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August 11-13, 2018
Kiev, Ukraine

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Editors
Dr. Huseyin ERIS
Zhuldyz SAKHI

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CONGRESS ABSTRACT BOOK

EJONS 4TH INTERNATIONAL CONGRESS ON MATHEMATICS, ENGINEERING, NATURAL AND HEALTH SCIENCES

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Kiev, Ukraine

Editor

Dr. Huseyin ERIS
Zhuldyz SAKHI

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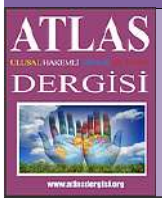

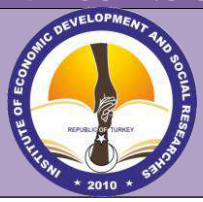

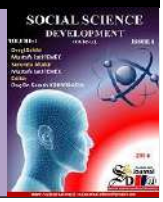

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NAME OF CONGRESS

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TYPE OF PARTICIPATION

Keynote and Invited

DATE AND PLACE

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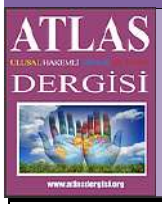
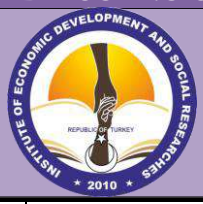
DATE	HEAD OF SESSION	WORKSHOP NO
11.08. 2018 Saturday / Hour **10^{00}-$12.^{00}$**	**Dr. Bülent HANER & Dr. Veli AKARSU**	WORKSHOP 1

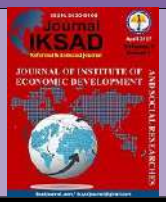
TIME	AUTHORS	PAPER
$10.^{00}/10.^{10}$	İlhan Ceylan & Ali Etem Gürel & Alper Ergün	The Examınatıon Of Pv Module Applıcatıons Installed On Sea Or Dam: Case Of Antalya, Turkey
$10.^{10}/10.^{20}$	Hüseyin MUNGAN & Ayşe Bengü SÜNBÜL & Veli AKARSU & Bülent HANER &Fatih SÜNBÜL	Fınıte Elements Stabılıty Analysıs Of Zonguldak Devrek Landslıde Turkey
$10.^{20}/10.^{30}$	Veli AKARSU & Bülent HANER & Hüseyin MUNGAN & Sesim Haypatya AKARSU	Four Equal Segment Division of the Spherical Shape of the Earth as Area and Volume
$10.^{30}/10.^{40}$	Bülent HANER &Veli AKARSU &Hüseyin MUNGAN & Serhan HANER	Technological Potential Of Western Black Sea Region Sandstones And Quartz Sand
$10.^{40}/10.^{50}$	Abdalhakim Ben-Soud & Engin Gedik	Theoretıcal Analysıs Of Thermoelectrıc Generator By Usıng A Solar Trough Collector
$10.^{50}/11.^{00}$	Asuman Işıl Çarhoğlu & Pınar Usta	Evaluation Of The Seismic Risk Performance Of A Masonry Building
$11.^{00}/11.^{10}$	Kamil ARSLAN & Engin GEDİK &Hüseyin KURT	CFD MODELING OF DIFFERENT TYPES OF R134a BASED NANOREFRIGERANTS FLOWING IN A CIRCULAR CROSS-SECTIONED DUCT
$11.^{10}/11.^{20}$	Cevdet KAPLAN & Mustafa Cemal CİFTCİ & Suna CAKMAK	Insect Pests In Pıstachıo Producıng Areas Of Turkey
$11.^{20}/11.^{30}$	Serap ERGÜN & Tuncay AYDOĞAN	A Comparative Simulation Study Of Ospf, Rıp, And Bgp Routing Protocols By Using Omnet++
$11.^{30}/11.^{40}$	Serap ERGÜN & Tuncay AYDOĞAN	On The Role Of Game Theory İn Modeling Networks
$11.^{40}/11.^{50}$	Serap Ergün & Pınar Usta & Sırma Zeynep Alparslan Gök	USING GAME THEORY APPLICATIONS FOR ASSESMENT EMERGENCY MANAGEMENT SITUATIONS
$11.^{50}/12.^{00}$	Pınar Usta & Serap Ergün & Sırma Zeynep Alparslan Gök	Waste Management In The Constructıon Industry: Game Theory Approach

DATE	HEAD OF SESSION	WORKSHOP NO
11.08. 2018 Saturday / Hour **13.^{00}-15.^{00}**	**Dr. Burçin GÖKKURT ÖZDEMİR & Dr. Fatih SÖNMEZ**	WORKSHOP 1

TIME	AUTHORS	PAPER
13.^{00}/13.^{10}	Fatih SONMEZ	Synthesis Of Tacrine Derivatives As Cholinesterase Inhibitors
13.^{10}/13.^{20}	Fatih SONMEZ	Synthesis and antioxidant activity of spiro-isatin derivatives
13.^{20}/13.^{30}	G. Külekçi & A. O. Yılmaz	Roadway Tunnel Construction With Drilling-Blasting Method; Gümüşhane Environment Road Example
13.^{35}/13.^{40}	G. Külekçi	Investigation Of Some Mechanical Properties Of Filling İn Underground Mining
13.^{40}/13.^{50}	Burçin GÖKKURT ÖZDEMİR	Examının The Mathematıcal Games Desıgned By Pre- Servıce Teachers In Terms Of Peer And Student Vıews
13.^{50}/14.^{00}	Sündüse Kübra ÇOMARL & Burçin GÖKKURT ÖZDEMİR	Investıgatıon Of Semı-Structured Problem Posıng Skılls Of Secondary Mathematıcs Teachers: Data Processıng Learnıng Domaın
14.^{00}/14.^{10}	Aldo DANTONIO	UN SISTEMA DI SICUREZZA DEI DATI
14.^{10}/14.^{20}	Ahmet YAVAŞ & Volkan KIRMACI & Mustafa EROL & Hayri EREN	An Investigation On Carbon Fibers As Flexible Heating Elements
14.^{20}/14.^{30}	Volkan KIRMACI & Mustafa EROL & Hayri EREN & Ahmet YAVAŞ	Experimental Analysis Of Performance Of Two Parallel Connected Counter Flow Ranque-Hılsch Vortex Tube With Different Nozzle Number Made Of Steel
14.^{30}/14.^{40}	Volkan KIRMACI & Mustafa EROL & Hayri EREN & Ahmet YAVAŞ	An Experımental Study On Fabrıc-Based Heaters As An Innovatıve Approach For Vehıcle Heatıng

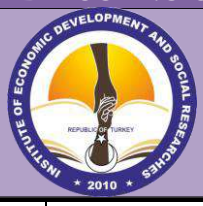


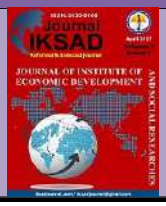




DATE	HEAD OF SESSION	WORKSHOP NO
11.08. 2018 Saturday / Hour **15.^{00}-17.^{00}**	**Dr. Mehmet Akif ERDEN & M. Baki KARAMIŞ**	WORKSHOP 1

TIME	AUTHORS	PAPER
15.^{00}/15.^{15}	Mehmet Akif Erden	Wear Behaviour Of Sintered Nb-V Microalloyed Powder Metallurgy Steel
15.^{15}/15.^{30}	Mehmet Akif Erden	Effect Of Mo Content On Microstructure And Mechanical Properties Of Aısı 4140 Steel Produced By Powder Metallurgy Method
15.^{30}/15.^{45}	İ. H.Kara & H. Ahlatci & Y. Türen & Y. Sun	The Microstructure And Corrosion Properties Of Homogenized Az31 Mg Alloys Containing Lanthanum İn The Range Of 0,2% To 1,0%.
15.^{45}/16.^{00}	İ. H.Kara & H. Ahlatci & Y. Türen & Y. Sun	The Microstructure And Mechanical Properties Of Homogenized Az31 Mg Alloys Containing Lanthanum İn The Range Of 0,2% To 1,0%.
16.^{00}/16.^{15}	Abdullah GÖÇER & M. Baki KARAMIŞ	Investıgatıon On Behavıor Of Steel/Al-B4c Cırcular Layered Composıtes Under Compressıon Forces
16.^{15}/16.^{30}	Abdullah GÖÇER & Aydın YILMAZ & M. Baki KARAMIŞ	The Effects Of B4c Ceramıc Sızes On Wear Behavıor Of Al 6061 Metal Matrıx Composıtes
16.^{30}/16.^{45}	Volkan Aygul & Murat Ayaz & Ahmet Necati Ozsezen	Modeling Of An Electromagnetic Valve Actuator For Gasoline Engines Based On Fem Analysis
16.^{45}/17.^{00}	F. Demet AYKAL & Meltem ERBAŞ	A Study Of The Turkısh Bath Plans Accordıng To The Graph
17.^{00}/17.^{15}	ILGAR MEMEDOV	Protein synthesis and regulation of gene expression
17.^{15}/17.^{30}	Mine BARAN & F. Demet AYKAL & Meltem ERBAŞ .	Effects Of Daıly Habıts To The Venue





DATE	HEAD OF SESSION	WORKSHOP NO
12.08.2018 Sunday / Hour **10^{00}-$12.^{00}$**	**Prof. Dr. Vesile ŞENOL & Prof. Dr. Mehmet SÖNMEZ**	WORKSHOP 1

TIME	AUTHORS	PAPER
$10.^{00}/10.^{15}$	Hatice Gamze Soğukömeroğulları & Semih Güler & Mehmet Sönmez	Synthesis, Characterization Of Heterocyclic Ring New Sns Donor Type Bis-(İmino)Pyridine Compound And İts Cu(Iı) And Co(Iı) Complexes
$10.^{15}/10.^{30}$	Hatice Gamze Soğukömeroğulları & Semih Güler & Mehmet Sönmez	Synthesis, Characterization Of Heterocyclic Ring New Bis (İmino) Pyridinecompound And Some Metal Complexes
$10.^{30}/10.^{45}$	Endam ÇETİNKAYA & Figen KAZANKAYA & Sezer ER GÜNERİ & Ümran SEVİL	The Role Of Health Professıonals In Preventıng Fear Of Delıvery
$10.^{45}/11.^{00}$	Mert Bilir & Muhterem Yılmaz & Gamze Acar & Ayça Gürkan & Ege Miray Topcu	THE EXAMINATION OF THE RELATIONSHIP BETWEEN UNIVERSITY STUDENTS STYLES ON HANDLING WITH STRESS AND FREE TIME MANAGEMENTS
$11.^{00}/11.^{15}$	Mehmet KAPLAN & İsmail ALASERHAT	Phytophagous And Beneficial Species On Cherry Trees And Time To Being Seen Of Some İmportant Species İn Nature İn Mardin And Elazig Provinces
$11.^{15}/11.^{30}$	Mehmet KAPLAN & İsmail ALASERHAT	Insect Species, Spreads And Densities That Are Causing Damage İn Olive Orchards İn Mardin Province (Turkey)
$11.^{30}/11.^{45}$	Prof Dr. Vesile ŞENOL & Prof.Dr. Fevziye Çetinkaya & Doç.Dr. Ferhan Elmalı & Prof.Dr. Melis NAÇAR	Utilization of The Health Services in The Center of Kayseri and Its Relationship with Perceived Health Status: A Comparison between 2004 and 2017
$11.^{45}/12.^{00}$	Gizem Sarıkaya & Ayça Gürkan	INVESTIGATION OF NURSING NEWS IN THE LAST 10 YEARS IN INTERNET NEWS SITES

DATE	HEAD OF SESSION	WORKSHOP NO
12.08. 2018 Sunday / Hour **13.^{00}-15.^{00}**	**Dr.Öğr. Üyesi Emrah YERLİKAYA & Dr.Öğr. Üyesi Hasan KARAGECILI**	WORKSHOP 1

TIME	AUTHORS	PAPER
13.^{00}/13.^{10}	Elif ARANCI OZTURK & Mustafa BOYRAZLI & M. Deniz TURAN & Murat ERDEMOGLU	Effect of Milling Time on Mechanical Milling of Carbonized Tea Plant Waste and Magnetite Concentrate Mixture
13.^{10}/13.^{20}	Seyithan SEYDOŞOĞLU	Determination Of Macro Element Contents İn Silages Of Second Crop Silage Maize Varieties
13.^{20}/13.^{30}	Seyithan SEYDOŞOĞLU	Changing Of Botanical Composition And Soil Coverage Rates İn Rangelands At Different Altitudes
13.^{35}/13.^{40}	Emrah YERLIKAYA & Hasan KARAGECILI & Mustafa Oguzhan KAYA	Abnormal Hemoglobins And Investigation Of The Incidence İn Siirt/Turkey
13.^{40}/13.^{50}	Hasan KARAGECILI & Emrah YERLIKAYA & Mustafa Oguzhan KAYA	Examination Of Biochemical Serum Values Of Breast And Prostate Cancer Patients İn Terms Of Incidence And Malignancy
13.^{50}/14.^{00}	Harun Yıldırım & Ahmet Necati Özsezen & Ali Çınar	Determination Of Vibraton And Noise Characteristics Of Diesel Engine Used İn Heavy Duty Machines
14.^{00}/14.^{10}	Hatice DANAHALİLOĞLU	Investıgatıon Of Antıoxıdant And Antıbacterıal Propertıes Of Some Schıff Base Compounds
14.^{10}/14.^{20}	Sezer GÖYCINCIK	Investıgatıon Of Antıoxıdant And Antıbacterıal Propertıes Of 2,4-Dıhydroxy Acetophenone Derıvatıve Schıff Base Compounds
14.^{20}/14.^{30}	Dante KARLSSON	Animations addressing topics sciences

DATE	WORKSHOP NO 3
12. 08.2018	POSTER PRESENTATIONS
AUTHORS	**PAPER**
Harun CUG & Tolga TOPUZ	Production And Characterization Of Cold-Pressed Al Matrixed Wc And Zrc Nanoparticle Reinforced Hybrid Composites
Hüseyin Demirtaş & Ümit Köksal & Mehmet Akif Erden	Effect Of Cr And Ni Additions On The Plain Carbon Steel Microstructure
Fatma ÖZDEMIR & Semih GÜLER & Mehmet SÖNMEZ	Synthesıs And Charactarızatıon Of A New Amınopyrıdıne Bıs(N-Carboxamıde) And Its Cu(Iı) Complex
Dr. Öğr. Üyesi Fatih ÜNAL & Doç. Dr. Derya Burcu ÖZKAN	Factors Affecting the Energy Consumption of the Refrigerator
Muhammad Zia-Ur Rahman	THE BASIC PRINCIPLES OF CREATING AN EFFECTIVE BIORISK MANAGEMENT SYSTEM
Dr. Öğr. Üyesi Fatih ÜNAL	Experimental Investigation of Heating Performance of Vertical Ground Source Heat Pump System
Kams Kamuabo	21st Century Learning skills and Natural Sciences

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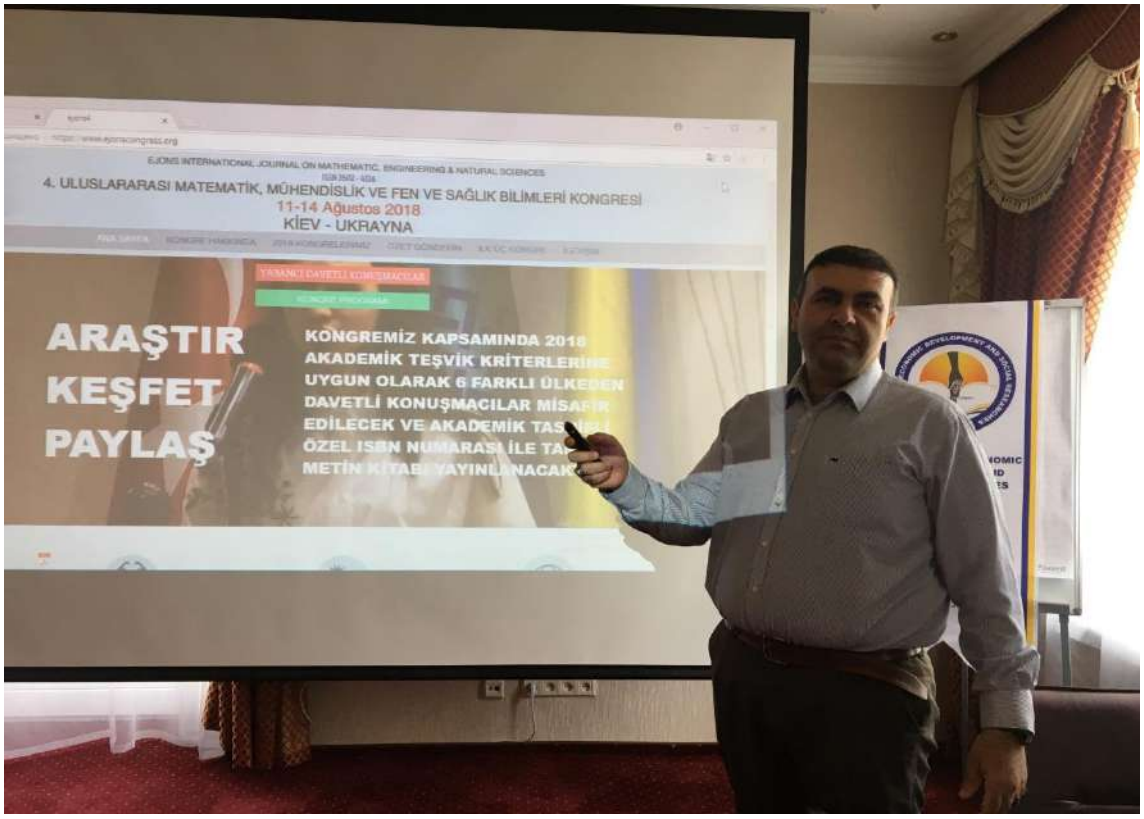
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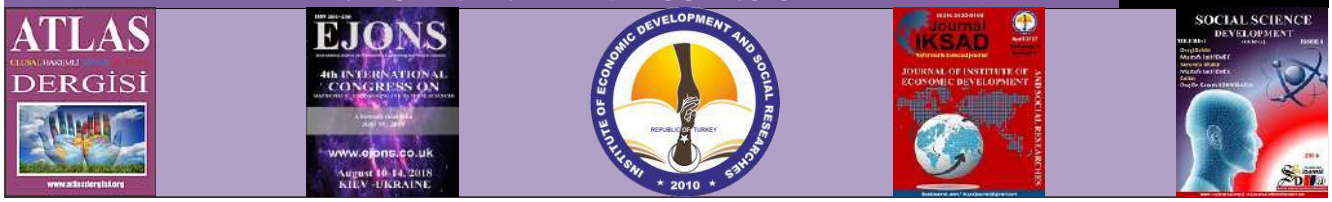
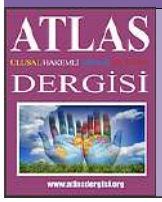


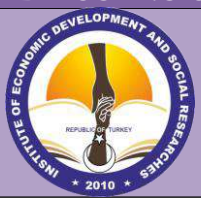
FOREWORD

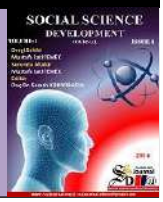
It is with deep satisfaction that I write this Foreword to the Proceedings of the EJONS-4 International Congress On Mathematics, Engineering, Natural and Health Sciences held in Kiev, Ukraine August 11-13, 2018. The high quality of the papers and the discussion represent the thinking and experience of men and women experts in their particular fields. Their contributions helped to make the Congress as outstanding as it will be. The papers contributed the most recent scientific knowledge known in the field of all steps of social sciences These Proceedings will furnish to scientific groups the world over an excellent reference book. I trust also that this will be an impetus to stimulate further study and research in all these areas. It was eights years ago that İKSAD was established in Turkey and we did our first academic organization in Golbasi town of Adiyaman province in 2013. Since then we have organized numerius meetings, panels, congresses and conferences over diffirent issues via our futurest vision. That vision has expressed itself today in the enthusiasm and fine work of the Turkey and abroad mission. In organizing process so many volunteers and professionals served. Here I would like to thank to Prof. Dr. Salih ÖZTÜRK and Prof. Dr. Natalia LATYGINA the heads of Congress; many thanks go to the members of İKSAD Science Committees, the distinguished academics; head of İKSAD Science Committee; Sefa Salih BILDIRICI, the senior advisor of IKSAD; Zhuldyz SAKHI, the general coordinator of congress, Damezhan SADYKOVA, Mariam S. OLSSON, and whole İKSAD team for that valuable organization.

