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ABSTRACT & POSTERS E-BOOK

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BRIEFLY ABOUT

International Marmara Science Congress was held between 21-22 May 2021 by Kocaeli University and Derince Municipality. The congress aims to bring together researchers whose working on interdisciplinary subjects in science and social sciences and also to establish an effective communication platform between them. In congress;

In Sciences; Acoustical Engineering, Astrophysics, Astronomy and Space Sciences, Atmospheric Sciences, Bacteriology, Fisheries Sciences, Computer Engineering, Building Services Engineering, Plant Sciences, Biochemistry Biodiversity, Biology, Biomedical Engineering, Botany, Environmental Science Environmental Engineering, Ecology, Electrical Engineering, Electrical Engineering , Electronics Engineering Industrial Engineering, Energy Engineering, Pharmacology, Physics and Physics Engineering, Physical Sciences, Physiology, Genetic Engineer, Geotechnical Engineering, Food Engineering, Climate and Climate Change, Civil Engineering, Statistics and Actuarial Sciences, Geophysics, Geophysical Engineering, Geology, Geological Engineering, Chemistry, Chemical Engineering, Mechanical Engineering, Materials Engineering, Mathematics, Mechatronics Engineering, Meteorology, Microbiology, Molecular Biology and Genetics, Molecular Engineering, Nano Engineering, Nuclear Engineering, Optics M Engineering, Automotive Engineering, Petroleum Engineering, Psychology, Agricultural Engineering, Transportation Engineering, Applied Engineering Sciences, Space Engineering, Production Engineering, Software Engineering, Earth Sciences

The language of the congress is English or Turkish, and all full papers and abstracts submitted for publication in the congress on current issues have been evaluated by at least two referees by the blind reviewing method. 142 papers, abstracts and posters were accepted for oral presentation and publication as a result of peer review. We would like to thank all the researchers who have shown interest in the Congress..

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IMASCON 2021, organized by Kocaeli University (KOÜ) and Derince Municipality and also sponsored by Kocaeli Metropolitan Municipality, Kartepe Municipality, Körfez Municipality, Gölcük Municipality and East Marmara Development Agency.

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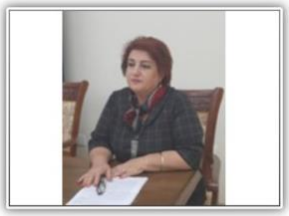
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Prof. Dr. Hosam Bayoumi Hamuda, Obuda University, Hungary


Prof. Dr. Hüseyin Toros, İstanbul Technical University


Prof. Dr. Hanefi Bayraktar, Bayburt University


Assoc. Prof. Dr. Flora Merko,Aleksandër Moisiu University Durrës, Albania


Assoc Prof.., Dr. Lyudmyla Symochko Uzhhorod National University, Ukraine


Assoc. Prof. Dr. Ylber Aliu, AAB College, , Kosovo


Assoc., Prof. Dr. Mehboob Nagarbawdi, Aki's Poona College Of Arts, Science & Commerce, India


Assoc. Prof. Dr. Murzakmatov Amanbek Kamytovich, Osh State University, Kyrgyzstan


Assist. Prof. Dr. Reyhan Dadaş, Azerbaijan State Pedagogical University, Azerbaijan


Dr. Vandana Garg, M.Sc Maths, M.phil Maths , P.hd Maths is currently teaching in Defence Career Analyst- DCA Mohali and RV Institute, India


Dr. Reena Patil M.A. (English, Hindi, Sanskrit) M.Ed. (Ph.D. in Education) Gyanodaya Mahavidhyalaya, Indore, Madhya Pradesh, Devi Ahilya University, India

CONGRESS PROGRAMME

21 MAY 2021 FRIDAY
The Start of Registration Process
AÇILIŞ KONUŞMALARI - OPENING SPEECHES 10:00 / 11:00 • İstiklal Marşı ve Saygı Duruşu / National Anthem and Moment of Silence • Derince Belediyesi Tanıtım Filmi / Short Film of Municipality Derince • Kocaeli Üniversitesi Tanıtım Filmi / Short Film of Kocaeli University • Doç. Dr. Öznur GÖKKAYA, ***Kongre Başkanı, President of Imascon Congress*** • Zeki Aygün, ***Derince Belediye Başkanı, Mayor of Derince*** • Prof. Dr. Mehmet YILDIRIM, ***Kocaeli Üniversitesi Teknoloji Fakültesi Dekanı, Dean of Technology Faculty of Kocaeli University***
IMASCON PANEL I – COVID'LE YAŞAMAK / LIFE WITH COVID 14:00 / 15:00
• Prof. Dr. Tamara Milenkovic Kerkovic, University of Nis, Serbia • Prof. Dr. Nardane Yusifova, Azerbaijan National Academy of Sciences • Prof. Dr. Azeta Tartaraj, Aleksandër Moisiu University Durrës, Albania • Prof. Dr. Hosam Bayoumi Hamuda, Obuda University, Hungary • Prof. Dr. Luis Roseiro, Instituto Politécnico de Coimbra, Portugal • Prof. Dr. Hüseyin Toros, İstanbul Technical University • Prof. Dr. Hanefi Bayraktar, Bayburt University • Assoc. Prof. Dr. Flora Merko,Aleksandër Moisiu University Durrës, Albania
IMASCON PANEL II - COVID'LE YAŞAMAK / LIFE WITH COVID – 16:30 / 17:30
• Prof. Dr. Tom Gillpatrick, Portland State University, U.S.A. • Prof. Dr. Hosam Bayoumi Hamuda, Obuda University, Hungary • Assoc Prof. Dr. Lyudmyla Symochko, Uzhhorod National University, Ukraine • Assoc. Prof. Dr. Ylber Aliu, AAB College, Kosovo • Assoc., Prof. Dr. Mehboob Nagarbawdi, Aki's Poona College Of Arts, Science & Commerce, India • Assoc. Prof. Dr. Murzakmatov Amanbek Kamytovich, Osh State University, Kyrgyzstan • Dr. Vandana Garg, DCA Mohali and RV Institute, India • Dr. Reena Patil M.A., Devi Ahilya University, India

