective means of self-diagnosis and prediction of the progression of Alzheimer's disease, something that supports radiologists and neurologists in order to make more accurate decisions and propose appropriate treatments.

In this paper, we present a literature review illustrating the areas of application of AI in the diagnostic process of Alzheimer's disease as well as the techniques and datasets exploited.

Keywords: Alzheimer's disease, Artificial Intelligence, Auto-diagnosis, literature review

HOW CAN BLOCKCHAIN AND MACHINE LEARNING TECHNOLOGIES BE COMBINED TO BENEFIT E-GOVERNMENT SERVICES? A LITERATURE REVIEW

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Abstract

The importance of the blockchain (BC) is illustrated by the ever-growing number of crypto-currencies, which currently exceeds 2,000. In addition, the landscape is rapidly changing as blockchain is being used in areas other than crypto currencies, with Smart Contracts (SC) playing a central role. Researchers and developers are aware of the capabilities of the new technology and are exploring various applications in a wide range of sectors such as e-government. It is recognized as an innovation capable of redefining macroscopic societal systems and attracting the attention of governments and several institutions.

Blockchain and Machine Learning (ML) are two major areas that have been much discussed and used in recent years, but not so much together. We judge that combining machine learning and blockchain technologies in a single application can generate further application possibilities and connections with e-government principles.

An example could be the use of blockchain technology to improve security in e-government services. It would be, among other things, possible to create intelligent systems for managing public services partly autonomously without the risks of fraud or information alteration.

The literature review presented in this paper answers several questions related to these issues: How to combine machine learning and blockchain technology for more agile and innovative e-government services? What are the potential use cases of combining ML and blockchain in e-government?

Keywords: Blockchain, E-government services, machine learning, literature review

MODELLING AND OPTIMIZATION OF THE REAL AGRI-FOODS SUPPLY CHAIN WITH THE MINIMIZATION OF CO_2 EMISSION

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Abstract

The supply chain of agricultural products has received a great deal of attention lately due to issues related to public health. Something that has become apparent is that in the near future the design and operation of agricultural supply hains will be subject to more stringent regulations and closer monitoring, in particular those for products destined for human consumption (agri-foods). The supply chain of agri-foods, as any other supply chain, is a network of organizations working together in different processes and activities in order to bring products and services to the market, with the purpose of satisfying customers' demands. This work is concerned with the planning of a real agri-food supply chain for poultry products. For this concrete case we chose two products namely chicken and turkey-cock meat. More precisely the problem is to redesign the existing supply chain and to optimize the distribution planning. Furthermore, environmental costs of road transportation in terms of CO2 emissions are taken into account in the computations. The proposed integrated approach permits to minimize the total costs of the agri-food supply chain not only in terms of economy but also in terms of public health (ecology).

As mentioned in our paper, the entire problem is decomposed into two problems, and each sub problem is solved in sequential manner, to get the final solution. LINGO optimization solver (Version12.0) has been used to get the solution to the problem.

Keywords: Agri foods Supply chain; distribution network; optimization; CO2 emissions

FLUORESCENCE DETECTION OF METAL ION COMPLEXES WITH QUINAZOLINE DERIVATIVES

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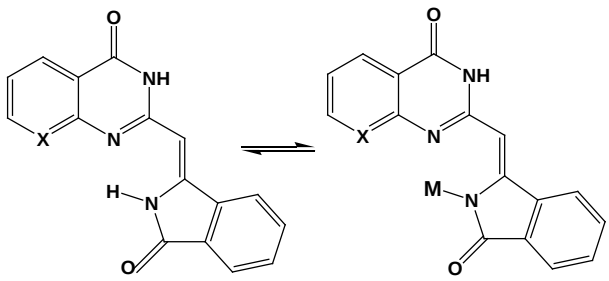
Abstract

We study some possible mechanisms of action of quinazoline derivatives on biochemical structures and/or processes with the aim to clarify the reasons for their biological activity. A possible source of quinazoline activity is their capacity to bind to physiologically important metal ions as zinc, and also transition metal ions, frequently characterized as pollutants. Our selected ligands are 2-phthalimido-methylene quinazolinone **1**, and its 8-aza-deriative **2**. The two ligands have a N – H – N fragment, involved in a pincer-like part of the molecule, which may conveniently accommodate metal ions, whereby replacing the H atom.



1: X = CH; 2: X = N

Compounds with the N – H – N fragment are usually fluorescent, and we exploit this property to detect the formed quinazoline metal ion complexes. We report here the observed fluorescence emission of compounds **1** and **2**, as well as the quenching of emission, proportional to the concentration of metal ions.

This research has been supported by project grant 19/11 of 10.12.2017 of the Bulgarian National Science Fund.

Keywords: Organic fluorescent ligands; Heterocyclic pincers; Metal complexes

OUTPUT VOLTAGE CONTROL OF DOUBLY FED INDUCTION GENERATOR (DFIG) USING AN ADAPTIVE BACKSTEBBING CONTROL APPROACH

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Abstract

The growth of electrical energy consumption and high power electrical applications imposed researchers to find alternative ways to create energy as wind, who is one of the most important and promising source of renewable energy all over the world, but it is perturbed. The control of wind energy conversion system (WECS) constitutes a vast subject and is more complex than those of DC drives. Furthermore; traditional control techniques as the vector control, direct torque control, state feedback control, can be advantageous in one direction and disadvantageous in another, because the dynamic (DFIG-Wind Turbine) is more complex.

In recent years, the situation changes with the appearance of the theory of non linear systems in automatic where the researchers are interested in new control techniques to track the largest wind energy under the rated wind speed. And allowing to approach large systems with a systematic approach based on Lyapunov theory stability. Among these methods is the backstepping control method, which was introduced during the 1990s by several researchers, Kokotovic is quoted.