Kind regards

MUSTAFA LATİF EMEK
President of Institution of Economic Development and Social Researches







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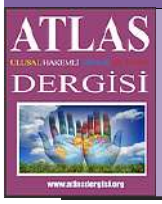

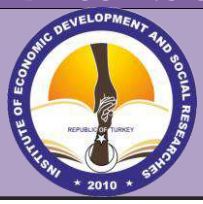

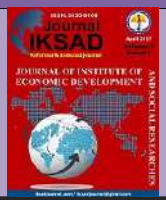

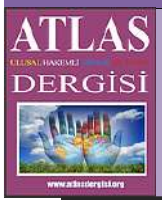

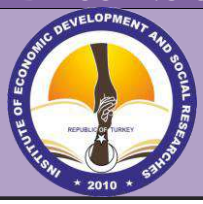

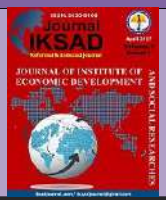

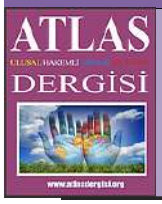

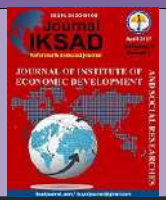

THE EXAMINATION OF PV MODULE APPLICATIONS INSTALLED ON SEA OR DAM: CASE OF ANTALYA, TURKEY

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Abstract

Worldwide energy demand is increasing day by day. Due to this great energy demand, studies on renewable energy systems have increased in recent years. One of these systems is photovoltaic modules. Photovoltaic energy is a clean and renewable energy that can be easily obtained from solar energy. This energy is an important alternative for solving the environmental problems that result from the use of conventional energy resources such as coal, petroleum, and natural gas. PV modules convert 4–17% of the solar radiation absorbed to electric energy. Conversion efficiency depends on the type of solar cell used and working conditions. The efficiency of the PV modules is significantly reduced by the increase of the ambient temperature. Typically, over 50% of solar radiation is converted to thermal energy. However, a large amount of space is required for the installation of PV power plants. PV module applications on the sea or dam can be a way to eliminate these two problems. In this study, the economic and technical analyses of PV and PV/T systems to be installed on the sea or dam was carried out. The analyses were performed for Antalya, Turkey. Energy production and payback periods are calculated for the PV and PV/T systems. Electrical powers of the systems are between 1-5 kW. Payback periods of the systems are calculated between 4.9 and 8.22 years. The results of the study shown that the PV/T system is more efficient than the PV system.

Keywords: PV modules, energy, renewable energy, solar energy.

FINITE ELEMENTS STABILITY ANALYSIS OF ZONGULDAK DEVREK LANDSLIDE TURKEY

ZONGULDAK DEVREK HEYELANININ SONLU ELEMANLAR YÖNTEMİYLE DURAYLILIK ANALİZİ

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Abstract

Zonguldak province in the western Black Sea region already formed one of the most important landslide areas in Turkey. In this province, the landslide mass located in Devrek district , began to move in 2015, towards a large settlement area, with a large mass of 700 m in length, with an average of 110 m width and a depth of 5.0-23.0 and a volume of so far, over 30 buildings have been heavily damaged due to landslides and a total of 200 buildings have been evacuated due to the high landslide risk. Mass movement is still in progress in that location.

Within the scope of this research, landslide risky zone within the Devrek district of Zonguldak province was examined geotechnically. The geotechnical and structural parameters were determined and the length of cross-section from the crown to the toe of the landslide was computed. The study area was modelled by Plaxis 2D based on the finite elements and by Geo5 based on limit equilibrium methods. According to the seismicity of the region, the dynamic behaviour of the landslide is also investigated using real earthquake data. In addition, for the existing, landslide the factor of safety is determined in the static and dynamic cases and the slope stability is also investigated.

According to the model results analyzed in the study, the area where Devrek-Eregli Highway covers/cuts the crown and middle section of the landslide, is determined as the risky area and the slump block is 700 m in length on this area. Limit equilibrium method results shows that; in the static case the factor of safety was found to be 0.50 where this value was 0.30 for the dynamic case. The results also show a progress in movement in the landslide mass which leads to a risk for the residential area. In this context, the geotechnical improvement techniques are also discussed.

Key words: Zonguldak Devrek landslide, Finite element method, Static-dynamic landslide stability analysis.

Özet

Zonguldak ilinin yer aldığı Batı Karadeniz bölgesi Türkiye'nin en önemli heyelan alanlarındandır. Bu alanda yer alan Devrek ilçesinde 2015 yılında yaklaşık 700 m uzunluğunda, ortalama 110 m genişliğinde ve 5.0-23.0 m derinliğinde ve 1 100 000 m3 hacminde kütle yerleşim alanını da içine alarak hareket etmeye başlamıştır. Günümüze kadar heyelandan 30'un üzerinde bina ağır hasar almış, toplamda 200 adet bina risk bölgesinde olduğu gerekçesiyle tahliye edilmiştir. Kütle hareketi günümüzde de devam etmektedir.

Bu araştırma kapsamında Zonguldak ili Devrek ilçesi sınırları içerisinde yer alan heyelan riskli bölgesi, geoteknik bakımından incelenmiştir. Bu amaç doğrultusunda, araziden alınmış jeodezik ölçümlerden

faydalanılmış, bölgeye ait detaylı raporlar incelenerek geoteknik ve yapısal parametreleri belirlenmiş, heyelanın taç kısmından topuk kısmına kadar boy kesiti çıkartılarak, çalışma alanı sonlu elemanlar yöntemine dayalı bir yazılım olan, ‘‘Plaxis 2D’’ ve limit denge yöntemine göre analiz yapan ‘‘Geo5’’ yazılımıyla modellenmiştir. Bölgenin deprem durumu da göz önüne alınarak gerçek deprem verileri kullanılarak dinamik yükler altındaki davranışı da incelenmiştir. Ayrıca mevcut heyelan için statik ve dinamik durumda Güvenlik Sayıları (GS) belirlenerek yamaç duraylılığı durumu araştırılmıştır.

Bu çalışmada analiz edilen model sonuçlarına göre, heyelanın taç ve orta kısmına denk gelen Devrek-Ereğli karayolunun olduğu bölge riskli bölge olarak belirlenmiş ve bu alanda yaklaşık olarak 700 m uzunluğa sahip zemin kütlesinin aktığı tespit edilmiştir. Limit denge yöntemine göre analiz yapıldığında, statik durumda yamaçtaki güvenlik sayısı değeri 0.50 olarak bulunmuş, dinamik durumda güvenlik sayısının ise değerinin 0.30’ lara kadar düştüğü sonucuna varılmıştır. Heyelan bölgesi tüm veriler ışığında incelendiğinde, riskin devam ettiği gözlenmiş ve yerleşim alanı için hala riskler barındırdığı görülmüştür. Bu bildiride, yapılabilecek iyileştirme çalışmaları tartışılmıştır.

Anahtar kelimeler: Zonguldak Devrek heyelanı, Sonlu elemanlar yöntemi, Statik-dinamik heyelan duraylılık analizi.

FOUR EQUAL SEGMENT DIVISION OF THE SPHERICAL SHAPE OF THE EARTH AS AREA AND VOLUME

YERKÜRESİNİN ALANSAL VE HACİMSEL DÖRT EŞİT DİLİME BÖLÜNMESİ

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Abstract

There has always been a desire to know the shape, size and other characteristics of the earth , which mankind has been living all his life. Geodesy is a scientific discipline dealing with the determination of the measurement and shape of the earth. The thought of the world as a round object It was put forward by Pythagoras in 582. In the Egyptian and Babylonian civilizations, scholars made astronomical studies without knowing the global shape of the world. Eratosthenes, BC In the 3rd century, he calculated the radius of the earth as 7300 km using geodesic and astronomical measurements made between Asuan (Syne) and Alexandria cities of Egypt. Eratosthenes may be the founder of measuring the earth. Making the physical measurements in the real shape and dimensions of the world made an important progress. The ellipsoid as the reference surface for the construction of the map of the whole or part of the earth, the sphere surface for the small regions or the small surface of the reference surface may be taken instead of the ellipsoid. The radius of curvature to be chosen is calculated according to various assumptions and on the basis of the ellipsoid a and b half-axis lengths specified for the earth. In this study, 4 different spherical radius are used. In the study, three equally spaced slices and a total of three parallel lines, with two parallel lines extending from the east-west end points of the equatorial circle of radius R and a parallel line passing through the center of equator along the north-south diameter, and the surface and the body of the ground crust mathematical models were developed for obtaining H / R ratios for dividing by four equally spaced and voluminous slices by cutting with a total of three parallel planes, that is, two parallel planes passing in the north-south poles at a distance of H and another parallel plane passing through the equatorial plane. The H / R ratio is obtained by the iterative method of the equation model with trigonometric and algebraic functions established for the division of equally spaced slices of the equatorial circle. The H / R ratio for one set of polynomial equations obtained for the four equal volume sphere slices and the H / R ratio for the equally spaced sphere slices model were obtained by simple algebraic solution.

Key words: Spherical Shape of the Earth, Radius, Area, Volume, Segment

Özet

İnsanlığın tüm yaşamını sürdürdüğü, dünyanın (yeryüzünün) şeklini, büyüklüğünü ve diğer başka özelliklerini bilmek isteği hep olmuştur. Jeodezi, yeryüzünün ölçümü ve şeklinin belirlenmesiyle uğraşan bir bilim dalıdır. Dünyanın yuvarlak bir cisim olduğu düşüncesi M.Ö. 582'de Pythagoras tarafından ortaya atılmıştır. Mısır ve Babil uygarlıklarında bilginler dünyanın küresel şeklini bilmeksizin astronomi çalışmaları yaptılar. Eratosthenes, M.Ö. 3. yüzyılda yerküresinin yarıçapını, Mısır'ın Asuan (Syne) ve İskenderiye kentleri arasında yaptığı jeodezik ve astronomik ölçmeleri kullanarak 7300 km olarak hesaplamıştır. Eratosthenes yer ölçülmesinin kurucusu sayılabilir. Dünyanın gerçek şeklinin ve boyutlarının belirlenmesinde fiziksel ölçmelerin yapılması önemli bir ilerleme sağlamıştır. Dünyanın tamamının veya bir kısmının haritasının yapımı için referans yüzeyi olarak elipsoit, küçük bölgelerin veya küçük ölçekli harita yapımı için referans yüzeyi elipsoit yerine küre yüzeyi alınabilir. Seçilecek kürenin yarıçapı çeşitli

varsayımlara göre ve dünya için belirlenmiş elipsoidin a ve b yarı eksen uzunluklarına bağlı olarak hesaplanır. Bu çalışmada 4 farklı küre yarıçapı kullanılmıştır. Çalışmada, R yarıçaplı yerküresine ait ekvator dairesi doğu-batı uç noktalarından H kadar mesafeden geçen iki paralel doğru ve kuzey-güney çapı boyunca ekvator merkezinden geçen diğer bir paralel doğru olmak üzere toplam üç paralel doğru ile dört eşit alanlı dilime ve yerküresinin yüzeyi ve cismi için ise kuzey-güney kutup noktalarında H kadar mesafeden geçen iki paralel düzlem ve ekvator düzleminden geçen diğer bir paralel düzlem olmak üzere, toplam üç paralel düzlem ile kesilerek dört eşit alanlı ve hacimli dilimlere bölünmesi için, H/R oranlarının elde edilmesine ait matematiksel modeller oluşturulmuştur. Ekvator dairesinin dört eşit alanlı dilimeler bölünmesi için kurulan trigonometrik ve cebirsel fonksiyon içeren denklem modelinin çözümü iterasiyon yöntemi ile H/R oranı elde edilmiştir. Dört eşit hacimli küre dilim için kurulan polinomal denklemin elde edilen çözüm kümesi elemanlarından birisi ile de H/R oranı ve eşit alanlı küre dilimleri modeli için H/R oranı ise basit cebirsel çözüm ile elde edilmiştir.

Anahtar Kelimeler: Dünyanın Küresel Şekli, Yarıçap, Alan, Hacim, Dilim

UN SISTEMA DI SICUREZZA DEI DATI

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La crittografia, il cui termine indica "nascosto", è la branca della crittologia che tratta delle "scritture nascoste", ovvero dei metodi per rendere un messaggio "offuscato" in modo da non essere comprensibile, intelligibile a persone non autorizzate a leggerlo.

Un tale messaggio si chiama comunemente crittogramma e le tecniche usate tecniche di cifratura. Fino a pochi anni fa l'unico metodo crittografico esistente era quello della crittografia simmetrica, in cui si faceva uso di un'unica chiave sia per proteggere il messaggio che per renderlo nuovamente leggibile.

Il problema è condividere la chiave di cifratura con il destinatario del messaggio criptato senza che questa venga scoperta.

Siccome la crittografia asimmetrica è molto lenta se si devono spedire grandi quantità di dati, spesso si usa questo tipo di crittografia per scambiarsi una chiave con cui iniziare una comunicazione in crittografia simmetrica, molto più semplice, veloce e sicura.

Parole chiave: sicurezza, crittografia, telefono

SYNTHESIS AND ANTIOXIDANT ACTIVITY OF SPIRO-ISATIN DERIVATIVES

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Abstract

Isatin (1H-indole-2,3-dione) is an important chemical building block. In humans, it is also found as a metabolic by-product of adrenaline and also in tissues and fluids of mammals at different concentrations. Most of isatin derivatives have shown a variety biological activities; such as antimicrobial, antioxidant, anticancer, MAO inhibitor, antibacterial, α-glucosidase inhibitor, and antitubulin agent [1].

Free radicals are one or more unpaired electron-donating molecules and they have the short half-life, low stability, and high chemical reactivity. These radicals arise naturally or due to some biological functions related to phagocytosis, regulation of cell proliferation, synthesis of substances and signalling between cells. Radicals damage lipids, proteins, or DNA. In order to protect the tissue from these damages, it is important that the free radicals are put into an ineffective state. For this reason, antioxidants have been shown to play an important role in protecting people against many fatal diseases. Antioxidants are defined as substances that delay, inhibit, or eliminate oxidative damage to a target molecule when present in low concentrations in food or in the body [2].

In this study, 21 spiro-isatin derivatives were synthesized and their DPPH and CUPRAC activities were investigated for the antioxidant activity. The results showed that all the synthesized compounds exhibited antioxidant activity for both assay. 5'-(2,3-dihydroxybenzylideneamino)spiro[[1,3]dioxolane-2,3'-indoline]-2'-on (**5c**) (IC_{50}=4.49 µM, for DPPH and $A_{0.50}$=0.42 µM, for CUPRAC) showed significantly better CUPRAC and DPPH radical scavenging ability than quercetin (IC_{50}=8.69 µM, for DPPH; and $A_{0.50}$=18.47 µM, for CUPRAC), which is used as a standard.

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INSECT PESTS IN PISTACHIO PRODUCING AREAS OF TURKEY

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Abstract

Pistachio (Pistacia vera) is one of the most important agriculture crops in Turkey and is an important source of income for famers. Pistachio production in Turkey ranks third in the world after Iran and the United States. One of the most important factors limiting yield and quality in pistachio growing areas is insects. Injurious insects can feed on fruites, leaves, buds, shoot, branches, trunk and root of pistachio trees causing weakening of trees, reduction fruit yield an even drying. The number of insect pest identified in the areas of pistachios in Turkey is around 50 species. However, about 10 of them can cause economic damage and applied control measures against them. The most common and widespread pistachio insect pests are psyllid (Agonoscena pistaciae Burckhardt & Lauterer), twig borer moth (Kermania pistaciella Amsel), the pistachio scale insects (Suturaspis pistaciae Lindinger, Pistaciaspis pistaciae Arch.), the pistachio root beetle (Capnodis cariosa pallas), bark (twig borer) beetle (Hylesinus (Chaetoptelius) vestitus Mulsant &Rey), Thaumetopoea solitaria Freyer., the pistachio seed chalcid (Megastigmus pistaciae Walker) and the stink bugs (Acrosternum heegeri Fieber, Campylomma lindbergi Hoberlandt). The control of most of these pistachio pests relies almost on pesticides. However, for most pistachio pests, sanitation procedures are the primary means of control.

Key words: Pistachio pests, Pistacia vera, Turkey

THEORETICAL ANALYSIS OF THERMOELECTRIC GENERATOR BY USING A SOLAR TROUGH COLLECTOR

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Abstract

In this study, design details, theoretical analysis and outcomes of an experimental model of a thermoelectric generator utilising solar energy is presented. MATLAB software is used for numerical examination. The proposed model consists of trough collector, six thermoelectric cells and heat transfer system consists of two basic parts; a receiver plate over which the thermoelectric cells are mounted and cooling device in order to extract the waste heat and maintain a high temperature gradient across the thermoelectric cells. In addition, a linear single axis tracking system is utilized to follow the sun continuously during the day and a steel structural support that will assemble components together and protect the system against wind forces.

Numerical results show that a single thermoelectric generator is able to produce electric power of 6.2W, electric efficiency of 1.15% and thermal efficiency of 27% under the temperature difference across the thermoelectric cells of 118°C. In conclusion, the concentrated thermoelectric generation can be considered as one of the potential option for the production of electric power from renewable energy sources.