21 MAY 2021 FRIDAY ORAL PRESENTATION		
21 MAY 2021	**SESSION 1**	**Time 14:00 – 15:15**
IMASCON SESSION 1.1 / 14:00 – 15:15	**Hall : 1**	**21 MAY 2021**
Remote Access Link:		
SESSION CHAIR : Assist.Prof.Dr. Yavuz Abut		
Assist.Prof.Dr. Yavuz Abut	An Investigation Into The Service Life Of Seal Coated Roads In Turkey Based On The Permanent Deformation On The Subbase	
Akın TÜRKOĞLU	Assessment Of Masonry Buildings Seismic Performance	
Özcan ÖLÇER	Comparison Of Scaling Methods To The Design Spectrum Of Earthquake Records	
İsmail ALTPEKİN	Analysis Of Failures Occuring In Drinking Water Distribution Systems	

IMASCON SESSION 1.2 /14:00 – 15:15	**Hall : 2 21 MAY 2021**
Remote Access Link:	
SESSION CHAIR : Assoc.Prof.Dr. Hasan KAYA	
Yavuz Selim KORKMAZ	Experimental Investigation Of Pollution In Hydraulic Filters
Rıdvan BAŞAR	Design, Analysis And Manufacture Of Wind Turbine Prototype With 3d-Printer
Oğuzhan ÇIRPINIR	Design Of Marching Fortification Systems For Mine Galleries
Betül USLU	Usage Purposes, Advantages, Disadvantages And System Comparisons Of Vrf And Fan Coil Systems
Faruk ERDEMİR	Establishing A Portable Experimental Setup To Determine The Efficiency Of Photovoltaic Systems At Different Geographical
IMASCON SESSION 1.3 / 14:00 – 15:15	**Hall : 3 21 MAY 2021**
Remote Access Link:	
SESSION CHAIR : Assist.Prof.Dr. Ayşe AK	
Assist.Prof.Dr. Ayşe AK	Effect of Cistus laurifolius Extract on Lactate Dehydrogenase Release in vitro
Seda BEYAZ	Antioxidative And Anti-Inflammatory Activities Of The Polyphenol Source Olive Tree (Olea Europaea L.) Leaf
Özlem GÖK	Investigation Of The Antioxidant Effect Of Aloe Vera Leaf With Some Molecular Parameters In The Saccharomyces Cerevisiae Culture
Dr. Seda ŞİRİN	Pyrrolidine/Piperidine Substituted 3-Amido-9-Ethylcarbazole Derivatives: Synthesis, Structural Analysis And Biological
Ebru ZENGİŞ	Determination Of Cytotoxic And Genotoxic Effects Of Karabas Herb (Lavandula Stoechas L.) Extract On Ht-29 Human Colon Cancer
Asuman DEVECI ÖZKAN	The Relationship Between The Anticancer Role Of Genistein As A Polyphenolic Compound And Androgen Receptor Status In Prostate Cancer
IMASCON SESSION 1.4 / 14:00 – 15:15	**Hall :4 21 MAY 2021**
Remote Access Link:	
SESSION CHAIR : Assist.Prof.Dr. Volkan ÇAKIR	
Assist.Prof.Dr. Volkan ÇAKIR	Electrochemical Properties of Azine-Bridged Binuclear Zn(II), Co(II) and Cu(II) Phthalocyanines
Özden ERDEBİL	Synthesis and Characterization of Trans-DACH Based Squaramide Organocatalyst
Sibel YILDIRIM	Investigation of The Effects of Different Binders on The Performance Characteristics of Water-Based Paints
Arslan Recep ŞAHİN	Antibacterial Effects Of Zinc Nanoparticules Synthesized By Chemical And Bio-Synthesis Methods
Ömer GÜNGÖR	Investıgatıon Of Fluorescence Quantum Yıeld And Lıfetıme Of New Nıckel(Iı) Phthalocyanıne Derıvatıve
Discussion	