Praticly the DFIG parameters to be controlled are difficult to determine or vary over time. Which affect the control, at present adaptive control is of great importance in the control domain, this control is dominant in systems with uncertainties, structural disturbances and environmental variations. The main object of adaptive control is the synthesis of adaptation law, in order to automatically adjust loop controllers in real time. This is to achieve or maintain a certain level of performance

In order to improve the performance and control of the active and reactive powers generated by the DFIG, a robust

Hybrid Adaptive backstepping controller was proposed. The proposed controller exhibits excellent dynamics and steady state performances with Lyapunov stability. The objective is to show that the proposed technique can improve performances of doubly fed induction generators in terms of reference tracking, and adaptive estimation of the internal parameters Generator, sensibility to perturbations and robustness against machine parameters variations.

The results obtained by simulation prove the effectiveness of the control strategies in terms of decoupling, robustness and dynamic performance for different operating conditions.

Keywords: Double Feed Induction Generator; Nonlinear Control; Adaptive control; backstepping; the field oriented control; Lyapunov Theory; Estimation of the internal parameters.

ENVIRONMENTAL RISK ASSESSMENT OF THE IMPACT OF NICKEL ON AGRICULTURAL SOIL AND ON DURUM WHEAT

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Abstract

The goal of this work is therefore to determine the impact of nickel from the agricultural soil to the roots, then the aerial parts of the durum wheat during different seasons of the year 2018. This soil is irrigated by water laden with heavy metals, sewage wastewater and thus atmospheric emissions from the roads of the city Hammam Boughrara located 35km from the city of Tlemcen and this through a multidisciplinary approach such as:

- Physical parameters by particle size analysis of the durum wheat soil.
- The physico-chemical conditions of the soil.
- Determine the total nickel contents present in the soil by sequential extraction according to Tessier and in the different organs of the durum wheat by extraction with aqua regia.

The extraction carried out on the ground showed total contents higher than the limit standards, thus generating an accumulation by nickel.

As for cultivated durum wheat, the study indicates a significant accumulation, particularly in grains and to a lesser extent in stems and leaves.

Keywords: Durum wheat, soil contamination, sequential extraction, nickel.

A NEW APPROACH TO ADAPTIVE CONTROL BASED ON FUZZY SYSTEMS: APPLICATION TO THE PERMANENT MAGNET SYNCHRONOUS MACHINE

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Abstract

This paper develops an adaptive sliding mode control based on fuzzy systems. In this control technique, the possibilities offered by Sugeno type fuzzy systems, in terms of their ability to approximate continuous nonlinear functions, are exploited, and the Lyapunov's theory is used to establish a parametric adaptation law ensuring the global stability of the system. In addition, the control law includes a sliding mode term, which has the role of compensating the effects of the reconstruction errors. This technique is applied to control a permanent magnet synchronous machine. The results obtained show the effectiveness of the proposed method.

Keywords: Fuzzy Systems, Adaptive law, Sliding mode, Reconstruction errors, Permanent Magnet Synchronous Machine.

INFLUENCE OF INCLUSIONS AROUND A RECTANGULAR HOLE ON THE STRESS CONCENTRATION FACTOR IN A TRAPEZOIDAL PLATE

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Abstract

Thin-walled plate-shell structures are widely used in modern branches of technology - construction, aviation, mechanical engineering, oil industry, energy, etc. Often, due to technological or design requirements, the integrity of the elements of such structures is violated by various holes. Such inhomogeneities are local stress concentrators. Additional stresses arise near the holes, which can be several times higher than the basic stresses. In construction, plate elements are widely used, weakened by holes of various configurations. When the plates with holes are loaded, a stress concentration arises in their vicinity, which is a factor in the onset of destructive processes and affects the strength of the structure as a whole. The problem of finding ways to reduce stress concentration around local concentrators is an urgent problem in the mechanics of a deformable solid.

One of the most powerful modern methods for the numerical analysis of applied problems in structural mechanics is the finite element method (FEM). The advantages of the method are the convenience of forming equations and the possibility of representing irregular boundaries of complex structures and various loading conditions.

The authors carried out a study of the stress-strain state of a thin elastic isotropic piecewise-homogeneous trapezoidal plate with a rectangular hole located: 1) in the center of the plate; 2) near the upper base of the trapezoid; 3) near the lower base of the trapezoid. Around the hole, a tape inclusion was modeled from a material other than the plate material. The plate was under the action of uniaxial tensile balancing forces P_1 and P_2.

Numerical analysis was carried out using the finite element method for a steel plate. Two materials were used for inclusion: aluminum and molybdenum. The choice of materials is conditional. The width of the tape inclusion was varied. It was assumed that rigid adhesion conditions are specified at the interface between the matrix and the inclusion, the inclusion is in the plane of the plate and has the same thickness with it. The inclusion was considered "hard" if the value $k = E_{inc} / E_{pl} > 1$, and "soft" if $k<1$. Here E_{inc} is the modulus of elasticity of the inclusion, E_{pl} is the modulus of elasticity of the plate.

Lagrangian six-node triangular finite elements were used in the FEM. An adaptive mesh with a crushing factor equal to 10 was applied near the hole.

As a result of a numerical study of the stress concentration in a thin isotropic trapezoidal plate with a rectangular hole and a surrounding tape inclusion made of another material, it was found

that in the presence of an inclusion from a softer material, it is possible to reduce the stress concentration coefficient by a factor of ~ 2 compared to plate without inclusion. The location of the hole in the trapezoidal plate affects the magnitude of the maximum stresses: the stress concentration factor increases when the hole approaches the upper base and decreases when it approaches the lower one.

The use of inclusions from a different material around the hole has shown the possibility of influencing the value of the stress concentration factor: hard inclusions lead to an increase in the stress concentration near the corner points of the hole, soft ones lead to a decrease. Research into rational parameters of inclusions is promising.

Keywords: trapezoidal plate, rectangular hole, tape inclusions, stress concentration factor, finite element method.

REVIEW OF FATIGUE STRENGTH EVALUATION OF LOCAL STRESSES IN WELDED JOINTS

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Abstract

The history of engineering is replete with many examples of catastrophic failures which have been directly attributed by material fatigue. So, what is fatigue? During the lifetime, many material structures such as road and railway bridges, oil and gas exploitation platforms (offshore platforms), windmills, and so on are subjected to a high number of repetitive cyclic stresses. Over time, those stresses can cause damage, such as cracks, at critical locations. This phenomenon is called “fatigue.” Welding it considered as the most prone location can be affected by fatigue, as it one of the earliest and most used methods for material joint and it affect the material properties by heating, cooling, and combining. However, the fatigue assessment during the design and maintenance is inevitable.