Key words: Modelling, thermoelectric cells, concentrator thermoelectric generator, solar energy

TECHNOLOGICAL POTENTIAL OF WESTERN BLACK SEA REGION SANDSTONES AND QUARTZ SAND

BATI KARADENİZ BÖLGESİ KUMTAŞLARI VE KUVARS KUMLARININ TEKNOLOJİK POTANSİYELİ

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Abstract

Sandstones and quartz sand in the Western Black Sea Region, especially around Zonguldak and its vicinity, have significant reserves and carry great technological potential. Comprehensive studies and investments should be made to assess this significant potential. It will focus on the technological parameters that will guide the entrepreneurs who will invest in this declaration. There are 3 different sandstones in the region. Allied glauconitic sandstones belonging to the Cretaceous period belong to this region and they are widely distributed and are an organic sandstone with high fractions of hair fractions. Secondly, it is suggested that the source is Apsien aged sandstone and quartz sand formations belonging to the Cretaceous period belonging to the Göldağ quartzites in the region and an apparent reserve of 400 000 000 m3 in the area between Kandilli and Güdüllü (Canca, 1988). According to extensive research by Mining Technical Survey, in general, half of these sandstones are loosely cemented quartz sand, 25% are medium tight and 25% are sandstone which can be hand-crumbed to moderate hardness. The sandstones in this area have wide use possibilities in ferro alloy industry and glass industry. In addition, there is another sandstone potential, Carboniferous transitional, Westfalen-A aged sandstone strata, these strata are between 100 and 250 m thick. Looking at the properties of these layers, it can be seen as casting sand in iron and steel factories. In this study, thin sections of sandstones and quartz sand were investigated according to their type, size analyzes were made and mineral distributions were determined by taking all rock diffractograms by X-RD method. In addition, clay fraction diffractograms were taken to determine the genus of clay minerals. Grain unit volume weight, natural and dry unit volume weights of sandstones and quartz sand from various regions are found.

Key Words: Sandstones, Technological Properties, X-RD Contents, Usage Areas

Özet

Batı Karadeniz Bölgesinde, bilhassa Zonguldak ve civarında bulunan kumtaşları ve kuvars kumları önemli rezervlere sahip olup, büyük bir teknolojik potansiyel taşımaktadır. Ancak bu özelliği günümüzde adeta göz ardı edilmiştir. Bu önemli potansiyeli değerlendirmek için kapsamlı çalışmalar ve yatırımlar yapılmalıdır. Bu bildiriye dayalı çalışmada, yatırım yapacak müteşebbislere yol gösterecek teknolojik parametreler üzerinde durulacaktır. Bölgede 3 farklı özellikte kumtaşı bulunmaktadır. Bunlardan ilki, Kretase devrine ait Albien yaşlı glokonili kumtaşları olup, yaygın bir dağılım göstermektedir, içlerinde yüksek oranda kil fraksiyonu taneciği bulunan organik kökenli bir kumtaşıdır. İkinci olarak, kaynağı, bölge içinde bulunan Göldağ kuvarsitlerine dayanan Kretase devrine ait Apsien yaşlı kumtaşı ve kuvars kumu oluşumları olup, Kandilli ve Güdüllü arasındaki sahada 400 000 000 m3'lük bir görünür rezervi olduğu ileri sürülmektedir (Canca, 1988). Maden Teknik Arama'nın havzadaki geniş kapsamlı araştırmalarına göre, genel olarak bu kumtaşlarının yarısı gevşek çimentolu kuvars kumu, % 25'i ise orta sıkı tutturulmuş ve % 25'i ise orta sertlikte elle ufalanabilen kumtaşı karakterindedir. Bu özellikteki kumtaşlarının ferro alaşım sanayisinde ve cam sanayisinde geniş kullanım olanakları bulunmaktadır. Bunun yanısıra diğer bir kumtaşı potansiyeli, Karbonifer devrine ait, Westfalien-A yaşlı kumtaşı tabakaları olup, bu tabakalar, 100 ile 250 m arasında

değişen kalınlıklarda bulunmaktadır. Bu tabakaların özelliklerine bakıldığında, demir-çelik fabrikalarında döküm kumu olarak değerlendirilebileceği görülmektedir. Bu çalışmada, cinslerine göre kumtaşları ve kuvars kumlarının ince kesitleri incelenmiş, boyut analizleri yapılmış ve X-RD yöntemiyle tüm kayaç difraktogramları ele alınarak içlerindeki mineral dağılımları belirlenmiştir. Ayrıca kil minerallerinin cinsini belirlemek için, kil fraksiyonu difraktogramları çekilmiştir. Muhtelif bölgelerden alınmış olan kumtaşları ve kuvars kumlarının tane birim hacim ağırlıkları, doğal ve kuru birim hacim ağırlıkları bulunmuştur.

Anahtar kelimeler: Kumtaşları, Teknolojik Özellikleri, X-RD İçerikleri, Kullanım Alanları

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EVALUATION OF THE SEISMIC RISK PERFORMANCE OF A MASONRY BUILDING

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Abstract

Masonry buildings have often inadequate behavior under seismic activity, due to their masonry walls which have poor resistance to tensile stress. In this paper, exist traditional masonry house which is being in Kastamonu was asessment in terms of seismicity. This paper focuses on finite element method for the investigation of seismic behavior of traditional masonry building constructed in the west black sea region of Turkey. The Kastamonu traditional masonry building has been modeled by using SAP2000 software. Linear dynamic analysis has been performed to evaluated to the seismic risk performance of the building. The traditional masonry building is subjected to ground motion records data which is obtained during earthquakes. Displacements, base shear and stress values of the traditional masonry building were interpreted after the analyses. And all the analysis results were demonstrated with graphics.

Keywords: Earthquake, Cultural Heritage, Time history Analysis, Finite Elements

A COMPARATIVE SIMULATION STUDY OF OSPF, RIP, AND BGP ROUTING PROTOCOLS BY USING OMNET++

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A routing protocol specifies how routers communicate with each other, disseminating information that enables them to select routes between any two nodes on a computer network. Router models typically contain modules that implement routing protocols such as IGRP, EIGRP, OSPF, IS-IS and BGP. The purpose of routing protocols is to learn of available routes that exist on the enterprise network, build routing tables and make routing decisions. Simulation is now considered as a tool of importance for investigating and understanding the behavior of complex systems. There are many network simulators and they have different purposes and characteristics. For this paper OMNeT++ version 4.6 is chosen. OMNeT++ provides the machinery and the basic tools to write components and simulations, instead of providing simulation components for computer networks, queuing networks and other domains. The main function of OMNeT++ is a generic discrete event simulator framework with which to create simulators for different scenarios. We can say that it is a framework rather than a simulation program. As a part of ongoing research programs on analysis of protocol performance on networks, we have developed a set of OMNeT++ models for accurate simulation of OSPF, RIP, and BGP protocols. The study presented here is a summary of the results obtained when routing protocols OSPF, RIP, and BGP are simulated using virtual hosts on a discrete-event simulator OMNeT++ v4.6. The three protocols are run on some simulation scenarios. The performance in terms of convergence of the routing protocols are analyzed and presented in this paper.

Keywords: Routing Protocol, OSPF, RIP, BGP, OMNeT++

CFD MODELING OF DIFFERENT TYPES OF R134a BASED NANOREFRIGERANTS FLOWING IN A CIRCULAR CROSS-SECTIONED DUCT

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Abstract

Three-dimensional forced convection fluid flow characteristics of R134a based nanorefrigerants have been investigated numerically. Three different types of nanoparticles (Cu, TiO2, Al2O3) mixed with pure R134a at three different nanoparticle volume fractions (0.8, 2.0 and 4.0%) are used in numerical investigations. Numerical study has been implemented three-dimensional steady state turbulent flow inside circular cross-sectioned duct under uniform surface heat flux boundary condition. The standard k-ε turbulence model has been used. The effect of type of nanorefrigerant and nanoparticle volume fraction on the average convective heat transfer coefficient and average Darcy friction factor have been analyzed. It is seen that increasing nanoparticle volume fraction increases the convective heat transfer in the duct. However, pressure drop is not affected by the change of nanoparticle volume fraction. Also, Al2O3/R134a nanorefrigerant has the higher convection heat transfer rate than the other nanorefrigerants with nearly same pressure drop penalty.

Key words: Nanorefrigerant, nanoparticle volume fraction, forced convection, friction factor, heat transfer coefficient, turbulent flow

ON THE ROLE OF GAME THEORY IN MODELING NETWORKS

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Abstract

Game theory has been variously described as the science of strategy or that of conflict resolution. In game theory, 'game' means an abstract mathematical model of a multi-agent decision making setting and a modeling situation is defined as a game to predict the outcome of complex interactions among entities. Insomuch that game theory is a mathematical framework to analyze complex interactions of cooperative or competing decision makers taking into account their preferences and requirements.

Nowadays, game theory has been used as a tool in the research area of various network situations such as congestion control, network routing, load balancing, multi-commodity flow, resource allocation, quality service, 4G/ 5G cellular networks, power control, wireless networks, and grid networks.

Network simulation and simulators come to mind immediately when talking about network and its applications. In computer network area, network simulation is a technique whereby a software program models the behavior of a network by calculating the interaction between the different network entities or devices. A network simulator is a kind of software that predicts the behavior of a network. Since communication networks have become too complex for traditional analytical methods to provide an accurate understanding of system behavior, network simulators are used. In simulators, the computer network is modeled with devices, links, applications etc. and the network performance is reported.

In this study, we try to present which network simulators are used in the studies in which game theory used. At the end of the study, it is thought to be a pioneering work for who want to work or improve themselves in these areas.

Keywords: Game theory, network, simulation, simulator

WASTE MANAGEMENT IN THE CONSTRUCTION INDUSTRY: GAME THEORY APPROACH

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Abstract

The building or construction industry involves different processes and utilizes huge quantities of resources. A significant part of waste generation is caused by the building and construction industry. It is widely accepted that there is considerable waste in the end-to-end design, construction and facility management process. Waste is generated on construction sites usually due to defective materials, leftover materials, wastage, etc.

Waste management in civil engineering, construction and building technology can be supported by fundamental scientific achievements and game theory approaches. The current paper aims at overviewing waste management of the civil engineering in terms of published papers related to theoretical methods that could be applied to support sustainable evaluation and management processes in civil engineering.

With the application of game theory in the waste management in construction industry area, the design process of an engineering system can be regarded as a decision-making process, and it can be further regarded as a game. Game theory is the study of mathematical models for conflict and cooperation between intelligent rational decision-makers. A complete game theoretic model is composed of three basic elements, namely, players, strategies and utilities.

This paper illustrates the value of using the game theory applications for identifying and quantifying waste in construction operations. The use of the game theory applications on waste management could reveals some benefits.

Keywords: Waste, Construction, Game theory

USING GAME THEORY APPLICATIONS FOR ASSESMENT EMERGENCY MANAGEMENT SITUATIONS

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Research for efficiently planning and responding to emergency situations is of vital interest due to the devastating effects and losses caused by their occurrence, including economic deficiency, casualties, and infrastructure damage. Emergency management is the process of preparing for and responding to any emergency or disaster. In emergency situations that may occur in an urban environment, it is significant to perform a fair allocation and scheduling of emergency response units to each emergency, as human lives could be at risk. Game theory is a branch of mathematics devoted to the logic of decision-making in social interactions. The principal objective of game theory is to determine, through formal reasoning alone, what strategies the players ought to choose in order to pursue their own interests rationally and what outcomes will result if they do so. All players are advisable and do not know what strategies the other side players choose. Game theory applications could be use different emergency situations like, earthquake, flood, evacuate, tsunami, bomb attack etc.

The purpose of this paper is to summarize ways in which game theory has been or could be utilized within emergency situations and to identify future research opportunities in this field. Game theory is a tool for modeling systems in which multiple decision makers act according to their own objectives and where individual choices affect system outcomes. Emergency situations are often characterized by the presence of many such decision makers. This paper also aims to increase the comprehension of game theory-based research in disaster management and to provide directions for future research.

Keywords: Game theory, emergency, disaster, disaster management, emergency relief

SYNTHESIS OF TACRINE DERIVATIVES AS CHOLINESTERASE INHIBITORS

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Abstract

There is growing evidence that Alzheimer's disease (AD) is a progressive neurodegenerative disease, which is among the most extensive form of dementia and affects aged people. AD is related to a selective loss of cholinergic neurons in the brain and reducing acetylcholine (ACh) levels.2,3 The cholinergic hypothesis is one of the AD hypothesis. It proposes that acetylcholinesterase inhibitors (AChEI) could rise the levels of ACh in AD patients by inhibiting acetylcholinesterase and, therefore, alleviate some symptoms experienced by AD patients [1].

Tacrine is a centrally active, non-competitive, reversible cholinesterase inhibitor with slightly selective butyrylcholinesterase (BChE, EC 3.1.1.8) from AChE. It has common biological and pharmacological properties. Additionally, Tacrine-class of the AChEI is well known and used in the cure of a various illnesses involving Alzheimer's disease (AD) [2].

In this study, 13 tacrine derivatives were synthesized and their effects on acetylcholinesterase (AChE) and butyrylcholinesterase (BuChE) enzymes were evaluated. Among the synthesized tacrine derivatives, ((1,2,3,4-tetrahydroacridin-9-yl)amino)ethyl(3-nitrophenyl) carbamate showed the best inhibitor activity against AChE and BuChE with IC50 value of 22.15 nM and 16.96 nM, respectively. In addition, in regard to structure-activity relationship, it can be seen that the inhibitory activity depends on the electronegativity, polarizability and binding position of the substituent on phenyl ring.

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AN EXPERIMENTAL STUDY ON FABRIC-BASED HEATERS AS AN INNOVATIVE APPROACH FOR VEHİCLE HEATING

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Abstract

From very early stages of motor vehicles, a convectional heating system, using the engine waste heat from vehicle engine, has been used to warm up passenger compartment and to provide a comfortable aurora for the passengers. The system transfers warmed – up engine coolant from vehicle engine via coolant lines to the heat exchangers which are located inside or next to passenger compartment. However, after all efficiency and performance improvements studies done on engines, there is a lot less waste heat left for the passenger compartment heating especially when diesel engines are considered. Therefore, in the case of extreme cold conditions or during engine warm-up period on any cold countries, additional fuel burner heaters are very often required and used. Although engine exhaust emissions are very well under control and improved as a result of emission regulations to reduce their negative environmental effects, fuel burner heaters, releasing larger amounts of emissions, are not subjected to any emission regulations while their exhaust emissions and efficiencies are not as good as the engines. At this point, an innovative heating system, using electric power and made out of woven fabrics with conductive carbon fibers in, could replace the fuel burner heaters and eliminate the fuel consumption so that to provide environmentally friendly and comfortable heating inside the passenger compartment. With this motivation, experimental studies and performance tests of the novel fabric based heaters, located on the passenger compartment interior trim materials, will be presented.

Key Words: Fabric heating, public transport vehicle heating, Innovative heating, noval heating, vehicle electrical heating

ROADWAY TUNNEL CONSTRUCTION WITH DRILLING-BLASTING METHOD; GÜMÜŞHANE ENVIRONMENT ROAD EXAMPLE

Gökhan Külekçi

DELME PATLATMA YÖNTEMİ İLE KARAYOLU TÜNEL İNŞAATI;
GÜMÜŞHANE ÇEVRE YOLU ÖRNEĞİ

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Abstract

The shortest route linking the Trabzon port with its strategic and commercial importance is the highway passing through Zigana Passage and Gümüşhane Passage. One of the most difficult geographical parts of Trabzon-Gumushane highway which is an international road is the part passing through Gümüşhane. In order to remove the geographical difficulties, there are 15 more tunnels between Trabzon and Gümüşhane. This tunnel is opened using the drilling blasting method.

Within the scope of this study, 5 tunnels to be constructed between the first and eleventh kilometries of the Gümüşhane environment road will be operated with the second tunnel, which is the second largest tunnel according to the increase in kilometers. This tunnel is planned to be a double tube with a total length of 880 meters starting at Km: 3 + 450 and ending at Km: 4 + 330.

New Austrian Tunneling (NATM) method will be applied along the tunnel route and excavation will be carried out by drilling-blasting method. Because the work is through the tunnel city center, there are many campuses in the study area. In this study, a drilling blasting design was made according to different rock mass classes in the tunnel and the damage to the surrounding settlements was examined in case of application of this drilling blasting design. In addition, the excavation and fortification works were examined within a certain detail and some statistical results were obtained.

Özet

Stratejik ve ticari önemi olan Trabzon limanını iç kesimlere bağlayan en kısa yol Zigana geçidi ile Gümüşhane üzerinden geçen karayoludur. Uluslararası bir yol olan Trabzon-Gümüşhane karayolunun coğrafi olarak en zor kısımlarından biri Gümüşhane üzerinden geçen kısmıdır. Coğrafi zorlukları kaldırmak için Trabzon-Gümüşhane arasına irili ufaklı 15 in üzerinde delme patlatma yöntemi kullanılarak tünel açılmaktadır.

Bu çalışma kapsamında Gümüşhane çevre yolunun Km: 0+410.000- 11+239,323 arasında yapılacak olan 5 adet tünelin kilometre artışına göre ikinci büyük tünel durumunda olan ulaşım tüneli çalışılacaktır. Bu tünel Km: 3+450'de başlayıp Km: 4+330'da biten toplam 880 metre uzunluğunda ve çift tüp olması planlanmaktadır.

Tünel güzergahı boyunca Yeni Avusturya Tünel Açma (NATM) yöntemi uygulanacaktır ve kazı işlemi delme-patlatma yöntemi ile gerçekleştirilecektir. Çalışma konusu tünel şehir merkezinden geçtiği için çalışma alanında çok sayıda yerleşke bulunmaktadır. Bu çalışmada tüneldeki farklı kaya kütle sınıflarına göre delme patlatma tasarımı yapılmıştır ve bu delme patlatma dizaynının uygulanması durumunda çevre yerleşkelere vereceği zarar irdelenmiştir. Ayrıca kazı ve tahkimat çalışmaları belli bir ayrıntı dahilinde incelenmiş ve bazı istatistiki sonuçlar elde edilmiştir.

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AN INVESTIGATION ON CARBON FIBERS AS FLEXIBLE HEATING ELEMENTS

KARBON FIBERLERIN ESNEK ISITMA ELEMANI OLARAK KULLANILMASI ÜZERINE BIR INCELEME

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Abstract

Over the past few decades, researchers and industries are pursuing high-performance yet lightweight materials in engineering. One of the promising materials is carbon fiber (CF). CF is a unique material which have a wide range of thermo-physical properties that can be tailored to the desired application, allowing for a vast range of material properties. Carbon fibers (CFs), which possess high strength-to-weight ratio (its tensile strength about 5 GPa meanwhile have 1.7 - 2.0 g/cm3 density), superior electrical properties, excellent mechanical properties, high dimensional stability, high thermal conductivity, that is 1000 W/m.K which is almost three times that of copper, excellent thermal shock resistance, low expansion coefficient, chemical inertness, high corrosion resistance and good flexibility, are considered to be one of the most promising high temperature structure materials. In addition, a general reduction in their cost has led to increment of usage it in recent years. Conventionally, metal or metal alloy wires are performed as heating materials. However, these kind of heaters have various limitations in that heating is non-uniform, lifetime can be short on the account of broken wires, and the materials are generally heavy. Therefore, carbon materials for these type of heaters are desirable in order to overcome these issues. Accordingly, as mentioned above, having significant properties enable CFs to be utilized as flexible heating elements. In the present study, morphological, structural, electrical and thermal aging properties of CFs have been determined using scanning electron microscopy (SEM) , X-ray Diffraction (XRD), multimeter and a thermal aging setup, respectively. The approach used to project thermal aging properties of CFs based on increase in resistance with time and temperature. In this case the time and temperature data have been recorded for the 25% resistance increase to predict the service time.