ORAL PRESENTATIONS		
21 May 2021	**SESSION 2**	**Time 15:30 – 16:45**
IMASCON SESSION 2.1 /15:30 – 16:45	**Hall : 1**	**21 MAY 2021**
Remote Access Link:		
SESSION CHAIR : Assist.Prof.Dr. İbrahim MUTLU		
Dr. Hamit ERDAL	Prediction Of Pipeline Projects Construction Costs Utilizing Machine Learning Techniques	
Meltem YALMAN	Meso-Mechanical Modeling Of Elasticity Module Of Cement Based Composites Containing Light Aggregate	
Serkan BARIŞ	Examination Of The Efficiency Of The Bridge Simulation Systems Which Used Maritime Education And Training In Vocational Schools And Faculties At Turkey	
Arif YILMAZOĞLU	An Overview Of The Mechanical And Durability Properties Of Rubber Aggregate Concretes	
IMASCON SESSION 2.2 / 15:30 – 16:45	**Hall : 2**	**21 MAY 2021**
Remote Access Link:		
SESSION CHAIR : Assoc.Prof.Dr. Hasan KAYA		
Ahmet DEMIRKESEN	Anti-Roll Bar Design On Independent Rubber Suspension Axle Of Caravans	
Uğur ŞEVİK	Investigation Of Cutting Forces In Machining Of Aa 7075 Alloy Applied With Equal Channel Angular Pressing And Aging Proceses	
Selahattin SEFACI	Numerical Investigation Of Different Impeller Trimming Methods Used To Reduce Motor Power In Centrifugal Pump	
İpek ÇAĞLAYAN	Improving Durability To Environment And Climate Conditions In Vehicle Emblems	
Tolga ÖZYÖN	Investigation Of Solid Particle Erosion Behavior Of Low Carbon Hardenable Steels Modified By Thermo-Chemical Methods	
IMASCON SESSION 2.3 / 15:30 – 16:45	**Hall : 3**	**21 MAY 2021**
Remote Access Link:		
SESSION CHAIR : Assoc.Prof.Dr. Ali TÜRKCAN		
Lect. Dr. Burcu YÜKSEL	The Effect Of Temperature And Drought On Plant Reproductive Organs	
Gülnaz YILDIRIM KÖKEN	Determination of Anti-Promastigote Effect of Extracellular Vesicles Obtained from Wharton Jelly-Derived Mesenchymal Stem Cells for the Treatment of Cutaneous	
Lect. Serap NİĞDELİOĞLU DOLANBAY	Alkaloid Extracts From Glaucium Corniculatum Attenuates Oxidative Stress-Induced Tau Hyperphosphorylation Via Regulating	
Dr. Dudu Özlem MAVİ İDMAN	Ex-situ Conservation and Exhibition of the Plants in Rocky Habitats; National Botanical Garden of Turkey 'Rock Garden' as an Example	
Şahin ÇİMEN	Ex-situ Conservation of Some Endemic Tree and Shrub Taxa in the Province of Ankara and its Surroundings in The National Botanical Garden of Turkey	

Imascon SESSION 2.4 / 15:30 – 16:45	**Hall : 4**	**21 MAY 2021**
Remote Access Link:		
SESSION CHAIR : Assist.Prof.Dr. Selin KINALI DEMİRCİ		
Assist.Prof.Dr. Selin KINALI DEMİRCİ	Synthesis of Polymer Brushes for Antibacterial Surface Applications	
Hüma ARABACI	Possible Effects of Phenoxyethanol on Skin and The Use of Phenoxyethanol Chemical As A Protective In Cosmetics	
Tuğba KOLDANKAYA	Investigation of Stability of PLGA/Doxorubicin Nanoparticles	
Tuğba KOLDANKAYA	Thermosensitive Poly(Menthide)-PEG Hydrogel Systems for Local Treatment	
Discussion		
ORAL PRESENTATIONS		
21 May 2021	**SESSION 3**	**Time 17:00 – 18:15**
IMASCON SESSION 3.1 / 17:00 – 18:15	**Hall : 1**	**21 MAY 2021**
Remote Access Link:		
SESSION CHAIR : Assist.Prof.Dr. Fikret Polat		
Abdullah ALSAQABI	Design And Analysis Of High Gain Dualband Compact Antenna With Fork And Square Slots For Future 5g Technology	
Hilal BOZKURT	Digital Detail Enhancement in Thermal Images Using Average Filter	
Aşkın TEKER	Use Of Graphene And Silver Based Resonators In Energy Harvest Designs	
Yasin ALYAPRAK	Application of Sensor Fusion Techniques for Vehicle Condition and Position Analysis	
IMASCON SESSION 3.2 / 17:00 – 18:15	**Hall : 2**	**21 MAY 2021**
Remote Access Link:		
SESSION CHAIR : Assist.Prof.Dr. Serkan Abalı		
Assist.Prof.Dr. Serkan ABALI	Effects Of $CaCO_3$ Addition On The Mechanical Properties Of Al/Al_2O_3 Composite Foams	
Bora YILDIZ	Characterization Of The Staining Problem In Copper Coated Low Carbon Steel Sheet	
Naciye GÜRSOY	Effect Of Alloy Elements On Corrosion Behavior Of Cast Corson Alloys	
İbrahim ÇINAR	Improving Hydrophobicity, Roughness and Hardness Properties of Specimens of Bronze Marine Propeller by Laser Surface Treatment	
Cüneyt KORAY GENCAY	Effect Of Temperature On Aluminide Coating Of Inconel 625 Superalloy	

IMASCON SESSION 3.3 / 17:00 – 18:15	**Hall : 3**	**21 MAY 2021**
	Remote Access Link:	
SESSION CHAIR : Assoc.Prof.Dr. Serdar BİROĞUL		
Assoc.Prof.Dr. Lyudmyla SYMOCHKO	Structural And Functional Successions Of Soil Microbiome In The Forest Ecosystems	
Irmak YILDIRIM	Sustainability In Waste Management	
Tuğsem SÖNMEZ	Formation Of An Urban Heat Island And The Effects Of Plants On Urban Climate	
Tuğsem SÖNMEZ	Effects Of Climate Parameters On Trees	
Tuğsem SÖNMEZ	Effects Of Climate Change On Arid-Semi Arid Areas And Afforestation Techniques	
Tuğçe Nur BACAK	Impact of the COVID-19 Event on PM10 Air Pollution in Istanbul and Ankara	
IMASCON SESSION 3.4 / 17:00 – 18:15	**Hall : 4**	**21 MAY 2021**
	Remote Access Link:	
SESSION CHAIR : Assist.Prof.Dr. Merve DANDAN DOGANCI		
Tuğçe YÜKSEL	Preventing Silicate Deposite In Reinjection Wells In Geothermal Power Plants	
Tuğba DUMAN	Enzymatic Conversion Of Glycerin To Carbonate Ester	
Güler HASIRCI	Investigation Of The Use Of Catalytic Membranes In Chemical Reactions	
Murad RAHIMOV	Catalytic Treatment of Metal Cutting Fluid by Supercritical Water Oxidation	
Hakan SEVİNÇ	Investigation of Properties of Al_2O_3 Added Superhydrophobic Epoxy Films on Different Surfaces	
Discussion		
ORAL PRESENTATIONS		
21 May 2021	**SESSION 4**	**Time 18:30 – 19:45**
IMASCON SESSION 4.1 / 18:30 – 19:45	**Hall : 1**	**21 MAY 2021**
	Remote Access Link:	
SESSION CHAIR : Assist.Prof.Dr. İbrahim MUTLU		
Muhammed SELMAN EREL	Performance Analysis Of Photovoltaic Systems In South East Region Cities Of Turkey Based On Meteorological Data	
Merve Yetimoğlu	Legal Measures Taken In Turkey And The Impact Of Legislative Regulations On Accident And Death Rates	
Muhammed ALİZADA	Monitoring And Control Of Sensors With Smart Phone	
Berat Eren TERZİOĞLU	Image Processing And Object Tracking Applications With Spider Robot	
Şuayp Karakaş	Energy Efficiency Applications in Chemical Fertilizer Factories	
Dr. Aykan Akça	N-N And N-H Bond Activations Of Hydrazine Molecule On Fe Embedded Graphene Surface: A Dft Study	