In the present work, we studied the most common fatigue assessment methods used for welded steel joints. As we reviewed the peculiarities of fatigue critical welded joints and the most important methods for design and fatigue life assessment of welded steel structures that are prone to fatigue.

Results revealed that, many parameters (production process, material quality, geometry…) influence the fatigue in welded steel, from what make it an insufficiently researched phenomenon, nominal stress it is necessary to be determined in observed location for international standard design, the weld joint issue can be complicated if the if the elements are subjected to multiaxial fatigue, and Fracture mechanics describes the fatigue crack propagation, but it is still unexplored enough that it leaves space for further research, in particular, with multiaxial fatigue assessment and taking into account residual stresses.

Keywords: Fatigue, Weld joints, Material Structure, Fracture Mechanics.

NUMERICAL ANALYSIS OF THE INFLUENCE OF MECHANICAL PARAMETERS OF THE INCLUSION REMOTELY LOCATED FROM ELLIPTICAL HOLE ON THE STRESS CONCENTRATION IN SPHERICAL SHELL

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Abstract

Stress concentration is an important factor that significantly affects the strength, reliability and durability of a structure. The problem of reducing stress concentration arises, for example, in the design of thin-walled structures, which are widely used in many areas of technology, industry, energetics, etc. Often, for technological or design reasons, holes are created in structures. Such design features lead to a sharp increase in local stresses and determine the onset of destructive processes. Therefore, the problem of reducing the stress concentration in the elements of thin-walled structures is an urgent problem in mechanics.

One of the ways to reduce stress concentration around holes is to use reinforcements or inclusions of various geometric shapes and mechanical properties. Such complications of the design lead to a significant increase in the complexity of the mathematical model of the problem. Therefore, for the calculation of structures with various inhomogeneities, it is advisable to use numerical methods of mechanics. In particular, the finite element method (FEM) is one of the most widespread and effective modern methods for solving a wide class of problems. This method, in contrast to the analytical one, allows to consider problems with a wide range of variations in the geometric and mechanical parameters of the body under various boundary conditions and loads.

The authors carried out computer modeling of the stress-strain state (SSS) of an elastic thin-walled spherical shell with an elongated elliptical hole in the presence of an annular inclusion located at a certain distance from the hole. A finite element analysis of the influence of the geometric and mechanical characteristics of the inclusion, as well as the distance between the hole and the inclusion on the parameters of the SSS of the shell in the zone of local stress concentration, has been carried out. The inclusion is modeled from a material other than the shell material. The thickness of the reinforcing element corresponds to the thickness of the shell, and the stiff adhesion condition is set on its boundaries. The shell is under the influence of uniform internal pressure.

The study was carried out for a spherical shell with varying the width and materials of the annular inclusion, as well as the distance of its location relative to the edge of the hole. For the sake of clarity, two types of material were used in the calculations.

As a result of the FEM analysis of the SSS of a spherical shell weakened by an elongated elliptical hole, which is reinforced by an annular inclusion located at a certain distance from the hole, the distribution of stress and strain intensities in the zones of local concentration of stress-strain parameters was obtained. It was found that the size, mechanical properties and location of the inclusion significantly affect the concentration of the SSS parameters. According to the results obtained, to reduce the concentration of SSS parameters around the hole, it is advisable to use an annular inclusion made of a material that is more rigid than the main shell material, located at a certain distance from the hole. This makes it possible to reduce the concentration of the SSS parameters by at least 28%. The use of soft annular inclusions located far from the hole showed an increase in the concentration of SSS parameters around the hole of the spherical shell.

It is of interest to further study the influence of inclusions on the concentration of SSS parameters, to find their optimal parameters for reduce the concentration around the holes and to establish the corresponding regularities.

Keywords: spherical shell, internal pressure, elongated elliptical hole, annular inclusions, stress-strain state, finite element analysis, stress concentration.

INTERNET OF THINGS APPLICATIONS ENHANCED E – LEARNING

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Abstract

The use of Learning Management Systems as a tool for designing, sharing, monitoring, and organizing various forms of teaching and training content marked a turning point in the development of E - Learning. Major technical advancements have converted the early LMS into a sophisticated program for organizing curriculum, giving rich-content course materials, assessment, and interactive collaboration since its beginnings. With numerous current research areas dealing with various technologies connected to the LMS, the structure, operations, and implementation of the LMS will undoubtedly alter in the future. The Internet of Things is the most crucial technology that is predicted to alter many parts of the future (IoT). We present a conceptual framework for a forthcoming E Learning with Intelligent automation in this article.

We discuss how IoT will influence many aspects of the E - Learning, as well as the projected improvements and adjustments that IoT will bring to E- learning functionality. In this paper, we emphasize on the use of IoT services in the context of e-learning. We outline numerous services now provided by existing learning management systems in our framework, and show how these services will transform if they are merged with IoT services and connected to IoT modules and gadgets. We also suggest some additional services which will be achieved as a result of the integration of IoT into E-learning. We describe how each proposed E-learning. service will be implemented inside the E-learning., how it will be linked to other E-learning. services, and how it will be utilized to improve teaching and learning processes on the university campus.

Keywords: Internet of Things, E-Learning, virtual classes, sensors

SYNTHESIS AND RESEARCH THE COMPOSITE ELECTROCHEMICAL COATINGS OF EXTENDED FUNCTIONALITY

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Abstract

The creation of composite electrochemical coatings (CEC) today is one of the world's trends in functional electroplating. The principle of their deposition is based on the process in which the formation of the coating is carried out from electrolytes-suspensions due to co-precipitation of dispersed particles of different nature and size together with the base metals. In this case, the consumer and performance characteristics of the obtained coatings are significantly increased due to the incorporation of particles of the second phase to them. Synthesized CECs acquire new multifunctional properties: anti-corrosion, wear-resistant, catalytic, magnetic antifriction, etc. This is what causes the significant spread and demand for this type of material in many industries.