Key Words: Carbon fiber, Flexible Heating Elements, Thermal Aging

Özet

Son yıllarda, araştırmacı ve sanayiciler yüksek performanslı ancak hafif malzemeleri mühendislik alanında önplana çıkarmaktadır. Bunlardan bir tanesi de karbon fiberdir. Karbon fiber, çok geniş aralıkta malzeme özelliklerine imkan veren, istenen uygulamalara uygun hale getirebilen çok çeşitli termo-fiziksel özelliklere sahip eşsiz bir malzemedir. Yüksek mukavemet-ağırlık oranı (çekme mukavemeti 5 GPa iken 1.7 – 2.0 g/cm3 arasında bir yoğunluğa sahip), harika elektriksel özellikler, mükemmel mekanik özellikler, yüksek boyutsal kararlılık, 1000 W/m.K termal iletkenlik ile neredeyse bakırın 3 katı büyüklüğünde yüksek termal iletkenlik, muhteşem termal şok dayanımı, düşük genleşme katsayısı, kimyasal inertlik, yüksek korozyon direnci ve esnekliğe sahip karbon fiberler yüksek sıcaklık yapı malzemesi olarak göze çarpmaktadır. Ayrıca, son yıllarda maliyetlerindeki genel bir düşüş kullanımlarında artışa neden olmaktadır. Geleneksel olarak, metal

ve metal alaşım telleri ısıtma malzemesi olarak uygulanmaktadır. Fakat, bu tür ısıtıcılar genellikle ağır olmaları, kırılan tellerden kaynaklı ömürlerinin kısa olabilmesi ve düzenli olmayan bir şekilde ısıtma gibi birtakım kısıtlamalara sahiptir. Bu yüzden bu türdeki ısıtıcılarda bunun gibi sorunların üstesinden gelmek için karbon malzemeler arzu edilir. Bu doğrultuda, yukarıda bahsedildiği gibi bu dikkat çekici özelliklere sahip olan karbon fiberler, bu özellikler sayesinde esnek ısıtma elemanı olarak kullanılmaya olanak sağlamaktadır. Mevcut çalışmada, karbon fiberlerin morfolojik, yapısal, elektriksel ve termal yaşlanma özellikleri sırasıyla; taramalı electron mikroskobu (SEM), X-ışını difraktometresi, multimetre ve termal yaşlanma düzeneği kullanılarak tespit edilmektedir. Karbon fiberlerin termal yaşlanma özelliklerini göstermek için kullanılan yaklaşım sıcaklık ve zaman ile dirençteki artış miktarına dayanmaktadır. Buna göre karbon fiberlerin kullanım süresini tahmin etmek için %25'lik bir direnç artışına kadar sıcaklık ve zaman verileri kayıt altına alınmıştır.

Anahtar Kelimeler: Karbon fiber, Esnek ısıtma elemanları, Termal Yaşlanma

ЭКСПРЕССИЯ ГЕНОВ В ПРОЦЕССЕ БИОСИНТЕЗА БЕЛКА

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Российская Академия Наук

Аннотация
Всем известно, что экспрессия генов — это процесс, в ходе которого наследственная информация от гена преобразуется в функциональный продукт — РНК или белок. Экспрессия генов может регулироваться на всех стадиях процесса: и во время транскрипции, и во время трансляции, и на стадии посттрансляционных модификаций белков.

Гипотеза “один ген - один фермент”, предполагает, что каждый ген может кодировать только одну полипептидную цепь, которая, в свою очередь, может входить как субъединица в более сложный белковый комплекс. Теория выдвинута Г.Бидлом и Э.Татумом в 1941 на основании генетико-биохимического анализа нейроспоры, они обнаружили выключение в экспериментальных условиях под действием различных мутаций каждый раз только одной какой-либо цепи биохимических реакций. Сомнения в абсолютной справедливости данной теории появились в связи с открытием системы «два гена - один полипептид», а также с существованием перекрывающихся генов. С функциональных позиций данная теория условна в связи с нахождением многофункциональных белков.

Ключевые слова: гены, белок, биосинтез

TERMS OF PEER AND STUDENT VIEWS

ÖĞRETMEN ADAYLARININ TASARLADIKLARI MATEMATİKSEL OYUNLARIN AKRAN VE ÖĞRENCİ GÖRÜŞLERİ AÇISINDAN İNCELENMESİ

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Abstract

Children use games to understand, comprehend and examine the world. Thus, games are a means of learning and the universal language of children. Games are very important for primary and secondary school students. Because they give children a chance to develop their imagination. Utilization of educational games especially in mathematics classes that are considered difficult and complicated by students will motivate students and increase their participation in classes. Fear and anxiety about mathematics which start to be observed in many students as from primary school years and continue until secondary school can be removed with the help of mathematical games. The study aims to examine the games designed by pre-service classroom teachers for primary school students in terms of peer and student views. 44 pre-service teachers receiving education in the third grade of a public university participated in the study. The study group was determined with convenient sampling method, which is among purposeful sampling methods. In the study using case study method, Mathematical Games Evaluation Form (MGEF) and Student View Form (SVF) were used as data collection tools. As the application period was restricted in the data collection process, the pre-service teachers were separated into groups of three and four and each group was asked to design two games regarding acquisitions in the primary school mathematics curriculum. Then they were asked to write down their game scenarios according to the template of lesson plans. In this study that was conducted within the scope of Mathematics Teaching-II lesson, each group presented the games in their lesson plans to their friends in the classroom. Following the presentations about mathematical games; MGEF was distributed to the preservice teachers and their views on the games designed by their peers were received. In addition, the preservice teachers applied these mathematical games in primary schools where they went for the Teaching Practice lesson. Following the practice in primary schools, semi-structured interviews were conducted with students as focus group discussions for approximately 15-20 minutes. As a result of the study, it was determined that majority of students found mathematical game activities instructive and entertaining. It was observed that some of the students were able to correct their operation mistakes and had an increased interest in mathematics. According to the results obtained from peer views; it was seen that preservice teachers generally had positive opinions about the games designed by their friends. Majority of preservice teachers found the games of their friends convenient for acquisition, applicable for teachers, useful and understandable. On the other hand, some of them found materials used in games too expensive, impractical and inapprehensible for students. In addition to these, games designed by some of the groups were found to be strategic, convenient for developing critical thinking and problem solving skills and creative for social development by their peers.

Key Words: Mathematical games, peer evaluation, pre-service teacher, student views,

Özet

Çocuk dünyayı anlamak, kavramak ve incelemek için oyunu kullanır. Bu sebeple oyun bir öğrenme aracıdır ve çocukların evrensel dilidir. İlkokul ve ortaokul düzeyindeki çocuklar için oyun çok önemlidir. Çünkü oyunlar, çocuklara hayal gücünü geliştirme fırsatı vermektedir. Özellikle öğrenciler tarafından zor ve karmaşık olarak görülen matematik derslerinde eğitsel oyunların kullanılması, öğrencileri güdüleyerek derse olan katılımlarını artırmakta ve motivasyonlarını sağlamaktadır. İlkokul yıllarından itibaren başlayan ve ortaokul çağına kadar devam eden pek çok öğrencideki matematik korkusu ve kaygısı matematiksel oyunlarla giderilebilir. Bu doğrultuda araştırmada, sınıf öğretmeni adaylarının ilkokul öğrencilerine yönelik

tasarladıkları oyunların akran ve öğrenci görüşleri açısından incelenmesi amaçlanmıştır. Araştırmaya bir devlet üniversitesinin üçüncü sınıfında öğrenim gören 44 öğretmen adayı katılmıştır. Çalışma grubu, amaçlı örnekleme yöntemlerinden kolay ulaşılabilir örnekleme yöntemi ile belirlenmiştir. Durum çalışması yönteminin kullanıldığı bu araştırmada, veri toplama aracı olarak Matematiksel Oyunları Değerlendirme Formu (MODF) ve Öğrenci Görüş Formu (ÖGF) kullanılmıştır. Veri toplama sürecinde, uygulama süresinin sınırlı olmasından dolayı öğretmen adayları üçer ve dörder kişilik gruplara ayrılmış ve her gruptan ilkokul matematik dersi öğretim programındaki kazanımlara ilişkin ikişer oyun tasarlamaları istenmiştir. Sonrasında adaylardan tasarladıkları oyunların senaryolarını kendilerine verilen ders planı şablonuna göre yazmaları istenmiştir. Matematik Öğretimi-II dersi kapsamında yürütülen bu araştırmada her grup hazırladıkları ders planlarındaki oyunları sınıf ortamında arkadaşlarına sunmuştur. Matematiksel oyunlara ilişkin sunumların ardından, adayların akranlarının tasarladıkları oyunlarla ilgili yazılı görüşleri alınmıştır. Ayrıca öğretmen adayları tasarladıkları matematiksel oyunları Öğretmenlik Uygulaması dersi için gittikleri ilkokullarda uygulamışlardır. İlkokullarda yapılan uygulamanın ardından öğrencilerle yarı yapılandırılmış görüşmeler yapılmıştır. Odak grup görüşmesi şeklinde yürütülen görüşmeler yaklaşık 15-20 dakika sürmüştür. Verilerin analizinde nitel veri analizi tekniklerinden yararlanılmıştır. Araştırma sonucunda, öğrencilerin çoğunun matematiksel oyun etkinliklerini öğretici ve eğlendirici buldukları tespit edilmiştir. Bazı öğrencilerin görüşmelerde işlem hatalarını düzelttiklerini ve matematiğe karşı ilgisinin arttığını ifade ettikleri görülmüştür. Akranlarının görüşlerinden elde edilen sonuçlara dayalı olarak, öğretmen adaylarının genellikle tasarlanan oyunlarla ilgili olumlu görüşlere sahip oldukları görülmüştür. Adayların çoğu, arkadaşlarının oyunlarını kazanıma uygun, öğretmenler tarafından uygulanabilir, kullanışlı ve anlaşılır bulmuşlardır. Diğer taraftan, oyunlarda kullanılan malzemeleri çok maliyetli bulan, oyunların kullanışsız ve öğrenciler tarafından anlaşılmaz olduğunu düşünen adaylara da rastlanmıştır. Bunlara ek olarak, bazı grupların tasarladıkları oyunlar, akranları tarafından stratejik, eleştirel düşünmeye ve problem çözme becerilerini geliştirmeye ilişkin özelliklerinin yanında sosyal gelişime de katkı sağlaması yönüyle yaratıcı bulunmuştur.

Anahtar Kelimeler: Matematiksel oyunlar, akran değerlendirme, öğretmen adayı, öğrenci görüşleri

SYNTHESIS OF TACRINE DERIVATIVES AS CHOLINESTERASE INHIBITORS

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Abstract

There is growing evidence that Alzheimer's disease (AD) is a progressive neurodegenerative disease, which is among the most extensive form of dementia and affects aged people. AD is related to a selective loss of cholinergic neurons in the brain and reducing acetylcholine (ACh) levels.2,3 The cholinergic hypothesis is one of the AD hypothesis. It proposes that acetylcholinesterase inhibitors (AChEI) could rise the levels of ACh in AD patients by inhibiting acetylcholinesterase and, therefore, alleviate some symptoms experienced by AD patients [1].

Tacrine is a centrally active, non-competitive, reversible cholinesterase inhibitor with slightly selective butyrylcholinesterase (BChE, EC 3.1.1.8) from AChE. It has common biological and pharmacological properties. Additionally, Tacrine-class of the AChEI is well known and used in the cure of a various illnesses involving Alzheimer's disease (AD) [2].

In this study, 13 tacrine derivatives were synthesized and their effects on acetylcholinesterase (AChE) and butyrylcholinesterase (BuChE) enzymes were evaluated. Among the synthesized tacrine derivatives, ((1,2,3,4-tetrahydroacridin-9-yl)amino)ethyl(3-nitrophenyl) carbamate showed the best inhibitor activity against AChE and BuChE with IC50 value of 22.15 nM and 16.96 nM, respectively. In addition, in regard to structure-activity relationship, it can be seen that the inhibitory activity depends on the electronegativity, polarizability and binding position of the substituent on phenyl ring.

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INVESTIGATION OF SOME MECHANICAL PROPERTIES OF FILLING IN UNDERGROUND MINING

YERALTI MADENCİLİĞİNDE YAPILAN DOLGU ÇALIŞMASININ BAZI MEKANİK ÖZELLİKLERİNİN İNCELENMESİ

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Özet

Yeraltı maden ocaklarında cevher üretimi sonucu oluşan boşlukların uygun bir dolgu malzemesi kullanılarak, tahkimat veya atıkları depolamak amacıyla yapılan doldurma işlemine, dolgu denir. Dolgu işlemi, üretim sonrasında oluşan boşlukları doldurmak için madenden çıkarılan değersiz kısmın veya dışardan getirilen farklı büyüklüklerdeki agreganın bağlayıcı kullanılarak yada bağlayıcısız yeraltı boşluklarına yerleştirilme işlemidir. Bağlayıcı kullanılması, bağlayıcının cinsi ve oranı, kullanılan dolgu malzemesinin cinsi, tane boyut aralığı, dolguyu yerleştirme koşulları ve oluşan boşluklu yapı dolgu dayanımını etkileyen başlıca parametrelerdir.

Bu çalışmada, bir yeraltı işletmesinde uygulanan çimentolu pasa dolgusundan oluşturulan 12 adet 20x20x20 cm küp örnekler üzerinde TS EN 12390-3'e uygun olarak 7-14-28 ve 56 gün sonunda ki basınç dayanımını ve ultrasonik P dalga hızı testleri yapılmıştır. Basınç dayanımının P- dalga hızına etkisi ve ilişkisi incelenmiştir.

The filling process is performed by using a suitable filling material for the gaps formed in ore production in the underground mines and for the purpose of storing fortifications or wastes. Filling is the process of placing in the unbonded underground voids by using the binder of the agglomerate in different quantities brought in from outside or from the outside, to fill the gaps formed after the production. The binder usage, the nature and proportion of the binder, the type of filler used, the grain size range, the filler placement conditions, and the void space structure are the main parameters affecting the filler strength.

In this study, the pressure constants and ultrasonic P wave velocity tests at 7-14-28 and 56 days in accordance with TS EN 12390-3 were performed on 12 20x20x20 cm cube samples formed in a cement paddy filled in an underground operation. The effect of pressure resistance on the P-wave velocity and its relation have been investigated.

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INVESTIGATION OF SEMI-STRUCTURED PROBLEM POSING SKILLS OF SECONDARY MATHEMATICS TEACHERS: DATA PROCESSING LEARNING DOMAIN

ORTAOKUL MATEMATİK ÖĞRETMENLERİNİN YARI YAPILANDIRILMIŞ PROBLEM KURMA BECERİLERİNİN İNCELENMESİ: VERİ İŞLEME ÖĞRENME ALANI

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Abstract

This research aims to examine the problem-posing skills of the secondary school mathematics teachers in the data processing learning domain. As it is aimed to investigate the problems in the research in depth, the case study method based on the qualitative research approach is used. The participants of the study are seven middle school mathematics teachers working in a state secondary school. Participants were selected through easily accessible sampling method from purposeful sampling types. Semi-structured problem-posing cases developed by researchers were used as data collection tools. Semi-structured problem-posing cases are prepared based on the framework of Stoyanova and Ellerton's (1996) problem-posing activities. In the first phase of the data collection process, teachers were asked to establish problems related to given cases. To provide data diversity in the research, interview, observation, and document analysis techniques have been included in the data collection process as well as written explanations about the problems that teachers have established. Semi-structured interviews were held with the teachers individually. In addition, in-class observations were conducted to examine the problem-posing behaviors of teachers in the classroom. Qualitative analysis techniques were used in the analysis of collected data. Problems that teachers establish are assessed according to the conceptual, contextual, language-expression and cognitive skill categories. When assessing the problems by the cognitive skill category, they have been examined in the light of the information, practice and reasoning subcategories in the Trends in International Mathematics and Science Study [TIMSS] (2011). As a result of the research, it was concluded that the teachers produced incorrect problems in terms of language and narration when writing the problem sentences. When evaluating the problems contextually, it is seen that the problems are related to everyday life but not narrated. Some of the teachers have included graphics and tables in the problem-posing process. A few of these graphics and tables are conceptually incorrect. One of the significant results of the research is that the teachers establish the problems that need information and practice rather than the problems that need reasoning.

Key Words: Problem-posing skills, data processing, mathematics teacher

Özet

Bu araştırmada ortaokul matematik öğretmenlerinin veri işleme öğrenme alanında problem kurma becerilerinin incelenmesi amaçlanmıştır. Araştırmada kurulan problemlerin derinlemesine incelenmesi amaçlandığından nitel araştırma yaklaşımına dayalı durum çalışması yöntemi kullanılmıştır. Araştırmanın katılımcılarını bir devlet ortaokulunda görev yapan yedi ortaokul matematik öğretmeni oluşturmaktadır. Katılımcılar, amaçlı örnekleme türlerinden kolay ulaşılabilir örnekleme yöntemi ile seçilmiştir. Veri toplama aracı olarak araştırmacılar tarafından geliştirilen yarı yapılandırılmış problem kurma durumları kullanılmıştır. Yarı yapılandırılmış problem kurma durumları Stoyanova ve Ellerton (1996)'un problem kurma etkinliklerine yönelik çerçevesi göz önünde bulundurularak hazırlanmıştır. Veri toplama sürecinin ilk aşamasında öğretmenlerden verilen durumlara ilişkin problem kurmaları istenmiştir Araştırmada veri çeşitliliğin sağlanması için öğretmenlerin kurdukları problemlere ilişkin yazılı açıklamaları yanında görüşme, gözlem ve doküman analizi tekniklerine yer verilmiştir. Öğretmenlerle bireysel olarak yarı yapılandırılmış görüşmeler yapılmıştır. Ayrıca öğretmenlerin sınıf içindeki problem kurma davranışlarını incelemek için sınıf içi gözlemler gerçekleştirilmiştir. Toplanan verilerin analizinde nitel analiz teknikleri kullanılmıştır. Öğretmenlerin kurdukları problemler, kavramsal, bağlamsal, dil-anlatım ve bilişsel beceri kategorilerine göre

değerlendirilmiştir. Problemler bilişsel beceri kategorisine göre değerlendirilirken Uluslararası Matematik ve Fen Eğilimleri Araştırması [TIMSS] (2011)'nın raporundaki bilgi, uygulama ve muhakeme alt kategorileri doğrultusunda incelenmiştir. Araştırma sonucunda öğretmenlerin problem cümlesi yazarken dil ve anlatım açısından hatalı problemler kurdukları tespit edilmiştir. Problemler bağlamsal çerçevede değerlendirildiğinde problemlerin günlük yaşamla ilişkilendirildiği ancak hikâyeleştirilmediği görülmüştür. Öğretmenlerden bazıları problem kurma sürecinde grafik ve tablolara yer vermiştir. Bu grafik ve tablolardan birkaçı ise kavramsal olarak hatalıdır. Araştırmaya ilişkin önemli sonuçlardan biri de öğretmenlerin muhakeme gerektiren problemlerden ziyade bilgi ve uygulama gerektiren problemler kurmalarıdır.