IMASCON SESSION 4.2 / 18:30 – 19:45	**Hall : 2 21 MAY 2021**
Remote Access Link:	
SESSION CHAIR : Assoc.Prof.Dr. Bülent Aydemir	
Assoc.Prof.Dr. Bülent AYDEMIR	Investigation Of Problems And Effects Encountered In The Bolt Tensile Testing
Ali ÖZEN	Optimization Of Welding Current In Hardfacing Applied To Low Carbon Steels
Arzu ALTINPINAR	Coating Of Hydroxyapatite Nanoparticles, Synthesized By Microemulsion Technique, On Ti6al4v Alloy With Electrophoretic
Soner ÖNER	Investigation Of The Hot Formability Of 30mnvs6 Steel By Reckwalls Process
IMASCON SESSION 4.3 / 18:30 – 19:45	**Hall : 3 21 MAY 2021**
Remote Access Link:	
SESSION CHAIR : Assist.Prof.Dr. Emre ÖZAN	
Assist.Prof.Dr. Emre ÖZAN	Sars-Cov-2 Infections And Mutations In Animal Species
Dr. Derya KARATAŞ YENİ	Current Threat: Zoonoses
Salih DİKİLİTAŞ	Effects Of Maneb Fungicide On The Growth Of Eisenia Fetida
İshak TUNG	Some Predictions About The Yesterday, Today And Future of Lake Iznik (Bursa)
IMASCON SESSION 4.4 / 18:30 – 20:00	**Hall : 4 21 MAY 2021**
Remote Access Link:	
SESSION CHAIR : Assoc.Prof.Dr. Serdar SOLAK	
Yasin İLHAN	Overview Of Traditional Methods And Artificial Intelligence Technology In Lung Nodule Detection
Mehmet Koray ATEŞ	Rotary Type Phototherapy Device Design With Mobile Controlled And Helix Arrangement
Fatih KÖSE	Current Control Of Single Phase Full Bridge Inverter With Sliding Mode Control And Pi Control Methods
Celal Cem CİNCİOĞLU	Development of a Boron Nitride Based Biosensor
Tugay COŞKUN	Preparation and characterization of enzyme-based new amperometric biosensors
Ayberk DİZDAR	Comparison Of The Use Of Plate And Intramedules Nails With Finite Element Analysis In Stabilizing Femur Shaft Fractures

22 MAY SATURDAY		
ORAL PRESENTATIONS		
22 May 2021	**SESSION 5**	**Time 10.30 – 11:45**

IMASCON SESSION 5.1 / 10:30 – 11:45	**Hall : 1**	**22 MAY 2021**
Remote Access Link:		
SESSION CHAIR : Assist.Prof.Dr. Demet ÇELEBİ		
Assist.Prof.Dr. Demet ÇELEBİ	Nasocomial Infections At The Pcr Positive Covid-19 Patients And Antibiotic Susceptibility	
Assist.Prof.Dr. İrem Kaya CEBIOGLU	Accuracy of Resting Metabolic Rate Equations	
Assist.Prof.Dr. Serra Örsten	Determination of the Effect of Blastocystis Presence on MicroRNA expression Profile in Healthy Individuals-Evaluation of Preliminary Data	
Ayşe Melek TANRIVERDİ BADEMCİ	Neurochemical Effects Of Methylprednisolone And Metyrapone Therapy In Post-Traumatic Stress Disorder	
Ali Alpcan OFLUOĞLU	Object tracking in underwater vehicles with anfis method	
IMASCON SESSION 5.2 / 10:30 – 11:45	**Hall : 2**	**22 MAY 2021**
Remote Access Link:		
SESSION CHAIR : Prof.Dr. Yasin TUNCER		
Prof.Dr. Yasin TUNCER	Isolation Of Bacteriocin Producer Lactic Acid Bacteria From Sheep And Goat Colostrums And Their Molecular Characterization	
Dr. Tahseen Fatima Miano	Oil And Water Absorption Capacity Of Wheat, Rice And Gram Flour Powders	
Dr. Tahseen Fatima Miano	Development Of Biscuits Incorporated With Carrot And Cowpea Powder	
Assist.Prof.Dr. Dilek DÜLGER ALTINER	Edible Plant Şevketi Bostan (Scolymus Hispanicus L.): Nutritional And Health Properties And Fields Of Usage	
Burak GENİŞ	Isolation Of Bacteriocinogenic Lactic Acid Bacteria From Raw Meat And Meat Products And Their Identification By Molecular Methods	
Derya BULUTDAĞ	Production Of Commercial Leavened Bazlama Bread In Karaman And Properties Of Flours	
Discussion		
IMASCON SESSION 5.3 / 10:30 – 11:45	**Hall : 3**	**22 MAY 2021**
Remote Access Link:		
SESSION CHAIR : Assist.Prof.Dr. Şule KUŞDOĞAN		
Assist.Prof.Dr. Şule KUŞDOĞAN	Energy Storage Technologys In Ships And Applications	
Lect. Onur BATTAL	Roulette Fitness-Distance Balance Based Aquila Algorithm (RFDB-AA)	
Ufuk Ege	Inspectıng Qualıty Of Energy On Shıps	
Ömer ECİR	Remote Monitoring of The Locatıon of Electric Fuses With Sım800 Gsm Module	
Cabir KÜÇÜK	Electricity Generation From Waste Gases With Organic Rankine Cycle	