The synthesis of CEP was performed from the developed complex electrolytes by cathodic deposition in pulsed mode on steel or plasma electrolytic oxidation of titanium / aluminum alloys. Surface morphology was examined by scanning electron microscopy. Grain size and associates, surface roughness and degree of development were determined by atomic force probe microscopy. The elemental composition of the coatings was determined by energy-dispersive X-ray spectrometry. The structure of the coatings was determined by X-ray diffractometry. The photocatalytic properties of CEP were studied in a model photodestruction reaction of azo dye methyl orange MF under the influence of ultraviolet radiation.

It is established that the composite multicomponent coatings synthesized under these conditions have a strengthening phase (oxides of refractory / transition components) in the structure of the metal matrix of the base metal, which is evenly distributed in the CEP layer. This is due to the fact that it is formed directly during the electrode process, and not added from the electrolyte. The functional properties of such systems depend on the qualitative and quantitative parameters of the synthesized CECs (composition, phase structure, morphology and surface roughness, distribution of components in thickness and surface layers). Physico-mechanical characteristics of the coatings were investigated during metallographic studies. The proposed technological

approach allows for electrochemical synthesis of multifunctional materials and systems with predictable characteristics and a wide range of applications. The obtained CEPs are recommended for restoration and strengthening of worn surfaces, in particular in renovation technologies, as well as neutralization of toxic substances in gas and liquid phases.

Keywords: composite electrochemical coating; cathodic deposition; plasma electrolytic oxidation, complex electrolyte, multifunctional properties

KPI FOR ENERGY MANAGEMENT IN AIR COMPRESSOR SYSTEMS

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Abstract

An aerosol company faces compressed air supply quality and energy deficiencies because of multiple leak losses, inoperable connections, and sizing predicted conduit structure.

The plant is classified as a classified anti-explosion zone, this means a supply or application of pneumatic equipment greater than 80%. The need arises to create management indicators or energy key performance indicators (KPI) and establish the sizing of the components of the compressed air network of the new operational line of personal care. The indicator model manages to forecast the reduction of affordable percentages of energy consumption that, according to the previous research, oscillate between 20% and 30%.

The design of the new air compressed network for the Personal Care packaging line represents an achievement in the appropriate balance between a minimum pressure drop for energy performance purposes and the cost of implementation. The objective of this study is to meet the needs of the Aerosol Plant and preserve the

displacement systems for filling, aerating, inserting, sealing, and product output in the packaging chain. Additionally, once the management meters have been stipulated, it is desired to forecast in the future the saving or excess energy expenditure according to the goals declared as the performance standard.

Keywords: Air compressed network, energy management, key performance indicators.

LATERAL TORSIONAL BUCKLING OF SINUSOIDALLY CORRUGATED STEEL WEBS: A NUMERICAL STUDY

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Abstract

The application of corrugated steel webs are increased in bridges because of their numerous favourable properties, especially their superior shear capacities and transverse flexural rigidities. However, when beam is laterally unrestrained along the length, it loss their stability due to lateral torsional buckling (LTB). The present study investigates the lateral torsional buckling of simply supported sinusoidally corrugated steel webs subjected to uniform bending about their major axis. Extensive parametric study is carried out by using finite element software 'ANSYS' by changing the corrugation profile. The whole section is modelled by using shell elements and the dependency of finite element mesh are carefully treated. Based on the generated database, the effect of corrugation profile on lateral torsional buckling is discussed with the help of developed graphs and bar charts.

Keywords: Corrugated web beams; Lateral torsional buckling; Stability; Finite element analysis

NUMERICAL INVESTIGATION OF THE OPENING RATIO IN THE UPPER ZONE OF A VAWT H-DARRIEUS

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Abstract

Vertical axis wind turbines such as Darrieus turbines are a very interesting category of low wind speed domestic wind turbines. Further research work is needed to enhance their efficiency to fulfil the higher demand in small applications for power generation. The main objective of this work is to find a Darrieus turbine design to boost the starting capacity, increase of C_T (Torque coefficient), and increase of C_p (Power coefficient) of the turbine through an opening located at the upper surface of the airfoil. We carried out a thorough CFD (Computational Fluid Dynamics) investigation to determine the impact of the opening position on the Darrieus rotor's output. This new type of airfoil uses a standard NACA 0015 profile and a profile with an opening on the upper surface of the profile. Different sizes of the opening in a symmetrical profile are evaluated through the CFD method staring from 0 to 0.84 in order to predict the C_p and C_T of this H-Darrieus turbine design. Five sections were designed to describe the research of this new H-Darrieus rotor. Generally speaking, the results showed that the C_p decreases with the opening ratio, the desirable rotors with the upper surface opening ratio are 0.6 to 0.84 considering this with the low power coefficient loss.

Keywords: H-Darrius; Airfoil; ratio; CFD; NACA; Efficiency

PERFORMANCE EVALUATION OF STUDENTS IN MATHEMATICS USING MACHINE LEARNING ALGORITHMS

Being a paper to be presented at the National Conference organized by Institute of Economic Development and Social Research

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Abstract

Prediction of Student's Performance in Mathematics is a prominent research area that needed to attract more attentions. The prediction can be performed using machine leaning and data mining algorithms. This paper presents application of J48, LMT, RandomForest, RandomTree, RepTree and Hoeffding Tree algorithms for prediction of students' performance in Mathematics and Comparing the performance of these machine learning algorithms to ascertain the level of attainment and performance of students in Mathematics. The following evaluation metrics were considered: Recall, Precision, F-measure, True-positive rate and False-positive rate.

The results of classification model deals with accuracy level, execution time and confusion matrices.

In conclusion it is therefore, submitted that the performance of Random tree algorithm provides better classification accuracy of 99.014% when compared to the other classifiers.

ON STABILITY OF NONLINEAR FRACTIONAL DYNAMICAL SYSTEM

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Abstract

In recent years, the stability of nonlinear fractional dynamical systems has catched a great attention. However, the stability analysis of nonlinear fractional dynamical systems is much more difficult and only a few are available with respect to the integer order dynamical systems. One of the available methods to investigate the stability of nonlinear fractional dynamical systems is the Lyapunov second method.