Anahtar kelimeler: Problem kurma becerisi, veri işleme, matematik öğretmeni

EXPERIMENTAL ANALYSIS OF PERFORMANCE OF TWO PARALLEL CONNECTED COUNTER FLOW RANQUE-HILSCH VORTEX TUBE WITH DİFFERENT NOZZLE NUMBER MADE OF STEEL

ÇELİK MALZEMEDEN ÜRETİLMİŞ FARKLI NOZULLU PARALEL BAĞLI İKİ KARŞIT AKIŞLI RANQUE-HİLSCH VORTEKS TÜP PERFORMANSININ DENEYSEL OLARAK İNCELENMESİ

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Abstract

Vortex tube was first invented by George J. Ranque, French physicist, in 1937 and then upgraded by Rudolf Hilsch, German engineer in 1947. Hence, it is commonly known as Ranque-Hilsch vortex tube. Working principle of a counter flow RHVT is that the compressed working fluid tangentially sent from the nozzles starts to rotate at high speeds in the tube due to the cylindrical structure of the tube, depending on the pressure and speed of the inlet. Due to the friction of high speed rotating fluid at the tube wall, there is a pressure difference between the tube wall and the fluid in the tube center. The velocity of the fluid near the tube wall is lower than the velocity of the fluid at the tube center due to the effect of the friction on the tube wall, and the fluid at the center accelerates the fluid in the tube wall. As a result, fluid in the center region transfers energy to the fluid at the tube wall, depending on the geometric structure of the vortex tube. The cooled fluid leaves the vortex tube by moving against the main flow direction after the stagnation point, whereas the heated fluid leaves the tube in the main direction. In this study, two counterflow Ranque-Hilsch Vortex Tube with internal diameter of 7 mm and body length of 100 mm, with no moving parts except a control valve, were used to adjust the volumetric gauge. Two opposing Ranque-Hilsch vortex tubes were connected in parallel to form an experimental system. In the developed experimental system, pressurized air with 50 kPa pressure range from 150 kPa to 550 kPa was used as the fluid in Ranque-Hilsch vortex tube. Nozzles 3, 5 and 7 manufactured from steel material was used in Ranque-Hilsch vortex tube. In the experiments, the control valve on the hot fluid outlet side of the Ranque-Hilsch vortex tube is left in the fully open position. Performance of heating and cooling temperature of a parallel connected counter flow Ranque-Hilsch Vortex Tube was experimentally investigated.

Key Words: Keywords: Ranque-Hilsch vortex tube, cooling, heating.

Özet

George Joseph Ranque tarafından 1931 yılında bulunmuş ve Rudoph Hilsch tarafından 1947 yılında geliştirilmiş ve iki araştırmacıların isimleri ile Ranque-Hilsch Vorteks Tüp olarak adlandırılmaktadırlar. Karşıt akışlı RHVT çalışma prensibi, nozullardan vorteks tüpe teğetsel olarak gönderilen basınçlı akışkan, tüpün silindirik yapısından dolayı, girişteki basınca ve hıza bağlı olarak, tüp içerisinde yüksek hızlarda dönmeye başlar. Yüksek hızlarda dönen akışkanın tüp cidarındaki sürtünmeden dolayı, tüp cidarı ve tüp merkezindeki akışkan arasında basınç farkı oluşur. Tüp cidarı yakınlarındaki akışkanın hızı, tüp cidarındaki sürtünmenin etkisinden dolayı tüp merkezindeki akışkanın hızına göre daha düşüktür ve merkezdeki akışkan tüp cidarındaki akışkanı ivmelendirmeye çalışır. Bu nedenle merkezdeki akışkan tüp cidarındaki akışkana enerji transfer eder ve tüpün geometrik yapısına bağımlı olarak bir durma noktasından sonra ters yönde hareket ederek, soğuk çıkış tarafından tüpü terk eder. Bu çalışmada, hacimsel debileri ayarlamak için bir kontrol vanası hariç hiçbir hareketli parçası bulunmayan, iç çapı 7 mm, gövde uzunluğu 100 mm olan iki

adet karşıt akışlı Ranque-Hilsch Vorteks Tüp (RHVT) kullanılmıştır. İki adet karşıt RHVT paralel olarak birbirine bağlanarak deneysel sistem oluşturulmuştur. Oluşturulan deney sistem 100 cm, eni, 33 cm genişlik, kalınlığı 1,2 mm olan bir sac levha üzerine yatay konumda sabitlenmiştir. Yapılmış olan deneysel deneysel sistemde Ranque-Hilsch Vorteks Tüplerde akışkan olarak giriş basıncı 150 kPa'dan 550 kPa basınç değerine kadar 50 kPa aralıklarla basınçlı hava kullanılmıştır. Ranque-Hilsch Vorteks Tüplerde Çelik malzemeden üretilmiş 3, 5 ve 7 numaralı nozullar kullanılmıştır. Deneylerde Ranque-Hilsch Vorteks Tüplerin sıcak akışkan çıkış tarafındaki kontrol vanası, tam açık konumda bırakılmıştır. Karşıt akışlı paralel bağlı Ranque-Hilsch Vorteks sisteminin ısıtma-soğutma sıcaklık performansları deneysel olarak incelenmiştir.

Anahtar kelimeler: Ranque-Hilsch vorteks tüp, soğutma, ısıtma.

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A STUDY OF THE TURKISH BATH PLANS ACCORDING TO THE GRAPH THEORY METHOD

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Abstract

Historic buildings are loosing their importance at present and every day another one of them is disappearing either by collapsing or burning down. These structures are our heritage and they transfer knowledge to the future. They also provide information about the previously existed civilisations.

One of the building types of this kind are Turkish baths. The importance of washing and privacy were very important in this civilisation and the buildings were designed accordingly. Earlier, the Turkish baths were designed within the buildings of other functions, later they were designed as separate buildings. They were more ornamented and disorderly compared to the Roman baths which were the first bath buildings in history. In this study, the organisation of Turkish bath plans were studied, using the graph theory method.

Certain organisational decisions are needed when architectural forms, which are assembled with objects of various characteristics, scale, form and size, are brought together. Organisations which show differences from the view point of architecture are;

- Centralised Organisation
- Linear Organisation
- Clustered Organisation
- Grid Organisation

There fore considered in four groups.

Graph Theory provides data for buildings in term of the complete plan formation. Since it is a method for obtaining numeric data for organisational resolution it has four sub methods. These are

- Analysing functional program
- Describing spatial relation of building sub sections
- Resolving complete functional network of building with topologic techniques
- Resolving degrees of syntactic in total network of buildings sub-sections.

As this study is about building forms, only the third of the above methods was used. With this method, numerical data was obtained, relating to which form organisation the baths belonged.

For this purpose information about the Turkish baths and the relationship between the spaces were given. Turkish bath plans were classified. The graph theory method, which provides numeric data, was used to establish the organisation of Turkish bath plans.

Key Words: Turkish bath; Traditional; Graph Theory; Form organisation

EFFECT OF MO CONTENT ON MICROSTRUCTURE AND MECHANICAL PROPERTIES OF AISI 4140 STEEL PRODUCED BY POWDER METALLURGY METHOD

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Abstract

In this work, the effect of Mo (0.25-0.5-1-3 wt. % Mo) on the microstructures and tensile behaviors of powder metallurgy (PM) AISI 4140 steels were investigated. Comparing in terms of mechanical properties, C, Cr, Ni, Al, Cu ratios in AISI PM 4140 steels are kept constant and the effects of Mo are examined. Before the mixing process, the powders were prepared by weighing on a digital precision scale of 0.0001 g precision. The mixing process was conducted without ball using a Turbula T2F mixer for 1 hour. Having mixed homogeneously, the powders were pressed with cold under 700 MPa unidirectionally with a Hidroliksan press of 96 ton pressure capacity according to ASTM (E8M) standards of powder metal material tension test sample. The pressed samples were sintered at 1400 °C for 1 hour in argon atmosphere. Tensile test was made at 0.5 mm/min crosshead speed with Shimadzu tensile device that has 50 KN capacity. The tensile strength and elongation % of the tensile test samples were determined. After sintering, density (%)were measured. Microstructure examinations were carried out with Nikon Epiphot 200 brand optical microscope. Density of the samples was measured with the density measurement tool according to Archimedes principle. It is clear that the mechanical properties of 3 wt. % Mo added PM AISI 4140 steel is better than that of 0.25 wt. % Mo added PM AISI 4140. Mo element form precipitates during the sintering process and later which improves the tensile strength through strength improving mechanisms like precipitation hardening and grain size refinement.

Keywords: Powder metallurgy; AISI 4140 Steels; Microstructure; Mechanical properties

EFFECTS OF DAILY HABITS TO THE VENUE

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Özet

İnsan ve yaşadığı çevre arasında sürekli bir etkileşim bulunmaktadır. Çevrenin fiziksel, sosyal ve kültürel özelliklerine göre farklı yerlerde, farklı şekillerde ilişkiler meydana gelmektedir. Yaşanılan çevre insanı etkilerken, kendisi de insanın istekleri doğrultusunda yeniden şekillenmektedir. Hem fiziksel çevre hem de sosyal katılım, mahalle yaşamının oluşumuna ve yaşam çevreleri ile bağ kurulmasına olanak vermektedir. Komşular ile toplumsal- kültürel bağlar ve paylaşılan yer, yani mahalle, kişinin 'kendi' kimliğinin uzantısı haline gelmektedir. Bireyin mahalle bağlılığı insan ve çevre kaynaklı gündelik alışkanlıklara bağlı olarak değişmektedir.

Bu açıdan bu çalışma; insanların neden bulunduğu yere bu derece bağlı olduğunu ve bu bağlılığın oluşumunda etkili olan faktörlerin neler olduğunu açığa çıkarmak ve sosyal çevrenin mimarlıkla ne derece ilişkili olduğunun önemini vurgulamak amacıyla yapılmıştır.

Çalışmada öncelikle; alışkanlıklar, gündelik alışkanlıklar, yer bağlılığı ve mahalle bağlılığı kavramlarını inceleyen bir literatür araştırması yapılmıştır. Daha sonra bu araştırmayı desteklemeye ve karşılıklı olarak analiz etmeye yönelik bir alan çalışması yapılmıştır. Bu bağlamda gündelik alışkanlıkların mahalle yaşamı üzerindeki etkisini inceleme adına çalışma alanı olarak Peyas Mahallesi seçilmiştir. Bu alan çalışmasında 12 soruluk mahalle bağlılığı ile ilgili anket uygulaması, röportajlar ile yerinde gözlem ve tespitlerden oluşan bir yöntem kullanılmıştır.

Son bölümde ise, alan çalışmasından elde edilen bulgular yapılan literatür çalışması ile karşılaştırmalı olarak incelenmiş, gelecekteki çevresel tasarım kararları ve süreçleri açısından konunun önemi vurgulanmıştır.

Anahtar Kelimeler: Gündelik alışkanlık; Mahalle bağlılığı; Peyas mahallesi

Abstract

There is a constant interaction between people and the environment in which they live. According to the physical, social and cultural characteristics of the environment, relationships occur in different places and different forms. While living environment affects people, it also reshaped in accordance with the desires of the people. Both the physical environment and social participation allow for the formation of neighborhood life and links with life spans. Neighborhood, social-cultural ties and shared place, the neighborhood, becomes the extension of one's 'own' identity. The neighborhood's dependence depends on the daily habits of human and environment.

In this respect, this study was prepared to clarify what is the degree to which people are based and what factors are influential in the formation of this commitment, and to emphasize the importance of the social environment to architecture.

First of all, habits, everyday habits, locality and neighborhood loyalty were investigated. Later, a field study was carried out to support this research and to analyze it mutually. In this context, Peyas neighborhood was chosen as a study area in order to examine the influence of everyday habits on the neighborhood life. In this

field study, a methodology consisting of questionnaire application, interviews and on-site observations and fixations related to neighborhood loyalty of 12 questions was used.

In the last part, the findings obtained from the field study are compared with the literature study and emphasized the importance of the future in terms of environmental design decisions and processes.

Key Words: Daily habits; Neighborhood affiliation; Peyas neighborhood

INVESTIGATION ON BEHAVIOR OF STEEL/AL-B4C CIRCULAR LAYERED COMPOSITES UNDER COMPRESSION FORCES

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Abstract

Layered circular metal matrix composites are a different type of typical composites in which two or more materials are joined along the interface. In this study, mechanical behaviors of Steel/Al-B4C layered circular composite materials which were obtained by covering steel to out of Al-B4C metal matrix composite material as a core material, were investigated under compressive loads. The composite samples were produced by roll forming of the pre-made products which formed by compressing Al-B4C powder mixture into steel tube materials. The rolling process was carried out at temperature of 600 °C. Composite bars produced in this process, were subjected to compression tests. Process parameters considered in this study are B4C reinforcement ratio, reinforcement size and rolling ratio for evaluation of compression tests. The strength values of the composites under compressive loads increase with increasing B4C ratio and grain size, but their deformability is decreased.

Keywords: Layered composites, Compression test, roll forming

THE EFFECTS OF B4C CERAMIC SIZES ON WEAR BEHAVIOR OF AL 6061 METAL MATRIX COMPOSITES

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Abstract

It is expected that the ceramic reinforcements increases the wear resistance of composite material. But the size of ceramic particles may affect the resistance of the composites materials. In this study, the effect of B4C reinforcement particle size on the wear properties of aluminum matrix materials was investigated.

In the composites manufactured by the powder metallurgy method, three different sizes of B4C particles were added into the Al 6061 matrix phase at 10% volume fraction. Composite bars were obtained by extruding of composite billets compressed at 450 MPa pressure. Tribological behaviors of these materials with and without heat treating were investigated by wear tests performed in dry conditions with pin-on-ring test configuration. It was also examined how the affects of graphite addition in to the composites wear characteristics of composites.

The findings show that, although the weight loss of the samples is decreased by increasing of the B4C particle size, it is increased by the decreasing of the B4C particle size in the heat treated samples. It is also decreased by addition of graphite to the Al-B4C composites.

Keywords: Dry wear, pin on ring, composite material

MODELING OF AN ELECTROMAGNETIC VALVE ACTUATOR FOR GASOLINE ENGINES BASED ON FEM ANALYSIS

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Abstract

In conventional internal combustion engines, variable valve timing is one of the most important parameters affecting volumetric efficiency. Cam profile significantly effects volumetric efficiency which is one of the significantly parameters affecting engine performance, fuel consumption and exhaust emissions. Therefore, valves opening and closing time must be different at each engine speeds in terms of volumetric efficiency. However, variable valve timing cannot be performed at all engine speed with classical cam systems. It can be achieved with camless engines. Intake and exhaust valves operated by means of electro-hydraulic, electro-pneumatic or electro-mechanical valve actuators instead of conventional cam mechanisms in camless engine. In electromechanical valve system (EVS), the valves are opened and closed by the magnet circuits and the opening and closing times of the intake and exhaust valves can be controlled without depending on the cam mechanism in all engine speeds. Also, EVS provide cylinder deactivation can be achieved during the idling phase and reduces friction losses. The most critical part for EVS design is the solenoid in terms of the limited space on the cylinder head, the magnetic force required to open and close the valve, the coil temperature and the valve speed. In this study, modelling of the piston type EVS has been proposed. The simulation results obtained by performing the analyses with finite element method have been verified whit experimental test results. In addition, the conventional valve profile has been compared with the EVS valve profile.

Keywords- EVS; volumetric efficiency; FEA; variable valve timing

THE MICROSTRUCTURE AND CORROSION PROPERTIES OF HOMOGENIZED AZ31 MG ALLOYS CONTAINING LANTHANUM IN THE RANGE OF 0,2% TO 1,0%.

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Abstract

In this study, AZ31 Mg alloys containing in the range of 0,2% to 1,0% Lanthanum (La) were produced by low pressure die casting method. The microstructure of investigated alloys was characterized by optical microscopy, scanning electron microscopy and X-ray diffraction method. Furthermore, the potentiodynamic corrosion test was utilized to learn about the corrosion resistance of investigated alloys.

Keywords: AZ31, Low pressure die casting, lanthanum, corrosion

THE MICROSTRUCTURE AND MECHANICAL PROPERTIES OF HOMOGENIZED AZ31 MG ALLOYS CONTAINING LANTHANUM IN THE RANGE OF 0,2% TO 1,0%.

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Abstract

In this study, AZ31 Mg alloys containing in the range of 0,2% to 1,0% Lanthanum (La) were produced by low pressure die casting method. The microstructure of investigated alloys was characterized by optical microscopy, scanning electron microscopy and X-ray diffraction method. Moreover, the tensile tests were applied at 25°C, 200°C and 350°C temperatures.

Keywords: AZ31, Low pressure die casting, lanthanum, mechanical properties

WEAR BEHAVIOUR OF SINTERED NB-V MICROALLOYED POWDER METALLURGY STEEL

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Abstract

In this work, the hardness and abrasive-wear be-haviour of powder metallurgy (PM) plain carbon steel and microalloyed steels with different amount of niobium or vanadium content (0-0.15wt %) were investigated. After surface grinding by using 800 mesh grinding paper, Reciprocating Wear Tests were applied to PM samples with UTS-10 Tribometer tester. AISI 52100 material steel ball was used for wear test and the stroke distance was kept at 10 mm. The total distance is 1000 meters. Loads applied are 15 N and 30 N, and shear rate is 72 mm / sec. After each abrasion test the material was cleaned with ethanol and wear weight loss was calculated by electrobalance with 0.1 mg precision. Depth of wear, friction coefficient and friction force were calculated with a software program of the device. Wear surfaces of PM steel specimens were then examined in SEM. It was found that steels microalloyed by niobium and vanadium have high hardness and wear resistance compared with the niobium and vanadium free steel.

Keywords: Nb-V Microalloyed Steel; Sliding wear; Hardness; powder metallurgy

THE BASIC PRINCIPLES OF CREATING AN EFFECTIVE BIORISK MANAGEMENT SYSTEM

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Abstract

The application of the system approach allows to effectively identify, monitor and manage various aspects of biosafety and biosecurity of laboratory activities. For the effective implementation of the system approach, the principle of continuous improvement is applied. This principle is realized by applying a cycle consisting of planning, implementation, analysis and improvement phases of the organization's processes and actions aimed at achieving the set goals.