IMASCON SESSION 5.4 / 10:30 – 11:45	**Hall : 4**	**22 MAY 2021**
Remote Access Link:		
SESSION CHAIR : Assist.Prof.Dr. Mehlika KOCABAŞ AKAY		
Assist.Prof.Dr. Mehlika KOCABAŞ AKAY	Evaluation of personal development studies of engineering students in the context of Industry 4.0	
Assist.Prof.Dr. Mehlika KOCABAŞ AKAY	A study on the purchasing behavior of consumers in electronic commerce	
Abdulrahman SARKHOCH	Remote Monıtorıng Of The Qualıty Of Pure Water Produced At The Revers Osmosıs Plant	
Harun GÜNDÜZ	Multı-Crıterıa Evaluatıon Of Agrıcultural Product And Productıon Place Selectıon Problem Wıthın The Scope Of Good Agrıcultural Practıces: Van Cıty Example	
Sibel UZUNOĞLU	Evaluatıon Of Offıce Envıronment Ergonomıcs And Its Impact On Employees In The Covıd-19 Pandemıc Process: A Publıc Study	
Öğr. Gör. Dr., Gülşah Akıncıoğlu	Al-6110-A-T4 malzeme, pin-on-disk sürtünme testi, sıcaklık, aşınma.	
Muhammet DAĞLI	The Effect Of Coolıng Desıgn On The Parts Qualıty Of Injectıon Moldıng The Thıck Wall Hdpe Materıals	
ORAL PRESENTATIONS		
22 May 2021	**SESSION 6**	**Time 12:00 – 13:15**
IMASCON SESSION 6.1 / 12:00 – 13:15	**Hall : 1**	**22 MAY 2021**
Remote Access Link:		
SESSION CHAIR : Assist.Prof.Dr. İrem DUZDAR ARGUN		
Assist.Prof.Dr. İrem DUZDAR ARGUN	Application of Data Mining Algorithms for Customer Recommendations in Retail Marketing	
Arzu DEDE	Analysis Of The Current Situation Of Cyber Attacks And Personal Data Violations Increasing With The Internet Of Things	
Ali Tuna DİNÇER	Rule-Based Fuzzy Logic And Academic Performance Evaluation	
İbrahim BEKTAŞ BAYSAL	Emotion Detection With Deep Learning Methods	
Sinem SEÇGİN OLGUN	Analyzing Dealer Movements in the LPG Sector Using Advanced Data Analytics Methods and Making Meaning of This Big Data	
IMASCON SESSION 6.2 / 12:00 – 13:45	**Hall : 2**	**22 MAY 2021**
Remote Access Link:		
SESSION CHAIR : Assist. Prof. Dr. İbrahim MUTLU		
Emine Şeyma ALTINTAŞ	A New Web Page Ranking Algorithm Approach For Search Engines	
Ghadir Abdulhakim A. A. ALSELWI	Sentiment Analysis On Covid-19 Vaccines Tweets	
Rouba Omar Alahmad ALOSMAN	Clustering Analysis based on K-Means algorithm for Mall data	
Selami ÇEKİÇ	An Overview Of Emotional Analysis With Social Media Data	
Çilem KOÇAK	Assessment on Data Security on Social Media Platforms: The Example of Twitter	
Discussion		

IMASCON SESSION 6.3 / 12:00 – 13:15	Hall : 3	22 MAY 2021
Remote Access Link:		
SESSION CHAIR : Assist.Prof.Dr. Fikret POLAT		
Elif KABULLAR	The Effect Of Different Word Representation Methods On Text Classification	
Emre ÖZTÜRK	Virtual Reality Based Pediatric Physical Therapy Application Design	
Muhittin COŞKUN	A Fuzzy Logic System For Air Defense System	
Ömer Haluk ÇOBAN	Turkish Warfare Capability And Readiness On Cyber Space As A Fifth Domain	
Asim Bilal YILMAZ	Automatic Recognition and Data Collection Systems in the Supply Chain	
Asim Bilal YILMAZ	Aquarium Fish Type Identification with Artificial Intelligence	
ORAL PRESENTATIONS		
22 May 2021	**Sessıon 7**	**Time 13:30 – 14:45**
IMASCON SESSION 7.1 / 13:30 – 14:45	**Hall : 1**	**22 MAY 2021**
Remote Access Link:		
SESSION CHAIR : Assoc.Prof.Dr. Serdar SOLAK		
Çağlar ŞİMŞEK	Recognition of Natural Mushrooms Using Artificial Intelligence Methods	
Çağlar ŞİMŞEK	Blockchain Technology, Structural Review and Development Process	
Bülent HOŞ	Load Frequency Control In Natural Gas Cycle Power Plants Using Genetic Algorithm	
Eissa AL-SHAGEA	Performance Analysis Of Gid-Connected Photovoltaic Systems In Unlicensed Electricity Generation	
Mehmet Yıldırım	Kocaeli Province Between Tütünçiftlik - Karamürsel Carrying Dangerous Goods Carriage From The Sea (By Car Front) Investigation In Terms Of Energy	
Cihangir TOZKOPARAN	Study Of The Usage Of Optimizers In Roof Type Solar Power Plants In Terms Of Production Efficiency, Safety And Cost.	
IMASCON SESSION 7.2 / 13:30 – 14:45	**Hall : 2**	**22 MAY 2021**
Remote Access Link:		
SESSION CHAIR : Assist.Prof.Dr. Abdullah Özkartal		
Assist.Prof.Dr. Abdullah Özkartal	Optical and structural properties of ZnO thin films produced by thermal evaporation	
Özlem OKYAR	Remote Monitored Incubator Design	
Assist.Prof.Dr. Muhammed Emin GÜLDÜREN	Optical Tunability Of Defect Assisted Dilute Magnetic Semiconductor Nanocrystallites Produced By Cost-Effective Silar Method	
Assist.Prof.Dr. Muhammed Emin GÜLDÜREN	Impurity Concentration Dependent Modifications In Rutile Type Metal Oxide Semiconductor Nanoclusters For Photonic Applications	
Assist.Prof.Dr. İlyas Yılmaz	Les Modeling Of Weakly Turbulent Rayleigh-bénard Convection Using Mixed-scale Sgs Model: Effect Of The Model Parameter α	