In the present article, by using the Lyapunov second method, we intend to study the stability of the following nonlinear fractional dynamical system with the regularized Prabhakar fractional derivative

$$ {}^{C}D^{\gamma}_{\rho,\mu,\omega,0+}x(t) = Ax(t) + f(t, x(t)), \quad x(t_0) = x_0, $$

where $\gamma, \mu, \omega \in (0,1)$, $\rho \geq 1$, $x(t) \in \mathbb{R}^n$ is a state vector, $A \in \mathbb{R}^{n\times n}$ is a constant matrix and $f(t, x) \in \mathbb{R}^n$ with $f(t,0) = 0$.

Then, in order to illustrate the effectiveness and availability of the our result, we provide an example. Further more, by applying numerical method, we depicte the numerical value of the example and show that the zero solution of the nonlinear fractional dynamical system converges to the origin or equilibrium point of the system when the time tends to infinity.

Keywords: fractional derivative, nonlinear fractional dynamical system, stability

RECYCLING OF USED INDUSTRIAL CATALYSTS, USED IN THE OXIDATION REACTION OF SO_2 TO SO_3, BY ACID LEACHING

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Abstract

Most of the sulfuric acid produced is mainly used in the production of phosphate fertilizers and phosphoric acid. The process is composed of 3 steps: (1) the oxidation of sulfur-to-sulfur dioxide,

(2) the oxidation of sulfur dioxide to sulfur trioxide and finally (3) the absorption of sulfur trioxide to form sulfuric acid has a very high concentration. All sulfuric acid plants in operation today use multi-bed catalytic reactors for the oxidation reaction of SO2 to SO3, the key step in the process. Generally, commercial catalysts are composed of an active phase V2O5 deposited on a porous support and shaped in rings and in a star to avoid loss of seeking the operation of the catalyst requires more years then. this deactivated little by little when the catalyst activity decreases at the acceptable le therefore can be changed by a new catalyst.

Deactivated catalysts are considered to be hazardous wastes difficult to dispose of due to the presence of a high amount of vanadium and other metals, for this the recycling of the spent catalyst is important from an environmental and economic point of view by leaching for the acids with hydrogen peroxide. Then precipitated the final products is characterized by DRX, MEB-FEG, ICP. The vanadium recovered can be reused as an active component in the preparation of new catalysts or in the metallurgical industry for the manufacture of steel in the form of ferro-vanadium.

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SAFETY ANALYSIS IN AUTOMOTIVE PERCEPTION

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Abstract

In the constant development of autonomous technology worldwide, the automotive industry presents a significant advance, in its beginnings the application of electronics in its systems, giving way to the introduction of artificial intelligence and machine learning. The design of automatic systems in vehicles has two principles; firstly, the car can decide the most suitable route for passengers (planning and navigation), and secondly, the safety of passengers and pedestrians along the circulation path. For planning and navigation, the systems can recognize and act according to the needs of the passengers and the transit environment, called the perception system. For safety reasons, systems can work in advance of accidents to protect passengers and pedestrians, called active and passive safety systems. Therefore, it is necessary to analyze the environment to the parallel evolution between the level of autonomy and safety. With a greater degree of autonomy of the vehicle, new complications arise at a mechanical level (actuators), electronics (sensors), and digital (information storage). With the development of new intelligent systems, it is necessary to develop sensors that can capture a more significant amount of information in a short time, and, in turn, the actuators can react adequately to these stimuli. In the digital age, information management has led to mistrust among users due to its vulnerability. The findings from this analysis are to allow users to know automotive perception systems and how safe are.

Keywords: Artificial Intelligence, Automotive, Machine Learning, Passengers, Pedestrians, Perception, Safety.

TEACHING CIRCUIT ANALYSIS USING GRAPH THEORY – SOLVING PROBLEMS OF COMPLEX CIRCUITS

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Abstract

Analyzing electrical system circuits, it is important step to involve the procedure for solving equations. For any circuit analysis problem, the first step of this procedure consists selecting a number of independent branch currents and then formulating in the form of KCLs. Alternately, writing KVLs involves number of independent node pair voltages that may be selected as variables and then express all existing node pair voltages in terms of these selected variables.

Through this paper we want to advance the knowledge of students that how complex electrical circuit analysis problems are solved using computer methods. We as instructors want emphasize to students that writing KCLs and KVLs for complex circuits are tedious tasks and time consuming for equation solutions. However, in the age of modern era, for large-scale circuits particularly modern electronic circuits such as integrated circuits and microcircuits with a larger number of interconnected branches, it is almost impossible to write a set of KCLs and KVLs by inspection or by mere intuition. We emphasize through this paper that how easily the quite difficult and complex problems becomes easy using graph theoretic approach that is suitable for a computer solution.

USO DEL CALOR RESIDUAL COMO PROPUESTA DE MITIGACIÓN DE IMPACTO AMBIENTAL

USE OF WASTE HEAT AS AN ENVIRONMENTAL IMPACT MITIGATION PROPOSAL

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Resumen

En el sector industrial existen gran cantidad de procesos que trabajan a altas temperaturas, sin embargo, la energía usada y/o generada en estos procesos no se aprovecha totalmente, por lo que es posible encontrar fuentes de baja temperaturas en dichos procesos, las cuales representan perdidas energéticas, es por esta razón que es importante, que se implemente el uso de los calores generados a bajas temperaturas. Con la instalación de un intercambiador de calor en la fuente de calor residual, aprovechando que la temperatura, se pretende calentar un fluido con la finalidad de aprovechar esta energía del proceso para generar hasta 35 kW de energía eléctrica. Esto se puede lograr haciendo uso de una micro central Rankine; donde también se puede aprovechar el calor en otros procesos. Con la implementación de equipos de este tipo se puede obtener un alto nivel de eficiencia energética, con rendimientos muy elevados del orden del 85-90%, además la producción de calor y electricidad de manera conjunta en un mismo equipo reduce aproximadamente un 30% la energía primaria utilizada y los gastos asociados a su gestión energética, finalmente el balance energético de las instalaciones de cogeneración, refleja una gran disminución de la huella de CO2 frente a los sistemas convencionales, lo cual se verá reflejado en la reducción del impacto ambiental de la planta.