To increase the effectiveness of management of biorisk, the organization should pay attention to the causes of inconsistencies and undesirable events. Systematic identification of non-conformities and corrective actions contribute to more effective implementation of activities and control of biorisk. The key factors ensuring the creation and implementation of a biorisk management system include:

Commitment and commitment of top management:

- allocation of necessary resources, prioritization and exchange of information on biosafety and biosecurity policies;

- introduction of a biorisk management system in all divisions of the organization;

- identification of opportunities for improvements and application of preventive actions, identification of initial causes of dangerous events and prevention of their recurrence.

Keywords: biorisk, management, prevention of biorisk

UTILIZATION OF THE HEALTH SERVICES IN THE CENTER OF KAYSERI AND ITS RELATIONSHIP WITH PERCEIVED HEALTH STATUS: A COMPARISON BETWEEN 2004 AND 2017

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Abstract

This definitive analytical study is carried out in order to analyze the public health services utilization in Kayseri city center between 2004 and 2017 and the time dependent change of its relationship with the perceived health.

Sampling is done under the name of Health Care Center in 2004 and Family Health Center in 2017, 1880 and 2253 people are recruited respectively in 7 institutions which are serving mostly the same areas. Data was collected by going to residences with Demographic Data Form and Nottingham Health Profile (NHP) and meeting face to face.

The rate of health service utilization is 79.6% in 2004, and 84.8% in 2017; application average is 5.0±5.4 in 2004, and 6.9±8.7 in 2017 and it is found significantly high ($p<0.001$). In 2004, the rate of application s to the public health hospitals was higher (49.9%) than those of private medical institutions (13.2). In 2007, application made to Family Health Centers, University Hospitals and Private Health Institutions are increased distinctly ($p<0.001$). In both periods, examination is the most common application reason. In 2004, social security, accessibility and affordability and in 2017, promptness, quality service, trust and satisfaction are the important facilitator factors ($p<0.05$).

In 2004, 44.0% of the group and in 2017, 36.4% of the group defined their general health condition as “bad”. NHP score average is 30.87±23.60 in 2004, and it is decreased to 20.34±22.13 in 2017, so the general health perception is increased significantly ($p<0.001$). In both periods the highest scores belong to energy (48.89±40.95 vs 36.81±41.20) and emotional reactions (41.71±32.13 vs 24.82.±30.12), the lowest scores belong to physical mobility (21.07±24.63) in 2004 and social isolation (12.98±25.05) in 2017. In 2004, business life is the most negatively affected field by the general health condition, and it is house chores in 2017 ($p<0.001$).

Briefly, in both periods, application rate of the individuals whose general health condition is bad, general life activities are affected negatively because of general health condition and individuals who have a chronic disease and a high NHP score are higher. On the other hand, positive health perception level of public, NHP scores and health care utilization parameters are substantially higher in 2017 by comparison with 2004.

Accessibility to health care, control of the factors affecting perceived health negatively, effective utilization of the health care and positive health perception level can be increased more.

Keywords: Change, Health Services, Utilization, Perceived Health Status

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PHYTOPHAGOUS AND BENEFICIAL SPECIES ON CHERRY TREES AND TIME TO BEING SEEN OF SOME IMPORTANT SPECIES IN NATURE IN MARDIN AND ELAZIG PROVINCES

MARDİN VE ELAZIĞ İLLERİ KİRAZ AĞAÇLARINDA BULUNAN FİTOFAG VE FAYDALI BÖCEK TÜRLERİ İLE BAZI ÖNEMLİ TÜRLERİN DOĞADA GÖRÜLME ZAMANI

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Abstract

Cherry is an important fruit species, heavily consumed in Turkey and elsewhere. It is usually valued fresh consumption and contains high amounts of C, A and K vitamins and mineral deposits containing phosphorus, iron and calcium, such as the presence of significant minerals. In addition to, cherry plants are effective in Alzheimer's disease, heart health, brain health, insomnia, weakening, anti-inflammatory, gout disease etc. The study was conducted in 2005 and 2006, to determine the phytophagous and beneficial species in cherry orchards and population change of some important pests in Mardin and Elazığ provinces. Samples were collected by beat sheet sampling method, specific sexual traps, pit and fattening traps (wine and molasses traps). At the end of the study, 47 insect and 1 mite species were found as phytophagous and 13 predator and 5 parasitoid species were found as beneficial species. Determined pests, *Archips rosanus* L., *Rhagoletis cerasi* Linnaeus, *Tropinota hirta* Poda, *Stephanitis pyri* Fabricius, *Myzus cerasi* F., *Capnodis tenebrionis* L., *Scolytus rugulosus* Müller and *Tetranychus urticae* Koch were also observed. In addition, *Coccinella semptempunctata* L., *Synharmonia conglobata* L., *Metasyrphus corollae* Fabricius, *Chrysoperla carnea* Stephens, *Scolothrips longicornis* Priesner were found to be the most common useful species in cherry trees in Mardin and Elazığ provinces.

Key words: Cherry pests, natural enemies, Elazığ, Mardin, Turkey

Özet

Kiraz önemli bir meyve türü olup, gerek Türkiye'de ve gerekse dünyada yoğun bir şekilde tüketilir. Genellikle taze tüketilir, içeriğinde yüksek miktarda C,A ve K vitaminleri ile önemli minerallerden olan fosfor, demir ve kalsiyum minerallerini de içerir. Ayrıca kiraz, Alzaimer ve gut hastalığına, kalp ve beyin sağlığına, uykusuzluğa, zayıflamaya, iltihap önleme vb. birçok hastalığa karşı etkilidir. Bu çalışma, 2015-2017 yılları arasında Mardin ve Elazığ illeri kiraz bahçelerindeki zararlı ve yararlı türler ile bazı önemli zararlıların popülasyon değişimini belirlemek amacıyla yürütülmüştür. Örneklemelerde kiraz bahçelerinde ağaç dallarına yapılan darbe yönteminin yanı sıra türlere özgü eşeysel çekici tuzak, çukur ve besi tuzakları (Şarap ve Pekmez Tuzakları kullanılmıştır. Çalışma sonuçlarına göre, örnekleme bahçelerinde fitofag türlerden 47 böcek ve 1 akar ile genel predatör ve parazitoitlerden olan 28 faydalı böcek türü saptanmıştır. Saptanan zararlı türlerden *Archips rosanus* L., *Rhagoletis cerasi* Linnaeus, *Tropinota hirta* Poda, *Stephanitis pyri* Fabricius, *Myzus cerasi* F., *Capnodis tenebrionis* L., *Scolytus rugulosus* Müller ve *Tetranychus urticae* Koch.'un ekonomik yönden önemli olduğu gözlenmiştir. Ayrıca *Coccinella semptempunctata* L., *Synharmonia conglobata* L., *Metasyrphus corollae* Fabricius, *Chrysoperla carnea* Stephens ve *Scolothrips longicornis* Priesner'in Mardin ve Elazığ illeri Kiraz ağaçlarında en fazla görülen yararlı türler olduğu belirlenmiştir.

Anahtar sözcükler: Kiraz zararlıları, doğal düşmanlar, Mardin, Elazığ, Türkiye

SYNTHESIS, CHARACTERIZATION OF HETEROCYCLIC RING NEW BIS (IMINO) PYRIDINE COMPOUND AND SOME METAL COMPLEXES

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Abstract

It is known that thiosemicarbazide, semicarbazide derivatives and 5 membered-ring diazole, thiadiazole, imidazole derivatives which are obtained from them show significantly biological activity. As ligands containing sulphur behave as chemical preservative in the course of chemotherapy, ligands containing N and S donor attract attention. Imidazole ring is a potential binding site for metal ions and for this reason, they are really important in order to understand metal ions' role in biological systems and the related compounds' coordination characteristics [1]. The compound that involves a lot of medical values such as antibacterial, antifungal, antiviral and antitumor also involves imidazole ring. Using these medicines as metal complexes improves their pharmacological characteristics highly. However, the Schiff bases and complexes that contain pyridine ring are considered to be very significant in terms of their catalytical activities in hydrogenation of olefins, electro chemical electron transmission, and biological, clinical, pharmacological and for this reason these kinds of compounds' syntheses are being analysed [2].

In this study, a hydrazine derivative of 2,6-diformyl pyridine compound and semicarbazide reaction as homoleptic was synthesized according to the literature [1,3]. After then, new ligand was synthesized with the oxalyl chloride in the secondary stage. After that, the Cu(II), Ni(II), Co(II) metal ion complexes were synthesized of this obtained ligand. The structure of all compounds, which have been synthesized, were illuminated by spectroscopic methods such as elemental analysis, FT-IR, UV-Vis, NMR, mass and measurements such as TGA-DTA, magnetic susceptibility, electronic conductivity.

Keywords: Bis-iminopyridine, metal complexes

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SYNTHESIS, CHARACTERIZATION OF HETEROCYCLIC RING NEW SNS DONOR TYPE BIS-(IMINO)PYRIDINE COMPOUND AND ITS CU(II) AND CO(II) COMPLEXES*

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Schiff bases derived from thiosemicarbazide and their metal complexes are of great significance for their pharmacological properties such as antibacterial, antifungal, antitumoral, antiviral and anticancer. After the discovery of the chemotherapeutically active cis-platin large number of metal complexes with thiosemicarbazide derivatives were synthesized. It is well known that several metal ions enhance the biological activities of thiosemicarbazone particularly the metals of d group elements [1]. Heterocyclic thiosemicarbazones capable of tridentate coordination have been studied extensively, and in recently ears many reports involve crystal structures of these thiosemicarbazones and/or their metal complexes. Also, the structures of bis(thiosemicarbazones) capable of tetradentate coordination and their complexes have been the subject of numerous recent reports [2].

In this study, a hydrazine derivative of 2,6-diacetylpyridine compound and thiosemicarbazide reaction as homolepticwas synthesized according to the literature [3]. After then, new ligand was synthesized with the oxaly chloride the secondary stage. After that, the Cu(II), and Co(II) metal ion complexes were synthesized of this obtained ligand. The structure of all compounds, which have been synthesized, were illuminated by spectroscopic methods such as elemental analysis, FT-IR, UV-Vıs, NMR, mass and measurements such as TGA-DTA, magnetic susceptibility, electronic conductivity.

Keywords: Bis-iminopyridine, metal complexes

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THE EXAMINATION OF THE RELATIONSHIP BETWEEN UNIVERSITY STUDENTS ' STYLES ON HANDLING WITH STRESS AND FREE TIME MANAGEMENTS

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Abstract

Objective; The research is a descriptive study aimed at examining the relationship between the stress coping styles and free time management of senior students of a nursing faculty.

Method; The survey was conducted between April 1, 2018 and May 30, 2018. The universe of the research consists of 480 senior students of Ege University Nursing Faculty. In the survey, sample selection was not conducted and the survey was executed with 293 senior students who agreed to participate. The data of the study was achieved through "Individual Introduction Form", "Free Time Management Scale", "Ways of Coping Questionnaire" which have been prepared by researcher in line with literature which are composed of questions on age, gender, parents' educational status, the settlement place in terms of longest period, social and economic level, use of alcohol and cigarette.

The obtained data were evaluated using the "Independent Sample T", "ANOVA" and "Pearson Correlation" tests, since the normal distribution is appropriate for the sample from simple analysis methods, number percentage distribution, mean, standard deviation and advanced analysis methods.

Findings; When the descriptive characteristics of the students taken in the research group are examined in the result of the study, examining the effect of the free time management on the ways of coping with stress by the nursing faculty senior students, it is determined that, %81.9 of students are female, the average age of the students is 22.8, according to the educational status of mothers %42 of mothers have been graduated from elementary school, according to educational status of fathers %33.8 of them are graduated from high school, %64.2 of mothers do not work in any jobs, for %47.8 the longest settlement place is city, %65.2 declare their economic status as equal balance between income and expenses.

As behaviors to cope with stress, students stated that they prefer to eat, sleep, listen to music, walk, read books, talk with family and play computer while %21.9 stated they used cigarette, alcohol and substance.

When stress coping scale subscales and free time scale subscales are assessed considering each other, students who prefer the optimistic approach are also assured themselves; it was determined that the students who preferred self-insecure approach as the way of coping with the stress showed a submissive approach. It has been determined that students who program their free time have an optimistic approach and a self-confident approach to cope with stress. Decrease is observed in the insecure approach for the students who do not set goals while evaluating their free, while increase is observed in the insecure approach of students who do not set goals.

Result and recommendations; According to the results of this study, it was revealed that free time management of the students had a positive influence on coping with stress. Improving the coping styles of stress for students, the support of the participation of the students in the social activities, the arrangement of the curriculum considering free time, the formation of counseling units for coping behaviors and the arrangement of interactive education and counseling programs where students may actively participate are recommended.

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Keywords; University Student, Free Time, Coping With Stress

THE ROLE OF HEALTH PROFESSIONALS IN PREVENTING FEAR OF DELIVERY

DOĞUM KORKUSUNU ÖNLEMEDE SAĞLIK PERSONELİNİN ROLÜ

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Abstract

Introduction and Aim: Tocophobia or tokophobia, from the Greek words *tokos* 'birth' and *phobos* 'fear', means fear of giving birth. It is defined as fear of dying while giving birth, fear of birth or pregnancy in the period before becoming pregnant, and fear of giving birth during pregnancy or even labor (1). This study was planned as a review of the literature with the aim of examining the approach of health personnel to the fear of giving birth.

A fear of giving birth may be caused by many different factors. These include a low educational or socioeconomic level, inadequate social support, problems with the partner, not knowing what giving birth will be like, fear of not having the skills to give birth, experiencing pain and panic when giving birth, being alone in strange surroundings, thinking that the baby or the mother will be harmed during the birth, inadequate information given by health personnel, not trusting health personnel, and sharing negative stories about giving birth (2, 3).

The behavior of health personnel is one of the principal reasons for the fear of giving birth. The main source of this fear is being made afraid that they will make a mistake and not trusting the health personnel. When health personnel calm the mother down and provide the necessary physical conditions for giving birth, the birth process is affected in a positive way (4).

Fear of giving birth causes a large number of problems, and affects women's decisions on how to give birth, even causing them to delay pregnancy or avoid it altogether. Psychosocial health during pregnancy can negatively affect the act of giving birth and the postpartum period (5, 6, 7).

The tocophobia which is experienced by women is often ignored by health personnel and not accorded sufficient importance. Determining the level of fear and supporting the mother in coping with this fear is an important responsibility of nurses (1).

Conclusion: Fear of giving birth is a problem which must certainly be dealt with, and the whole health team has a great responsibility to remove or reduce this fear. It is of great importance that nurses should give women supportive care in order to reduce their fear of giving birth, and that the necessary training should be given on this topic (8). The aim of this review was to create awareness among health personnel of the fear of giving birth.

Özet

Giriş ve Amaç: Tokofobi (doğum korkusu); Yunancada tokos doğum, phobos korku kelimelerinden köken almaktadır. Tokofobi doğum sırasında ölme korkusu, gebelik öncesi dönemde yaşanan doğum ya da gebelik korkusu, gebelik ve hatta travay sürecinde yaşanan doğum korkusu olarak tanımlanmaktadır (1). Bu çalışma doğum korkusuna sağlık personelinin yaklaşımını incelemek amacıyla literatür taraması yapılarak derleme olarak planlanmıştır.

Birçok farklı durum doğum korkusuna sebep olabilmektedir. Bunlar; düşük eğitim düzeyi ve sosyoekonomik düzey, sosyal destek yetersizliği, eşle sorun yaşama, doğumun nasıl olacağını bilmeme, doğum yapacak yeteneğinin olmadığını düşünme, doğumda ağrı ve panik yaşama, yabancı bir ortamda yalnız kalma, doğum sırasında bebeğin ve kendisinin zarar göreceğini düşünme, sağlık personelinin yeterli danışmanlık vermemesi, sağlık personeline güvenmeme ve olumsuz doğum hikayelerinin paylaşılmasıdır (2, 3).

Özellikle sağlık personelinin davranışları doğum korkusunun önemli sebeplerinden birisidir. Bu korkunun ana kaynağı, hata yapılacağından korkulması ve sağlık çalışanlarına güvenilmemesidir. Sağlık personelinin kadını rahatlatması ve doğum için gerekli olan fiziki koşulları sağlaması doğumu olumlu yönde etkilemektedir (4).

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Doğum korkusu pek çok önemli probleme sebep olmakla birlikte kadınların doğum şekline karar vermelerini, hatta gebeliği ertelemelerini ya da gebe kalmaktan kaçınmalarını da etkilemektedir. Gebelik sürecinde ise psikososyal sağlığı, doğum eylemini ve postpartum dönemi olumsuz etkileyebilmektedir (5, 6, 7).

Kadınların sıklıkla yaşadığı tokofobi sağlık personeli tarafından göz ardı edilmekte ve yeterince önem verilmemektedir. Doğum korkusunun düzeyini belirlemek ve kadının bu korkuyla baş etmesine destek olmak hemşirelerin önemli sorumluluklarından biridir (1).

Sonuç: Doğum korkusu kesinlikle ele alınması ve baş edilmesi gereken bir sorundur. Bu korkunun giderilmesinde ya da azaltılmasında tüm sağlık ekibi büyük bir sorumluluğa sahiptir. Hemşirelerin, doğum korkusunun azaltılabilmesi için kadına destekleyici bakım vermesi oldukça önemli olup, doğum korkusunu azaltmak için yapılacak girişimlerle ilgili tüm sağlık personellerine bu konuda gerekli eğitimlerin verilmesi oldukça önemlidir (8). Bu derlemeyle sağlık personellerinde doğum korkusu hakkında farkındalık oluşturulması amaçlanmıştır.

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INVESTIGATION OF NURSING NEWS IN THE LAST 10 YEARS IN INTERNET NEWS SITES

İNTERNET HABER SİTELERİNDE SON 10 YILIN HEMŞİRELİK HABERLERİNİN İNCELENMESİ

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Abstract

Introductıon: In the past, the kinds of daily communication have developed and today it has revealed internet news. It is known that the news on internet news sites is one of the important sources in informing the society. This research was conducted in order to analyze qualitatively and quantitatively the news related to nursing published in internet news sites during the last 10 years.

Methods: Research 01 January 2009 - May 1, 2018 between the published and online circulation in Turkey (net sales) News related to higher nursing in five newspapers were analyzed. The researcher's universe (10X365X5) generated 18250 newspaper reports. The sample of the research is the internet news of the newspapers "nurse" and "nursing" key words, 559 news which can be reached after the screening. The obtained data were transferred to the computer environment by the researcher and evaluated with the SPSS 23.0 program. Retrospective and descriptive studies were statistically analyzed by the number and percentage distributions of the data of the planned study.