IMASCON SESSION 7.3 / 13:30 – 14:45	**Hall : 3**	**22 MAY 2021**
Remote Access Link:		
SESSION CHAIR : Assist.Prof.Dr. Bariş KANTOĞLU		
Assist.Prof.Dr. Bariş KANTOĞLU		Analysis Of Criteria In Market Management Via Ahp Method
Assist.Prof.Dr. Bariş KANTOĞLU		Measuring Supply Chain Risk Factors In A Furniture Manufacturer
Assist.Prof.Dr. Mehlika Kocabaş Akay		A Study About The Effect of Distance Education on Students During the Pandemic
Burçin DOĞAN		Analysis of Supply Chain Performance Criterias with AHP in Sheet Metal Industry
Rumeysa DEĞERMENCI		A Fuzzy Based Multicritia Decision Making Model For Prioritizing Entrepreneurship Projects: An Application In Financial Sector
Kıymet EŞİYOK		Effects of Reinforcing Materials on Particle Erosion in Teflon (PTFE) Matrix Polymer Composites
Discussion		
21 MAY 2021 FRIDAY ***18:30 – 20:00*** ***POSTER PRESENTATION***		
Remote Access Link:		
Poster No		
F1	Mustafa KHALEEL	Synthesis and optical properties of gold nanostars
F2	Cemil DIZMAN	Obtaining Flame Retardant Coatings from Phosphorous Containing Bio-based Chemical Agents
F3	Cemil DIZMAN	Synthesis of Bio-Based Cardanol Acrylate and Its Coating Applications
F4	Cemil DIZMAN	Comparison of Bio-Based And Bisphenol A Epoxy Coatings
F5	Önder ÇELİK	Boron Doped Poly(E-Caprolactone) Based Polymer Blend Lithium Salts Mixtures for Lithium Ion Batteries
F6	GÖKHAN Yıldırım	Composite Cathode Materials For Lithium Ion Batteries
F7	Samuel KAWISO KAYIMO	Lithium salt doped poly(EHA-co-MMA) as a conductive polymer electrolyte for lithium ion batteries
F8	SERA Uyan	Bacterial Cellulose Based Artificial Cartiladge Tissue
F9	ADEM Gül	Detection of the RF spectrum in Software Define Radio with ANN

ABSTRACTS AND POSTERS

ENZYMATIC CONVERSION OF GLYCERIN TO CARBONATE ESTER

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Abstract
In parallel with the increase in biodiesel production in recent years, approximately 10% of glycerin (Gly) is also produced as a by-product. This reduces the unit price of Gly and increases the need to convert glycerin into value-added products. Glycerin carbonate (GlyC) is a value-added product of Gly and is obtained as a result of transesterification of Gly and dimethyl carbonate (DMC). GlyC is utilized as solvent, additive, monomer, and chemical intermediate and it is used in different industries such as chemical, pharmaceutical, and construction. Immobilized enzymes are preferred because of their reusability, easy removed from reaction medium, and operational stability compared to free enzymes. In the literature, Candina antarctica B (CalB) enzyme is frequently used in GlyC production in either free or commercial immobilized form (Novozyme 435). The use of ultrasonic bath causes improvement in enzyme activity. In addition, it contributes to the homogeneous mixture formation of reaction inputs that do not mix and to increases the reaction speed. In this study, GlyC was produced by on chitosan immobilized CalB. GlyC is produced in the incubator under batch conditions. In addition to the use of ultrasonic bath, the effects of temperature, Gly/DMC molar ratio, enzyme concentration, and reaction time were examined on the production of GlyC. The Gly and GlyC were by FTIR analyzed. It has been observed that the use of ultrasonic bath increases by 40.5 % GlyC (percentage by weight). With using of an ultrasonication process of 12 minutes there is 58.5% GlyC was achieved. On chitosan immobilized CalB can be considered as alternative to commercial immobilized Novozyme 435 for GlyC production.