Palabras clave: Calor Residual, ciclo Rankine, cogeneración, gestión energética.

Abstract

In the industrial sector there are many processes that work at high temperatures, however, the energy used and/or generated in these processes is not fully exploited, so it is possible to find sources of low temperatures in these processes, which represent energy losses. With the installation of a heat exchanger in the residual heat source, taking advantage of the temperature, it is intended to heat a fluid in order to take advantage of this process energy to generate up to 35 kW of electric power This is why it is important to implement the use of heat generated at low temperatures. This can be achieved by making use of a Rankine micro-central; where you can also take advantage of heat in other processes. With the implementation of equipment of this type can obtain a high level of energy efficiency, with very high yields of the order of 85-90%, in addition, the production of heat and electricity together in the same equipment reduces by approximately 30% the primary energy used and the costs associated with its energy management, finally the energy balance of the cogeneration plants, reflects a large reduction in the CO2 footprint compared to conventional systems, which will be reflected in the reduction of the environmental impact of the plant.

Keywords: Residual heat, Rankine cycle, cogeneration, energy management.

NONLINEAR MAPS PRESERVING CERTAIN SUBSPACES OF LIE PRODUCT OF OPERATORS

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Abstract

In this paper, we describe all surjective maps on (X), the space of all bounded linear operators on an infinite-dimensional complex Banach space X, which satisfy

$$F(\varphi(T)\varphi(A) - \varphi(A)\varphi(T)) = F(TA - AT)$$

for all A, T (X), where F(T) stands either for $H_0(T)$ the quasi-nilpotent part or K(T) the analytical core.

Keywords: Nonlinear preservers, Quasi-nilpotent part, Analytical core, Lie product.

THE ARCHITECTURE OF TABRIZ INDUSTRIAL FACTORIES IN THE FIRST PAHLAVI PERIOD

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Abstract

The city of Tabriz in the first Pahlavi period due to industrialization and the center of gravity of this city in the political events of Iran, has witnessed many changes in the field of architecture and urban. During this period, with the introduction of new technologies, industrial and factory architecture was formed. The formation and construction of industrial buildings in different parts of the city was due to its proximity to the Russian and Ottoman states and the presence of German and Polish engineers.

The purpose of the present study is to model the architecture of the factory industries of Tabriz in the first Pahlavi period and to answer the question of what model the factories of Tabriz and its values and potential capabilities were built in the Pahlavi period? is. This article is the result of field research method, historical-interpretive and analytical-descriptive. The information in the above article has been collected from library sources. The studied examples are Salambour factory, Khosravi leather factory and Tabriz wool factory. The results indicate that the architectural pattern of industrial factories in the first Pahlavi period is simple, without complexity and has similar features, including quadrangular plans, brick facade with brick frames, gable roof using Wooden and metal trusses as well as the load-bearing wall system with multiplicative arches, the use of porcelain and simplified brick decorations in the facades were mentioned.

Keywords: First Pahlavi Architecture, First Pahlavi Industrial Factories, Tabriz, Industrial Architecture

STUDY SUFRACE SURFACE DIFFUSENESS OF INTER-NUCLEUS POTENTIAL WITH QUASI-ELASTIC SCATTERING AT DEEP SUB-BARRIER ENERGIES FOR THE $O^{16} + Zr^{90}, Mg^{24} + Zr^{90}$ and $Ca^{48} + Cm^{248}$ REACTIONS

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Abstract

This analysis included an in-depth study of the surface characteristic of the nuclear potential Looking for the best WS diffusion parameter for the ${}^{16}_{8}O + {}^{90}_{40}Zr$, ${}^{24}_{12}Mg + {}^{90}_{40}Zr$ and ${}^{48}_{20}Ca + {}^{248}_{96}Cm$ systems. A large-angle quasi-elastic scattering research on quasi-elastic scattering has been carried out on deep sub-barrier energies. The program CCFULL includes the couplings to full order has been used at latest version which is called (CQEL). In the present work the χ^2-fitting has been used to avoid methodical errors. The CC and SC analyses have been accomplished to work out the diffuseness parameter of the nuclear potential. The single-channel and Coupled-channels analyses have been performed for this systems , The surface diffuseness parameter has been read out from the coupled-channels calculations for the ${}^{48}_{20}Ca + {}^{248}_{96}Cm$ system with vibrational projectile and inert target while the ${}^{16}_{8}O + {}^{90}_{40}Zr$ and ${}^{24}_{12}Mg + {}^{90}_{40}Zr$ systems with vibrational projectile and vibrational target is (0.63 fm), whilst the SC analyses is 0.61 fm, for the ${}^{48}_{20}Ca + {}^{248}_{96}Cm$ and ${}^{16}_{8}O + {}^{90}_{40}Zr$ systems and is (0.63 fm) for the ${}^{24}_{12}Mg + {}^{90}_{40}Zr$ sysem.

Keyword: nuclear potential, quasi-elastic scattering, diffuseness parameter, Woods-Saxon potential, The single-channel.

BLOCK-CHAIN TECHNOLOGY AND CRYPTO-CURRENCY, DISTINCTION AND APPLICATIONS

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Abstract

A block chain technology being one of the emerging technologies of 21 century has impacted the advancement of mankind. And the technology unlike other emerging technologies following the same principle or build upon existing technological structure it comes with a new dimension of changing the landscape of technological structure from centralization to decentralization, the technology has a plethora of applications out of which is crypto-currency that become popular and represent the idea of blockchain to the folks but block-chain application is beyond the crypto-currency and also has a diverse applications across other domains include the internet of thinks (IOT) and artificial intelligence eco-system.

Since the inception of this technology, people have used the terms interchangeably, so when block-chain is mentioned, a question or discussion about crypto is expected and Not only do some people still have no idea what the difference between block chain technology and crypto currency is, but some educators in the informatics field confuse the two. In reality, block chain is a technology or platform like any other development technology, and crypto currency is just one application of the technology out of hundreds.