Results: It has been determined that 24.9% of the news about nursing is published in 2015, 18.4% is published in 2018, 84.6% is in mgzin and 8.4% is in interview type. It was determined that 54.9% of the news was positive for the emotion tone, 33.5% was for the emotion tone, and 54.6% of the news source was agency based. When the scientific nature of the news is examined; 93.2% were not scientific and 3.6% were scientific. When the topics of the news are evaluated; 18.1% were social workers, 14.7% were nursing education, 14.5% were violent in health, 14.3% were distressed by nurses and 12.5% were nursing care.

Conclusion: It has been determined that the nurses in the internet news sites are not sufficiently informed about the nurses, the emotion tone of the news is positive and the news does not reflect the scientific direction of the nursing. However, it was seen that nurses did not have enough information in the source of the news. In line with these results; nurses and academicians are recommended to be in business with the media.

Key Words: Nurse, Nursing Image, Internet News Sites, News

Özet

Giriş ve Amaç: Geçmişten günümüze iletişim çeşitleri gelişerek, günümüzde internet haberciliğini ortaya çıkarmıştır. İnternet haber sitelerinde yer alan haberlerin, toplumu bilgilendirmelerinde önemli kaynaklardan biri olduğu bilinmektedir. Bu araştırma, son 10 yıl içerisinde internet haber sitelerinde yayınlanan hemşirelik ile ilgili haberlerin niteliksel ve niceliksel olarak incelenmesi amacıyla yapılmıştır.

Gereç ve Yöntem: Araştırmada 01 Ocak 2009 – 01 Mayıs 2018 tarihleri arasında Türkiye'de online olarak yayınlanan ve tirajı (net satış) yüksek olan beş gazetede hemşirelik ile ilgili haberler incelenmiştir**.** Araştırmanın evrenini (10X365X5) 18250 gazetedeki tüm haberler oluşturmuştur. Araştırmanın örneklemini ise gazetelerin internet adreslerinden "hemşire" ve "hemşirelik" anahtar kelimeleri tarama sonucu ulaşılabilen 559 haber oluşturmuştur. Elde edilen veriler araştırmacı tarafından bilgisayar ortamına aktarılarak SPSS 23.0 programı ile değerlendirilmiştir. Retrospektif ve tanımlayıcı tipte planlanan araştırmanın verilerinin sayı ve yüzde dağılımları ile istatistiksel olarak incelenmiştir.

Bulgular: Hemşirelik ile ilgili incelenen haberlerin %24.9'unun 2015 yılında,%18.4'ünün 2018 yılında yayınlandığı, %84.6'sının magazin, %8.4'ünün röportaj tipinde olduğu saptanmıştır. Haberlerin %54.9'unun duygu tonunun olumlu olduğu, %33.5'inin duygu tonunun olumsuz olduğu ve haberlerin kaynağının %54.6'sının ajans kaynaklı olduğu

saptanmıştır. Haberlerin bilimsel niteliği incelendiğinde; %93.2'sinin bilimsel olmadığı ve %3.6'sının bilimsel olduğu saptanmıştır. Haberlerin konuları değerlendirildiğinde; %18.1'inin sosyal faaliyetler, %14.7'sinin hemşirelik eğitimi, %14.5'inin sağlıkta şiddet, %14.3'ünün hemşirelerin sıkıntıları ve %12.5'inin hemşirelik bakımı olduğu saptanmıştır.

Sonuç: İnternet haber sitelerinde yer alan hemşirelik ile ilgili haberlerde, hemşirelere yeterince yer verilmediği, haberlerin duygu tonunun olumlu olduğu ve haberlerin hemşireliğin bilimsel yönünü yansıtmadığı belirlenmiştir. Bununla birlikte haberlerin kaynağında hemşirelere yeterince yer verilmediği görülmüştür. Bu sonuçlar doğrultusunda; hemşire ve akademisyenlerin medya ile iş birliği içerisinde olması ve gazetelerde yer alan haberlerin rol ve işlevlerini daha anlaşılabilir, net şekilde yansıtılması önerilmektedir.

Anahtar Kelimeler: Hemşire, Hemşirelik İmajı, İnternet Haber Siteleri, Haber

INSECT SPECIES, SPREADS AND DENSITIES THAT ARE CAUSING DAMAGE IN OLIVE ORCHARDS IN MARDIN PROVINCE (TURKEY)

MARDİN İLİ ZEYTİN BAHÇELERİNDE ZARARLI OLAN BÖCEK TÜRLERİ, YAYILIŞLARI VE YOĞUNLUKLARI

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Özet

Bu çalışma, Mardin ili Merkez Dara, Derik, Nusaybin ve Kızıltepe ilçesi zeytin bahçelerinde bulunan zararlı böcek türlerini belirlenmek amacıyla 2014-2015 yıllarında yürütülmüştür. Örneklemeler, kimyasal girdilerin (pestisit, gübre vs.) uygulanmadığı her biri en az 30–40 adet zeytin ağacına sahip olan 8 farklı bahçede yapılmıştır. Örneklemelerde eşeysel çekici tuzaklar, görsel renk tuzakları, darbe yöntemi, gözle kontrol yöntemi ve laboratuvar çalışmalarında da kültüre alma yöntemi uygulanmıştır. Bu çalışma sonucunda 4 takıma bağlı 7 familyaya ait toplam 7 adet zararlı böcek türü tespit edilmiştir. Belirlenen bu türlerden, zeytin bahçelerinde zararlı olan *Euphyllura straminea* Loginova, *Prays oleae* (Bern.), *Closterotomus* (=*Calocoris*) *trivialis* Costa, *Bactrocera oleae* (Gmel) ve *Scolytus rugulosus* Muller'un oluşturdukları zarar, yayılış ve yoğunluk açısından birinci derecede zararlı türler oldukları belirlenmiştir. Bu türlerin dışında *Parlatoria oleae* (Colvee) ve *Agalmatium flavescens* Oliv. türlerinin ise zeytin bahçelerinde düşük yoğunlukta bulunan sekonder zararlılar olduğu çalışma sonucunda saptanmıştır.

Anahtar kelimeler: Zeytin, zararlı böcek, yayılış, Mardin

Abstract

This study was carried out to determine harmful insect species that damage the olive orchards of Dara village and Derik, Nusaybin, Kızıltepe districts in Mardin province in 2014-2015. The samples were made in 8 different orchards with at least 30-40 olive trees each without chemical inputs (pesticide, fertilizer etc.). In the samplings, sexual traps, visual color traps, beat sheet sampling method, visual control method and cultural method (for immature stages reared on their hosts) were applied in laboratory studies. As a result of the study, it was determined that 7 pest species belonging to 7 families and 4 orders. From these identified species, it was determined that *Euphyllura straminea* Loginova, *Prays oleae* (Bern.), *Closterotomus* (*Calocoris*) *trivialis* Costa, *Bactrocera oleae* (Gmel) and *Scolytus rugulosus* are the first harmful species in terms of damage, spread and density. Apart from these species, it was determined that *Parlatoria oleae* (Colvee) and *Agalmatium flavescens* Oliv. Species are the second harmful species at the end of the study.

Key words: Olive, harmful insect, distribution, Mardin

21st Century Learning skills and Natural Sciences

Kams Kamuabo

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Natural sciences is a generic term used to describe a number of scientific disciplines that are concerned with studying, explaining, predicting, and understanding of natural phenomena, using empirical evidence from observation and experimentation as their foundation (Ledoux, 2002; Grant 2007). The study and teaching of these sciences as academic subjects, from primary schools to universities, have evolved over the centuries and this evolution can be considered as the basis of scientific and technological progress (Oglivie 2008).

Technological and scientific advances have led to the development of new fields such as electronics and computer science, paving the way to new era in the history of humanity branded the 'Digital age". This era, which has succeeded the industrial and technological revolution, spans from the middle of the 20th Century to the present time bringing about at the same time changes in the human social lives, affecting professional life at work places. This digital revolution has resulted in the definition of new skills required for individual to adapt and survive in the future: the 21st century skills (Griffin et al., 2012; Binkeley et al., 2010).

Scientists and educationalists have been urged to review the way the teaching and learning process has been delivered within educational organisations and academic institutions, hence the birth of the 21st century learning skills, which have been clearly identified and defined for the purpose of restructuring the classic educational system all over the world (Irenka, 2013; ATC21S, 2018).

In the following text, the link between the 21st century learning skills and the development of natural sciences such as mathematics and physics will be examined before outlining and emphasizing the strong influence of natural sciences on the content of the 21st century skills.

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DETERMINATION OF VIBRATON AND NOISE CHARACTERISTICS OF DIESEL ENGINE USED IN HEAVY DUTY MACHINES

Harun Yıldırım, Ahmet Necati Özsezen, Ali Çınar

Abstract

Environmental pollution and global warming problems are increasing day by day. One of the important factors that increase the effects of environmental pollution and global warming are diesel engines used in transportation and power stations. The use of diesel engines in transportation is quite common because diesel engines are known to have higher torque and lower emissions than petrol engines. However, one of the major disadvantages of diesel engines is their noisy and vibratory operation. The main reason for the vibratory and noisy operation of diesel engines is due to the physical and chemical properties of fossil-based diesel fuel. Alternative fuels are needed because of fossil-based fuels limited resources and their pollutant properties. Biodiesel is one of the alternative fuels produced from many kinds of animal and vegetable oils. Due to its physical and chemical properties, biodiesel has been used in many studies as an environmentally friendly and alternative fuel. In this study, the vibration and noise characteristics of mixtures of fossil-based diesel and biodiesel fuels at different ratios were determined in a diesel engine used in heavy machinery. Engine loads are controlled by hydraulic dynamometer. Depending on the engine load, the vibration and noise formations of different fuels have been investigated. Fuel blends were prepared by adding 20% by volume biodiesel (B20) and 50% biodiesel (B50) to fossil-based diesel fuel. B20, B50 fuel mixtures, fossil based diesel fuel (FBDY) and pure biodiesel (B100) were used as test fuel in the engine experimentals. Signals were investigated vibration and noise values by using root-mean-square (RMS). Vibration and noise data were taken at 25.6 kHz sampling frequency. Using the Fourier method, it was determined that the dominant frequency amplitude of the vibration and noise data is around 1500 Hz.

Keywords: vibration, noise, engine.

ABNORMAL HEMOGLOBINS AND INVESTIGATION OF THE INCIDENCE IN SIIRT/TURKEY

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Abstract

Most of the abnormal hemoglobins do not show clinical signs and usually they are found with screening studies. More than 1000 abnormal hemoglobin have been reported today. Since most of them do not show any findings in the heterozygous state, they are often defined by scanning studies. HbS, HbE, HbD, HbC and HbO Arab are the most common abnormal hemoglobins [1,2]. In this study, incidence of patients diagnosed due to abnormal hemoglobins were examined retrospectively between 2015-2017 in Public Health information system. These datas were taken from Siirt State Hospital Information System. Within 3 years, 22455 people applied to the Public Health Department and 127 of them were diagnosed as abnormal hemoglobin patients. Among these patients, 99 were HbS, 24 were HbD, 2 were HbC,1 were HbE, 1 were HbOthers (HbO Arab,etc).

In conclusion, most of the diagnosed HbD patiens were in marriage age, if they were informed by family and marriage counselor it may contribute to a healthy generation. Before marriage age, in school children screening of abnormal hemoglobin disorders is also important.

This study was approved ethically by the decision of Siirt University Non-Interventional Clinical Research Ethics Committee dated 24/05/2017 and number 02.03.

Acknowledgement: This study was supported by Siirt University Scientific Research Projects Coordination (2017-SİÜSYO-76).

Keywords: Abnormal Hemoglobins, Hemoglobinopathy, Incidence,

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EXAMINATION OF BIOCHEMICAL SERUM VALUES OF BREAST AND PROSTATE CANCER PATIENTS IN TERMS OF INCIDENCE AND MALIGNANCY

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Abstract

Breast cancer is defined by uncontrolled cell growth in tissues of the mammary gland. It is also the second most prevalent cancer worldwide in women, in terms of incidence and mortality.

In this study, our aim is to investigate incidence, survival and mortality rate of breast cancers and prostate cancers with using the patients datas from the hospital information system retrospectively between the 2013-2017 years.

The incidence of the patients were determined. The breast cancer patients number were recorded as 98 with 8.6%, prostate cancer patients number were enrolled in 46 with 4%. Breast cancers incidence were detected approximately as 20 patients and prostate cancer as 9 patients in each year. All types of cancer patients number were calculated as 1134 between these years.

Between 2013-2017 years, the number of both breast and prostate cancer deaths was recorded as 5 patients. These cancers 5-year survival and disease free rate is increased with early diagnosis in the World. Two common types of cancer of women and men serum parameters levels were compared with control group serum parameters. In this study, there were seen statisticaly significant difference between breast cancer serum glucose, ALT, GGT, LDH, sodium, urea level comparing with control group serum parameters levels, statistically significant diffence is also found between prostat cancer serum levels and control group serum levels in creatinin, ALT, biluribin direct, biluribin total and urea, $p<0.05$. This study was approved ethically by the decision of Siirt University Non-Interventional Clinical Research Ethics Committee dated 24/05/2017 and number 02.02.

Keywords: Breast cancer, Prostate, Malignant, survival

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INVESTIGATION OF ANTIOXIDANT AND ANTIBACTERIAL PROPERTIES OF 2,4-DIHYDROXY ACETOPHENONE DERIVATIVE SCHIFF BASE COMPOUNDS

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Abstract

Schiff bases derived from an amino and carbonyl compound are an important class of ligands that coordinate to metal ions via azomethine nitrogen and have been studied extensively [1]. In azomethine derivatives, the C=N linkage is essential for biological activity, several azomethines were reported to possess remarkable antibacterial, antifungal, anticancer and diuretic activities [2]. Schiff bases have wide applications in food industry, dye industry, analytical chemistry, catalysis, fungicidal, agrochemical and biological activities [3,4].

In this study, antioxidant and antibacterial properties of three new Schiff base compounds were investigated. The Schiff bases were prepared from 2,4-dihydroxy acetophenone with m-xylene diamine, 1,3-cyclohexane bis-methylamine and 1,3-diaminopropane. DPPH radical scavenging method, ferric ion reducing power (FRAP) and CUPRAC copper reduction method were used to determine the antioxidant characteristics of schiff bases. The results were compared with the standard antioxidants (BHA, BHT). Antibacterial efficiency of the schiff base compounds were tested with minimum inhibitor concentration (MIC) method. Gram-positive bacteria (*Staphylococcus aureus*) and three Gram-negative bacteria (*Proteus spp.*, *Escherichia coli*, *Klebsiella pneumoniae*) were used for antibacterial analysis.

Keywords: Schiff base, antioxidant, antibacterial

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INVESTIGATION OF ANTIOXIDANT AND ANTIBACTERIAL PROPERTIES OF SOME SCHIFF BASE COMPOUNDS

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Abstract

Schiff bases, the generic name of aldimines formed by the incorporation of amines into aldehydes or ketones, being used for a variety of purposes in many industries, such as the paint, pharmaceutical and plastics industries and also play a role in many biological reactions [1]. Some Schiff derivatives are of great interest in chemistry, biology and pharmacology due to their antiviral, antineoplastic, antimalarial, antifungal and antibacterial properties [2]. Schiff bases and metal complexes have been extensively investigated for their various pharmacological activities such as antitumor, antiviral, antimicrobial and antineoplastic [3,4,5,6].

In this study, antioxidant and antibacterial properties of three new Schiff base compounds were investigated. The Schiff bases were prepared by 2,4-dihydroxy benzaldehyde with m-xylene diamine, 1,3-cyclohexane bis-methylamine and 1,3-diaminopropane. DPPH radical scavenging method, ferric ion reducing power (FRAP) and CUPRAC copper reduction method were used to determine the antioxidant characteristics of schiff bases. The results were compared with the standard antioxidants (BHA, BHT). Antibacterial efficacy of the schiff base compounds were tested with minimum inhibitor concentration (MIC) method. Gram-positive bacteria (*Staphylococcus aureus*) and three Gram-negative bacteria (*Proteus spp.*, *Escherichia coli*, *Klebsiella pneumoniae*) were used for antibacterial analysis.

Key words: Schiff base, antioxidant, DPPH, antibacterial

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EFFECT OF MILLING TIME ON MECHANICAL MILLING OF CARBONIZED TEA PLANT WASTE AND MAGNETITE CONCENTRATE MIXTURE

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Abstract

In this work, which is the first step in the study of the effect of mechanical milling on the reduction mechanism of magnetite ore concentrate with a carbonaceous reductant using a method other than the conventional method, the effect of milling time on the mechanical milling of the magnetite concentrate and carbonized tea plant waste mixture was investigated.

The ore consisting of hematite and magnetite was increased from 49.87% Fe to 67.29% Fe after the enrichment in the low field severe wet magnetic separator. The tea plant waste containing 49,15% C and 0,39% S, which is used as a carbon source, was subjected to 1440 min carbonization treatment at 800 ^{o}C and the carbon content was determined as 94.68% and the sulphur content as 0.05%.

SEM images were examined after milling for 5, 10, 15, 30 and 45 min of mixture of carbonized product with magnetite concentrate of -45 µm size prepared as Fe_3O_4/C = 1/2. In the SEM images, cube-like particles were seen along with spherical and narrowly spaced particles depending on the grinding times. After 45 minutes of grinding, the crystalline structure was found to be partially integrated with the carbonaceous material.

In the particle size distribution analysis, it was determined that 90% of the original mixture had a size of 44.8855 µm, and after 45 minutes of grinding, 90% of the mixture was 3,888 µm.

Keywords: Mechanical Milling, Magnetite Concentrate, Carbonized Tea Plant Waste.

Özet

Manyetit cevheri konsantresinin karbon esaslı bir redükleyici ile geleneksel yöntem dışında bir metot kullanarak indirgenme mekanizmasına mekanik öğütme işleminin etkisinin incelendiği çalışmaların ilk basamağını oluşturan bu çalışmada manyetit cevheri konsantresi ve karbonize çay tesis atıkları karışımının mekaniksel öğütülmesi işlemine öğütme süresinin etkisi araştırılmıştır.

Hematit ve manyetitten oluşan cevher düşük alan şiddetli yaş manyetik ayırıcıda zenginleştirildikten sonra tenörü %49,87 Fe' den %67,29 Fe' ye çıkarılmıştır. Karbon kaynağı olarak kullanılan ve %49,15 C ve %0,39 S içeren çay tesis atıkları 800 ^{o}C'de 1440 dk karbonizasyon işlemine tabi tutulduktan sonra, karbon içeriği %94,68, kükürt içeriği %0,05 olarak belirlenmiştir.