Keywords: Glycerol carbonate, glycerin, Lipozyme CalB, dimethyl carbonate

AN OVERVIEW OF EMOTIONAL ANALYSIS WITH SOCIAL MEDIA DATA

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Abstract
Concepts such as opinion, emotion, attitude, evaluation and mood, which are at the center of human psychology and constitute the key elements of our behavior, are related to our own feelings and thoughts. Our thoughts, perception of reality and our choices will differ according to the opinions and perceptions of others and will affect the way we make decisions by being influenced by the opinions of others. The ideas and thoughts of others can set an example for us. For the correct evaluation of the samples, emotion analysis and the increase required to be arranged quickly and accurately using various machine learning methods. Social media brings families, people from different cultures together with the opportunities it provides, and ensures that information, thoughts and feelings can be shared easily. People can share their opinions about a subject, their feelings and thoughts that they cannot express or express within the family or in different environments. Storing, archiving and organizing these shared information, these networks have attracted the attention of families, educators, businesses, health and education institutions, and individuals or organizations operating in different fields. Analyzing data and analyzing emotions can be effective in reaching solutions and results in many areas. In the study, information was given about the emotion analysis methods of the operations performed through social media data and the areas where it may / may be effective, the methods used to produce ideas about the issues that are thought to be effective in our time and in the future were examined, the ways followed according to the desired result were investigated, and the areas for which benefits would occur. comments have been made. It was observed that the data were analyzed on the basis of words, mostly by classifying them as positive, negative and neutral. As a result of the comparisons, it was recommended to increase the accuracy rates, to improve the use of emotion analysis, to switch from word to sentence basis, and to ensure social effects rather than individual effects of the studies.

Keywords: Sentiment Analysis; Social Media, Twitter, Machine Learning Methods

ELECTRICITY GENERATION FROM WASTE GASES WITH ORGANIC RANKINE CYCLE

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Abstract
Organic rankine cycle (ORC), special fluids are used which can evaporate at relatively low temperature instead of water as the vehicle fluid. In this way it is possible to produce electricity from waste heat sources at low temperatures. In this study, it was investigated that the required thermal energy for the ORC was achieved by burning gases in a combustion chamber (Flayer) in a low-emission hot water boiler. The electricity generated at the end of the cycle is theoretically calculated. The main components of the system are the boiler, turbine, and cooling unit has been examined. Cost, feasibility and emission analyzes of the system are made; according to TURKEY and USA conditions, the repayment period and internal rate of return are calculated. As a result of the application, it is seen that electricity production can be done at 76,5 kWe power from 114,5 Nm3/h waste gas.

Keywords: Electric production, organic rankine cycle, Flayer gas, energy effiency, emission reduction

ÖĞRETMENLERİN GÖZÜNDEN UZAKTAN EĞİTİME HIZLI GEÇİŞ

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Abstract
Covid-19 ile hayatımıza giren uzaktan eğitim sürecinde öğretmenlerin yaşadığı sıkıntıların tespit edilmesinin uzaktan eğitimin daha etkili ve verimli yürütülmesine katkı sağlayacağı düşünülmektedir. Bu doğrultuda araştırmanın amacı; COVID-19 sürecinde öğretmenlerin uzaktan eğitime geçişte yaşadıkları sorunları ve uzaktan eğitimin güçlü yanlarını değerlendirmektir. Araştırmanın örneklemini, 2020-2021 eğitim öğretim yılında çeşitli devlet okullarında, farklı branşlarda görev yapan 5 öğretmen oluşturmaktadır. Veriler, uzman görüşleri doğrultusunda hazırlanan yarı yapılandırılmış görüşme formu ile toplanmıştır. Yapılan görüşmeler sonucunda öğretmenlerin COVID-19 döneminde yaşadığı zorluklar incelenmiş ve uzaktan eğitimin sağladığı avantaj ve dezavantajlar tartışılmaya çalışılmıştır. Katılımcılardan ikisi uzaktan eğitimle yeni tanıştığı tespit edilmiştir. Katılımcıların tamamının ise çevrimiçi ortamda ilk defa ders anlattığı görülmüştür. Katılımcıların tamamının Eba ve Zoom platformlarını kullandığı, yaşanan teknik sıkıntıların ise öğretmenlerin uzaktan eğitime olan bakış açısını olumsuz etkilediği belirlenmiştir. Uzaktan eğitimde öğretmenlerin en çok karşılaştıkları sorunun sınıf yönetimi olduğu görülmüştür. Öğretmenlerin en büyük kaygısının ise eğitimde fırsat eşitliğini sağlayamamaları olduğu dile getirilmiştir. Ekran karşısında öğrenciyle etkileşimin daha zor sağlanması bu süreçte yaşanan diğer bir sorun olarak ortaya çıkmıştır. Uzaktan eğitimin verimliliğinin artırılması konusunda önerilerde bulunan katılımcılar, dijital içeriklere ulaşımın kolaylığı, zaman ve mekândan bağımsız ders işleme özgürlüğünün uzaktan eğitimin faydaları arasında sıralamışlardır. Ayrıca öğretmenler COVID-19 sürecinde çevrimiçi eğitimlere katılarak mesleki açıdan da kendilerini geliştirdiklerini ifade etmişlerdir. Araştırma sonucunda, katılımcılar, eğitim öğretimin normal seyrine dönmesi durumunda uzaktan eğitimi destek olarak kullanacaklarını belirtmişlerdir. *Bu çalışma birinci yazarın Amasya Üniversitesi, Fen Bilimleri Enstitüsü, Bilgisayar ve Öğretim Teknolojileri Eğitimi Bölümünde yürüttüğü yüksek lisans tez çalışması kapsamında gerçekleştirilmiştir.