This paper explores the current existing block-chain with its various development platforms and crypto-currency, as well as questions such as where crypto coins come from, who created them, and why they were created.

Keywords: Blockchain, crypto-currency, smart contract, development platform, bitcoin

ANN MODEL FOR PREDICTING DEGREE OF DETERIORATION DURING THE PHOTOSTABILIZATION OF POLYMERS

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Abstract

Polymer materials have been increasingly used in many areas, for example, aerospace, automobile, and construction industries. The curing of thermo set based polymer composite material is dominated by complex process dynamics and trial and error [1].The environmental deterioration of organic materials is a continuing problem, since most commercial polymers (including polyolefins, polyesters, polyamides, polystyrene, acrylate and alkyl acrylate polymers and polymers of other ethylenically unsaturated monomers, and cellulosics) suffer from irreversible damage when exposed to actinic radiation with other natural weathering forces such as oxygen, water, and heat [2]. In recent years, the quantitative structure activity/property relationship (QSAR/QSPR) approaches have become the most used areas in the development of mathematical models designed to predict the physicochemical and thermodynamic properties of different chemical species [3]. ANNs are particularly well suited for QSPR models because of their ability to extract nonlinear information present in the data matrix [4]. The goal of this work was therefore to develop QSAR-ANN model that are predictive of the degree of deterioration (α) of poly(vinyl chloride)(PVC), polystyrene (PS), and poly(methyl methacrylate) (PMMA)during the Photostabilization.

Literature was used to determine the dataset of the degree of deterioration (α) during the photostabilization. The 395 data of degree of deterioration used for this study, including 3 polymers pure (PVC, PS, and PMMA).

In this study, we propose a method to link the properties of polymers and the properties of stabilizers with physical properties (degradation time), for the good representation of this phenomenon (photostability).

$$P_{P,i} = \sum_{i=1}^{n} X_i * Y_i$$

$$P_{P,i} = X_{polymer} * Y_{polymer} + X_{stabilizer} * Y_{stabilizer}$$

where$P_{P,i}$ is the pseudo properties, $X_{polymer}$is percentage of polymers and $Y_{polymer}$ is the properties of polymers, $X_{stabilizer}$and $Y_{stabilizer}$are the percentage of stabilizers and the properties of stabilizers. For pure polymers: $X_{polymer} = 100$ wt% and$X_{stabilizer} = 0$ wt%, polymers mixture (polymer with stabilizer): $X_{polymer} = 99.5$ wt% and$X_{stabilizer} = 0.5$ wt%.

According to the previous discussion, an artificial neural network is developed to predict the degree of deterioration (α) during the photostailization of PVC, PS, and PMMA. Eleven neurons in the hidden layer were sufficient to achieve a better correlation coefficient (R= 0.8606) with a very small roots mean squared error (MSE), with MSE= 1.19e-6. The values of these parameters were obtained after performing several trial and error runs. It was found that these values insure fast learning. The results obtained are presented in Figure1.

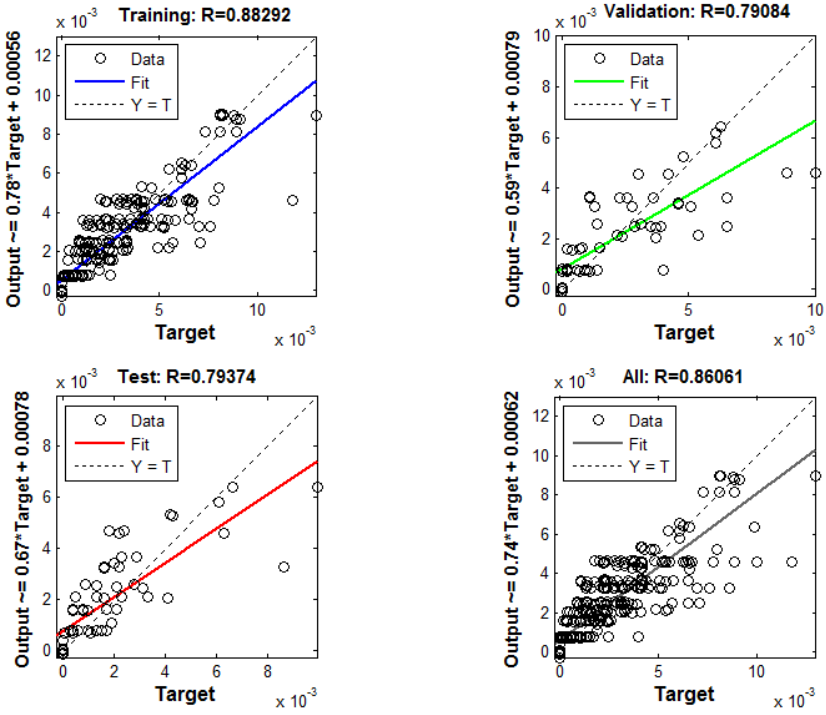

Figure 1. The regression curve represents the predicted degree of deterioration (α) depending on the experimental degree of deterioration.

A neural network (ANN) was developed in this work to predict the degree of deterioration during the photostabilization of NPVC, PS, and PMMA. The calculations of the correlation coefficients and the mean squared errors were carried out.

Keywords: ANN; Degree of deterioration; Photostabilization; Polymers.

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INFORMATION TECHNOLOGIES EMERGENCIES PREVENTION AT SOLID WASTE LANDFILL WITH LIQUIDATION ENERGY-INTENSIVE TECHNOLOGICAL EQUIPMENT

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Abstract

The results of scientific work is devoted to solve the important scientific and practical issue in the civil safety field – to develop the methodology of emergencies prevention cascade type of dissemination concerned with landslide at solid waste landfill with liquidation energy-intensive technological equipment, aim to emergency prevention of escalating from the object to higher levels of danger. The implementation of the issue will protect civilians and specialists of State Emergency Service of Ukraine.

At landfills of municipal solid waste there are numerous cases of emergency situations associated with landslides [1, 2]. The consequences of the emergency situations are a significant area of their distribution and a significant number of dead, injured, persons with violation of the living conditions. There are trends in the reconstruction of landfills in the world. Reconstruction consists in the location of liquidation-intensive technological equipment (LETE) on the territory of the landfills. LETE is sources of the emergence and spread of man-made emergencies [3].