Fe_3O_4/C =1/2, olacak şekilde karıştırılan -45 µm boyutundaki manyetit konsantresi ve karbonize ürün karışımına, 5, 10, 15, 30 ve 45 dk uygulanan öğütme işleminden sonra tozların, SEM görüntüleri incelendiğinde, öğütme sürelerine bağlı olarak küresel ve dar aralıklarla yerleşmiş parçacıklarla beraber yer yer küp görünümlü parçacıklar da görülmüştür. 45 dakikalık öğütmeden sonra kristal yapıya karbonlu malzemenin kısmen entegre olduğu görülmüştür. Partikül boyut dağılım analizlerinde, orijinal karışımın boyut dağılımının %90'ı 44,8855 µm boyutundayken, 45 dakika öğütme işleminden sonra karışımın %90'nın 3,888 µm boyutunda olduğu tespit edilmiştir.

Anahtar Kelimeler: *Mekanik Öğütme, Manyetit Konsantresi, Karbonize Çay Tesis Atıkları.*

KARBONİZE ÇAY TESİS ATIKLARI İLE MANYETİT KONSANTRESİ KARIŞIMININ MEKANİK ÖĞÜTÜLMESİ İŞLEMİNE ÖĞÜTME SÜRESİNİN ETKİSİ

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Özet

Manyetit cevheri konsantresinin karbon esaslı bir redükleyici ile geleneksel yöntem dışında bir metot kullanarak indirgenme mekanizmasına mekanik öğütme işleminin etkisinin incelendiği çalışmaların ilk basamağını oluşturan bu çalışmada manyetit cevheri konsantresi ve karbonize çay tesis atıkları karışımının mekaniksel öğütülmesi işlemine öğütme süresinin etkisi araştırılmıştır.

Hematit ve manyetitten oluşan cevher düşük alan şiddetli yaş manyetik ayırıcıda zenginleştirildikten sonra tenörü %49,87 Fe' den %67,29 Fe' ye çıkarılmıştır. Karbon kaynağı olarak kullanılan ve %49,15 C ve %0,39 S içeren çay tesis atıkları 800 ^{o}C'de 1440 dk karbonizasyon işlemine tabi tutulduktan sonra, karbon içeriği %94,68, kükürt içeriği %0,05 olarak belirlenmiştir.

Fe_3O_4/C =1/2, olacak şekilde karıştırılan -45 µm boyutundaki manyetit konsantresi ve karbonize ürün karışımına, 5, 10, 15, 30 ve 45 dk uygulanan öğütme işleminden sonra tozların, SEM görüntüleri incelendiğinde, öğütme sürelerine bağlı olarak küresel ve dar aralıklarla yerleşmiş parçacıklarla beraber yer yer küp görünümlü parçacıklar da görülmüştür. 45 dakikalık öğütmeden sonra kristal yapıya karbonlu malzemenin kısmen entegre olduğu görülmüştür. Partikül boyut dağılım analizlerinde, orijinal karışımın boyut dağılımının %90'ı 44,8855 µm boyutundayken, 45 dakika öğütme işleminden sonra karışımın %90'nın 3,888 µm boyutunda olduğu tespit edilmiştir.

Anahtar Kelimeler: Mekanik Öğütme, Manyetit Konsantresi, Karbonize Çay Tesis Atıkları.

DETERMINATION OF MACRO ELEMENT CONTENTS IN SILAGES OF SECOND CROP SILAGE MAIZE VARIETIES

Seyithan SEYDOŞOĞLU

Abstract

The aim of this study was to determine the proportions of phosphorus, magnesium, calcium and potassium in the silage of some silage maize varieties. For this purpose, the research was carried out in the research and implementation field of GAP International Agricultural Research and Training Center and trials were conducted with four replications according to the randomized blocks trial design in the second crop growing season in 2014. As research material; 'Burak' variety of Western Mediterranean Agricultural Research Institute, '31Y43' variety of Pioneer Seed, 'Ada 523' variety of Sakarya Maize Research Institute, 'Samada-07' variety of Black Sea Agricultural Research Institute and 'DKC 7211' variety of Monsanto Seed were used. Statistically significant differences were found between the ratios of phosphorus, magnesium, calcium and potassium content of silage. According to the results of the research; the highest ratio of phosphorus and potassium in silage was determined from 31Y43 and the highest ratio of magnesium and calcium was obtained from Burak varieties.

Keywords: Second crop, silage, macro elements, maize

CHANGING OF BOTANICAL COMPOSITION AND SOIL COVERAGE RATES IN RANGELANDS AT DIFFERENT ALTITUDES

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Abstract

The purpose of this study is to investigate the effect of altitude on the botanical composition and soil cover ratio in the rangelands. The studies conducted for this purpose were carried out in 2014 in four different pasture areas (Yeşilköy, İncehidir, Hendek, Gözlü) at different altitudes (535m, 760m, 920m, 1135m) connected to Ergani district of Diyarbakır province in South East Anatolia of Turkey. 'Modified Wheeled Loop (ring)' method was used to determine the botanical composition in pasture areas. For pasture botanical composition, the highest ratio of gramineae was 63.51% at altitude 920m, leguminoseae was 55.29% at 535m altitude and other family crops was 88.23% at altitude 1135m. The land cover ratio (low to high altitude) of the pastures where the survey was carried out was determined as 52.00%, 62.75%, 74.00%, 85.00% respectively. Each of the four pasture areas were characterized by soil characteristics as pH neutral or slightly acid charactered, insufficient in organic matter content, high potency for potassium content, insufficient phosphorus content. Appropriate grazing management plans should be made for pasture areas at 535 and 760 m altitued to increase the proportion of quality plant species and total plant coverage.

Keywords: Rangeland, land cover ratio, botanical composition, altitude

PRODUCTION AND CHARACTERIZATION OF COLD-PRESSED AL MATRIXED WC AND ZRC NANOPARTICLE REINFORCED HYBRID COMPOSITES

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Abstract

Where multiple reinforcing materials are used in the production of composite materials, these composites are called hybrid composites. Powder metallurgy (PM) technique is the easiest and most convenient way to manufacture Metal Matrix Composite (MMC). Nanoparticle reinforced materials can be designed more durable due to the properties that nano-sized material contains. In the present work, hybrid Al matrix composites with 0.5%, 1 and 2 (WC + ZrC) nanoparticles reinforced by weight were produced. The production of hybrid composites is in Al 40-50 μm size and 99.9% purity, WC 50-60 nm size and 99.99% purity, ZrC 50-60 nm size and 99.5% purity. The mixing of the powders was done on a planetary type mechanical alloying device. The mechanical alloying was carried out at 300 rpm for 180 minutes at a weight ratio of 10:1 by weight. Powder metal samples were obtained by pressing the mechanically alloyed powders under a uni-directional pressure (400 MPa). Sintering was carried out in a pure argon gas atmosphere at 530 °C for 120 minutes. The sintered density and porosity measurements of the powder samples were made according to the Archimedes principle in accordance with TS 2305 standard. During the measurements, the sample was immersed in the liquid with a metal hanger and measured with a scale of ± 0.01 gr. Pure water (density 1 g / cm3) was used as a liquid during density measurements. SEM (Scanning Electron Microscopy) was used to study the morphology of nanoparticle-reinforced hybrid composites. The hardness values of the samples were measured under a load of 1000 gr (HV1) for 15 seconds. Purpose of the study; is to investigate experimentally the change in the density, porosity, microstructure and hardness properties of these materials produced by the PM technique with increasing nanoparticle ratio. The hybrid composite containing 1 wt.% (WC + ZrC) nanoparticles was found to exhibit a higher hardness than the other produced samples. Agglomerations were observed in the hybrid composite containing 2% by weight of nanoparticles.

Key words: Al matrix, Nanoparticle, Hybrid composite, Powder metallurgy.

EFFECT OF CR AND NI ADDITIONS ON THE PLAIN CARBON STEEL MICROSTRUCTURE

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Abstract

In this study, plain C steel containing Cr and Ni at different ratios was produced by the powder metallurgy method and the effect of Cr and Ni additions on microstructure and hardness was investigated. 0,55% C steel base material, Cr and Ni additions were added to this material in equal amounts and 0.5, 1, and 2 wt%, respectively. The homogeneous mixture of mechanically homogenous powders was compressed at room temperature under a hydraulic pressure of 750 MPa. The compressed materials were sintered in an argon atmosphere at 1400 °C. After sintering, material densities were measured according to Archimedes principle and the densities decrease with the addition of Cr-Ni in an increasing amount. For microstructure studies, the material surfaces are sanded, polished and etched with 2% Nital respectively. The ferrite and perlite ratios in the microstructure are calculated by Gladman and Woodhead metallographic dot count method. The average grain sizes were determined using the linear line cutting method. As the amount of Cr and Ni increased, the amount of perlite in the microstructure decreased and the amount of cementite increased. The average grain size decreased with increasing alloy addition. Vickers microhardness measurements were made on the test specimens and evaluated by taking the averages. As a result of these measurements, it was determined that the hardness values increased with the amount of additional alloy and increased more than two times compared to the original material. This increase in hardness is thought to be caused by solid solution strengthening and precipitation in the microstructure.

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EXPERIMENTAL INVESTIGATION OF HEATING PERFORMANCE OF VERTICAL GROUND SOURCE HEAT PUMP SYSTEM

DİKEY TİP TOPRAK KAYNAKLI ISI POMPASI SİSTEMİNİN ISITMA PERFORMANSININ DENEYSEL OLARAK İNCELENMESİ

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Özet

Günümüzde enerji kaynaklarının giderek azalması ve enerji fiyatlarının artmasından dolayı enerjinin etkin ve verimli kullanılması vazgeçilemez bir zorunluluk olmuştur. Bu çalışmada Mardin ilinde belirlenen deney alanı için dikey tip toprak kaynaklı ısı pompası sisteminin ısıtma performansı incelenecektir. Isıtma sezonu için yapılan deneysel çalışmaların sonuçları incelenerek dikey tip toprak kaynaklı ısı pompası sisteminin performans analizi yapılmıştır. Sistemde ısıtma sürecinde yapılan analizlere göre; sistemimiz gerek enerji tüketimini azaltmada gerekse sera gazlarının emisyonlarını düşürme bakımından oldukça etkili olmaktadır.

Anahtar Kelimeler: Toprak kaynaklı ısı pompası, Isıtma, Performans Analizi

Abstract

Today, efficient and efficient use of energy has become an indispensable necessity. In this paper, the heating performance of the vertical ground source heat pump system for the test area determined in Mardin province was examined. The performance of the vertical ground source heat pump system was analyzed by examining the results of experimental studies for the heating season. According to analyzes made in the heating process; our system is very effective in reducing emissions of greenhouse gases if it is necessary to reduce energy consumption.

Keywords: Ground Source Heat Pump, Heating, Performance Analysis

FACTORS AFFECTING THE ENERGY CONSUMPTION OF THE REFRIGERATOR

BUZDOLABININ ENERJİ TÜKETİMİNİ ETKİLEYEN FAKTÖRLER

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Abstract

Refrigerators have a great share in energy consumption due to their energy consumption through the day and due to utilization in all residences and in most of the offices. Designing more efficient models and thus, decreasing energy consumption of refrigerator has gained a great importance in today's world which is suffering energy scarcity. In this paper, parameters affecting energy consumption of refrigerators have been studied and compiled in three titles; environmental, design and operational factors. In previous surveys it has been seen that room temperature has a great influence over energy consumption of refrigerators. Door opening is the second factor affecting energy consumption. Relative humidity has a little effect over energy consumption compared to first two factors.

Keywords: Energy, Refrigerator, Efficiency

Abstract

Buzdolapları, tüm konutlarda ve ofislerin çoğunda kullanılmasına bağlı olarak gün geçtikçe enerji tüketiminde büyük bir paya sahiptir. Daha verimli modeller tasarlamak ve böylece buzdolabının enerji tüketimini azaltmak, enerji kıtlığı çeken günümüz dünyasında büyük bir önem kazanmıştır. Bu çalışmada, buzdolaplarının enerji tüketimini etkileyen parametreler üç başlık altında incelenmiştir. Bunlar; çevresel, tasarım ve operasyonel faktörlerdir. Önceki araştırmalarda oda sıcaklığının buzdolaplarının enerji tüketimi üzerinde büyük bir etkisi olduğu görülmüştür. Kapı açıklığı, enerji tüketimini etkileyen ikinci faktördür. Bağıl nemin ilk iki faktöre kıyasla enerji tüketimi üzerinde daha az etkisi vardır.

Anahtar Kelimeler: Enerji, Buzdolabı, Verimlilik

SYNTHESIS AND CHARACTARIZATION OF A NEW AMINOPYRIDINE BIS(N-CARBOXAMIDE) AND ITS Cu(II) COMPLEX

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Abstract

The synthesis structure and properties of amide compounds have been intensively researched during the last several [1]. Amides, one of the main compounds are the vital organisms, also amides have the ability to make of strong bonds with transition metal ion [2]. Pyridine carboxamide compounds containing common carboxamide [-C(O)NH-] group in the main structure of proteins have been much attention, and they are also important for construction of metal complexes [3]. These compouns are usually obtained about the work of industrial, pharmacological and biological importance have been identified [2,4]. The interactions of metal ions with amide groups has been a focal point of research for many years, due to the ambidentate nature of amide groups and how many of these reactions ensure basic models for more complex metal-peptide systems and enzymes. There are many samples of the in vivo interplay of transition metals with the amide groups and these interplays may have biological significance [5,6]. Carboxamide ligands have *N* and *O* donor atoms and therefore they can form a complexes very easily.

In this study *N,N'*-(pyridine-2,6-diyl)bis(2-benzoyl-3-oxo-3-phenylpropanamide) ligand and its Cu (II) metal complex were synthesized and characterized using elemental analysis, FT-IR and UV-Vis spectroscopy.

Key Words: Synthesis, Metal complex, *N*-carboxyamide

Scheme: *N,N'*-(pyridine-2,6-diyl)bis(2-benzoyl-3-oxo-3-phenylpropanamide)

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SYNTHESIS, CHARACTERIZATION OF HETEROCYCLIC RING NEW BIS (IMINO) PYRIDINE COMPOUND AND SOME METAL COMPLEXES

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Abstract

It is known that thiosemicarbazide, semicarbazide derivatives and 5 membered-ring diazole, thiadiazole, imidazole derivatives which are obtained from them show significantly biological activity. As ligands containing sulphur behave as chemical preservative in the course of chemotherapy, ligands containing N and S donor attract attention. Imidazole ring is a potential binding site for metal ions and for this reason, they are really important in order to understand metal ions' role in biological systems and the related compounds' coordination characteristics [1]. The compound that involves a lot of medical values such as antibacterial, antifungal, antiviral and antitumor also involves imidazole ring. Using these medicines as metal complexes improves their pharmacological characteristics highly. However, the Schiff bases and complexes that contain pyridine ring are considered to be very significant in terms of their catalytical activities in hydrogenation of olefins, electro chemical electron transmission, and biological, clinical, pharmacological and for this reason these kinds of compounds' syntheses are being analysed [2].

In this study, a hydrazine derivative of 2,6-diformyl pyridine compound and semicarbazide reaction as homoleptic was synthesized according to the literature [1,3]. After then, new ligand was synthesized with the oxalyl chloride in the secondary stage. After that, the Cu(II), Ni(II), Co(II) metal ion complexes were synthesized of this obtained ligand. The structure of all compounds, which have been synthesized, were illuminated by spectroscopic methods such as elemental analysis, FT-IR, UV-Vis, NMR, mass and measurements such as TGA-DTA, magnetic susceptibility, electronic conductivity.

Keywords: Bis-iminopyridine, metal complexes

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INVESTIGATION OF ANTIOXIDANT AND ANTIBACTERIAL PROPERTIES OF SOME SCHIFF BASE COMPOUNDS

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Abstract

Schiff bases, the generic name of aldimines formed by the incorporation of amines into aldehydes or ketones, being used for a variety of purposes in many industries, such as the paint, pharmaceutical and plastics industries and also play a role in many biological reactions [1]. Some Schiff derivatives are of great interest in chemistry, biology and pharmacology due to their antiviral, antineoplastic, antimalarial, antifungal and antibacterial properties [2]. Schiff bases and metal complexes have been extensively investigated for their various pharmacological activities such as antitumor, antiviral, antimicrobial and antineoplastic [3,4,5,6].

In this study, antioxidant and antibacterial properties of three new Schiff base compounds were investigated. The Schiff bases were prepared by 2,4-dihydroxy benzaldehyde with m-xylene diamine, 1,3-cyclohexane bis-methylamine and 1,3-diaminopropane. DPPH radical scavenging method, ferric ion reducing power (FRAP) and CUPRAC copper reduction method were used to determine the antioxidant characteristics of schiff bases. The results were compared with the standard antioxidants (BHA, BHT). Antibacterial efficacy of the schiff base compounds were tested with minimum inhibitor concentration (MIC) method. Gram-positive bacteria (*Staphylococcus aureus*) and three Gram-negative bacteria (*Proteus spp.*, *Escherichia coli*, *Klebsiella pneumoniae*) were used for antibacterial analysis.

Key words: Schiff base, antioxidant, DPPH, antibacterial

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EXAMINING THE MATHEMATICAL GAMES DESIGNED BY PRE-SERVICE TEACHERS IN

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Abstract

Children use games to understand, comprehend and examine the world. Thus, games are a means of learning and the universal language of children. Games are very important for primary and secondary school students. Because they give children a chance to develop their imagination. Utilization of educational games especially in mathematics classes that are considered difficult and complicated by students will motivate students and increase their participation in classes. Fear and anxiety about mathematics which start to be observed in many students as from primary school years and continue until secondary school can be removed with the help of mathematical games. The study aims to examine the games designed by pre-service classroom teachers for primary school students in terms of peer and student views. 44 pre-service teachers receiving education in the third grade of a public university participated in the study. The study group was determined with convenient sampling method, which is among purposeful sampling methods. In the study using case study method, Mathematical Games Evaluation Form (MGEF) and Student View Form (SVF) were used as data collection tools. As the application period was restricted in the data collection process, the pre-service teachers were separated into groups of three and four and each group was asked to design two games regarding acquisitions in the primary school mathematics curriculum. Then they were asked to write down their game scenarios according to the template of lesson plans. In this study that was conducted within the scope of Mathematics Teaching-II lesson, each group presented the games in their lesson plans to their friends in the classroom. Following the presentations about mathematical games; MGEF was distributed to the preservice teachers and their views on the games designed by their peers were received. In addition, the preservice teachers applied these mathematical games in primary schools where they went for the Teaching Practice lesson. Following the practice in primary schools, semi-structured interviews were conducted with students as focus group discussions for approximately 15-20 minutes. As a result of the study, it was determined that majority of students found mathematical game activities instructive and entertaining. It was observed that some of the students were able to correct their operation mistakes and had an increased interest in mathematics. According to the results obtained from peer views; it was seen that preservice teachers generally had positive opinions about the games designed by their friends. Majority of preservice teachers found the games of their friends *convenient for acquisition, applicable for teachers, useful and understandable*. On the other hand, some of them found materials used in games too expensive, impractical and inapprehensible for students. In addition to these, games designed by some of the groups were found to be strategic, convenient for developing critical thinking and problem solving skills and creative for social development by their peers.

Key Words: Mathematical games, peer evaluation, pre-service teacher, student views