The object of the research is the process of emergencies prevention cascade type of dissemination related to landslide at solid waste landfill with liquidation energy-intensive technological equipment. The subject of the research is the characteristics of the process of emergencies prevention cascade type of dissemination related to landslide at solid waste landfill with liquidation energy-intensive technological equipment that which are due to the physical properties of landfill soils, technological indicators of liquidation energy-intensive technological equipment.

The author has analyzed the physical conditions of emergencies prevention, has found solutions to certain issues for assessing humidity, density, temperature of landfills soils, and the level of danger of landslides depending on the technological parameters of LETE. This allowed to determine the conditions for solving particular problems that have been included in the general mathematical model. The mathematical model of emergencies prevention is the system of four analytical dependencies. The first analytical dependence describes the number of dead persons on the characteristics of the physical properties of landfill soils and technological indicators of LETE. The second one describes the number of victims of the physical properties of landfill soils and technological indicators of LETE. The third one describes the number of people with violations of living conditions from the characteristics of the physical properties of landfill soils and technological indicators of LETE. The fourth analytical dependence allows to determine the conditions of absence of injured persons and victims depending on the variation of solutions of particular problems to assess the physical properties of landfills soils, and landslide hazards taking into account technological indicators of LETE.

The method of emergencies prevention on a mathematical model has been developed in the research. The method realization provides the groups of works before and after the fact of moving the landslide: related to the design and construction of the object; concerned with the facility operation; related with the localization and liquidation of the negative consequences of the landslide; related with the elimination of the further landslides risk and stabilization of the facility.

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SPECIFIC HEAT CAPACITY OF MIXED $(KCN)_{0.3}(KBR)_{0.7}$ CRYSTAL

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Abstract

An Extended Three Body Force Shell Model (ETSM) has been applied to investigate the specific heat of orientationally disordered mixed $(KCN)_x(KBr))_{1-x}$ crystal in the temperature range $10K \leq T \leq 300K$. The data of Suga et. al. measured with the Adiabatic Calorimetry. Our results are in very good agreement with the experimental results.

RELIABILITY ASSESSEMENT OF POWER ELECTRONICSSYSTEMS USING MACHINE LEARNING TECHNIQUES

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Abstract

Tremendous advances in power electronics systems are moving towards smart technologies. The need for leveraging recent advances in machine learning for tackling problems in reliability is widely acknowledged. The objective of this paper is to provide a meticulous study in the advances in the field of reliability in power electronics system using machine learning techniques. This approach of reliability assessment based on machine learning enables better prediction. Recent publications in this regard are analysed and findings are tabulated. In addition to this, literatures published in the predictive maintenance of power electronic components is discussed with emphasis on its limitations.

STATEMENT OF TASKS OF SCIENTIFIC RESEARCH ON DEVELOPMENT OF METHODS OF FIRE PREVENTION AND EXPLOSION SAFETY OF SOLID HOUSEHOLD BUILDING OBJECTS

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Abstract

The world's most common method of solid waste management (MSW) is disposal in special landfills or dumps. The area of these objects increases every year and approaches the settlements [1]. The incineration process, which takes years, is an integral part of landfill operation. However, the problem of fires is particularly acute. Incineration of solid waste occurs not only on the surface of the landfill but also in the depth of the mass of the accumulated waste. As a result of waste incineration, voids are formed, which are the cause of breakdowns and landslides. The main consequences of the danger include contamination of environmental components due to the additional formation of environmentally hazardous substances (eg, dioxins), a large area of their distribution, the presence of dead, injured, people with impaired living conditions. There is a danger to the service personnel of the facility, fire and rescue unit and special forces.

The objects of solid waste accumulation are a biochemical reactor [2], in which biogas is formed due to anaerobic decomposition of the organic component. The main part of biogas is methane and carbon dioxide [3], which create additional anthropogenic pressure on the environment. The process of decomposition of the organic component of solid waste is uneven with varying intensity. One part of the landfill may be dominated by aerobic decomposition with the release of carbon dioxide, on the other - the intensive release of methane, and there may be "dead zones". Methane is a more dangerous component - a more powerful greenhouse gas. When methane accumulates in the mass of solid waste, explosive and flammable zones occur. In the developed countries of the world, developing countries, there are programs for the utilization of biogas (garbage gas) – gas installations are being introduced [4, 5]. Biogas is used as a fuel for the production of electricity, heat or steam, fuel for vehicles. Some gas projects for biogas utilization involve the use of cogeneration units – combined production of electricity and heat.

The main factors of fire and explosion hazard at these facilities in the presence of biogas collection and utilization systems include: hazardous combustion factors on the waste disposal map; violation of the rules of maintenance and operation of the technological line (exceeding the volume of biogas collection), depressurization and leakage or emissions of biogas through seals, gaskets (violation of the tightness of welds and connecting flanges); damage to the system of starting and stopping the technological process, which can lead to an explosive atmosphere; failures in the system of control of parameters of technological processes; the influence of external natural factors that lead to corrosion of materials, structures, structures, reducing their physical and mechanical parameters (external action of natural forces and man-made systems on equipment); structural and production defects of buildings (errors during exploration and design, poor performance of construction works, low quality of building materials and structures, violations of manufacturing and construction technology); influence of technological processes on building materials (load, high temperatures, vibration, action of oxidants); failure of parts, assemblies, equipment, tanks, pipelines; violation of safety rules

during works and technological processes; errors related to the low level of professional training of employees and specialists, their incompetence.

The purpose of scientific research is to determine the conditions for the formation of the mathematical apparatus of the method of preventing the occurrence of fire and explosion landfills located near settlements. To achieve this goal it is necessary to solve the following tasks: 1. To determine the initial conditions for the existence of a mathematical model of methods for preventing fire and explosion hazards of solid waste disposal facilities. These are conditions of danger. 2. Determine the boundary conditions for the existence of the corresponding mathematical model. These are conditions to prevent the spread of danger.

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