Keywords: COVID-19, Uzaktan Eğitim, Uzaktan Eğitime Hızlı Geçiş, Online Eğitim

ASSESSMENT ON DATA SECURITY ON SOCIAL MEDIA PLATFORMS: THE EXAMPLE OF TWITTER

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Abstract
The usage of Social Media Platforms is increasing day by day in Turkey as well as in the world. Considering the rate of increase in social media usage worldwide, according to the statista's January 2021 data, 63% of people worldwide use Facebook, 61% use youtube, 48% use WhatsApp and follow this respectively Facebook Messenger, Instagram, Twitter, Snapchat. It has been observed. According to the We Are Social 2020 report, looking at Turkey's Internet, social media and mobile user statistics, 74% of Turkey's population is 62 million internet users, 64% of Turkey's population is 54 million social media users, 92% of Turkey's population is 77 million mobile users. . According to the results of the research, we see that there are 60 million social media users among the total population of approximately 85 million in Turkey. This means that 70.8% of the population is social media users. In Turkey, 7 out of every 10 people are social media users and 9 out of every 10 people use mobile devices. It is seen that the increase in the usage rate of Social Media Platforms brings along some problems. One of the most important of these is how the data shared on these platforms is secured. In the researches, it was concluded that the users bypassing the usage agreements on these platforms and did not have enough information about the security measures. Twitter is one of the platforms that is used effectively in Turkey and even has the power to change the country's agenda, and it is directly related to the data security problem in the case of sharing photos of tweets. In the study, social media platforms in our country were examined and an evaluation was made about data security and violation cases specific to Twitter.

Keywords: Social Media, Data Security, Twitter.

DESIGN, ANALYSIS AND MANUFACTURE OF WIND TURBINE PROTOTYPE WITH 3D-PRINTER

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Abstract
Today, the most important feature of the Wind Turbine is that it enables a clean electricity generation by using wind energy, which is a natural and inexhaustible energy source. It is of great importance in the world because it is energy that does not emit any harmful waste to the environment. In this study, the production of wind turbine prototypes was studied by using 3D printers, which have become widespread in recent years. Two different materials were used in the construction of the project. The first material is 3D printer with 200x200 mm table. The second material is filament, which is the raw material of the 3D printer. First of all, the design of the body, blade and head part of the wind turbine was made according to the real dimensions in the Solidworks program. The wing length was determined as 43 m in the design and it was drawn using 6 different profiles. Aerodynamic and static analyzes of the designed wind turbines were performed in the Ansys-Fluent program. In aerodynamic analysis, the wind speed was determined as the wind speed in Düzce, which was an average of 36 m / s in 2020. Later, the design for production was scaled to 0.004 and transferred to the Cura slicing program, one of the 3D printing applications. In this program, the printing speed was set as 50 mm / s, the print layer height was 0.2 mm, the nozzle temperature was 208 ° C, and the G code file was created. Later, the G code was saved to the SD card and transferred to a 3D printer and production was carried out. According to the analysis results, the maximum pressure created by the wind on the wing was 3776 Pa and the maximum speed was 104 m / s. For the maximum pressure value obtained, the amount of stress and total deformation occurring in the wing structure for both PLA material and ABS material were found. As a result of the results obtained, the material that will be safe when exposed to the resulting stress has been selected.

Keywords: Wind turbine, aerodynamic analysis, 3D printer

RECOGNITION OF NATURAL MUSHROOMS USING ARTIFICIAL INTELLIGENCE METHODS

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Abstract
Turkey is a country with rich vegetation that allows many mushroom species to grow naturally. Among the wild mushrooms there are edible, inedible and poisonous types of mushrooms. Edible mushrooms, which are among the important food sources in nature, are often confused with poisonous and inedible mushroom species. These confusions can cause diseases and poisoning that affect human life. For this reason, detecting fungal species is important for human life. In this study, the fungus species will be determined by artificial intelligence and it is aimed to identify the fungus species by image processing with artificial intelligence methods. Artificial intelligence applications and image processing techniques will be used in the detection of fungal species. Artificial neural networks and decision support systems will be used in the applications and techniques to be used. The data set to be used in image processing will consist of the types determined as a result of the literature study. By using artificial intelligence, image processing techniques and decision support systems, fungi will be identified on this data set. The mushroom recognition process can be mobile-based and can work as an application on the mobile device, so that the process can be performed easily by the user in order to identify fungi on site and quickly in natural environmental conditions.

Keywords: Artificial intelligence, Natural mushroom, Artificial neural networks

BLOCKCHAIN TECHNOLOGY, STRUCTURAL REVIEW AND DEVELOPMENT PROCESS

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Abstract
Blockchain can be defined as a technology that allows the data in the digital environment containing value to be stored and managed in an open and secure way. The emergence of blockchain technology and the development process to date and its future situation are examined within the scope of this study. It is aimed to contribute to research on supply chain management processes by collecting information about blockchain technology and its applications in the field of supply chain management. For this purpose, national and international literature on blockchain has been reviewed. In the first stage of the study, the definition, structure, functioning benefits, types and application areas of blockchain technology, and in the second stage, the conceptual structure of the supply chain was tried to be explained. In the third stage, the applications of blockchain technology on the supply chain, the benefits it provides to supply chain management and the information about the studies conducted on this subject were investigated. In the last stage, the general evaluation of the data obtained was made.

Keywords: Supply chain, Blockchain, Block Structure

AQUARIUM FISH TYPE IDENTIFICATION WITH ARTIFICIAL INTELLIGENCE

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Abstract
There are many fish species living in the aquarium. Due to the similarities between fish species, there are difficulties in determining which species the fish belong to. In order to overcome these difficulties, a study will be carried out to obtain information about aquarium fish and to identify fish species by using artificial intelligence technologies. In this study, it is aimed to detect aquarium fish with artificial intelligence. Artificial intelligence applications and methods will be used in the detection of aquarium fish. The method to be used will include deep learning, artificial neural networks and decision support systems, which are the fields of artificial intelligence. In the dataset to be created for aquarium fish, pictures of the fish included in the regions that have been searched for the literature will take place. The Developer Kit, which is a single board computer, will be used to be used in the study. The reason for choosing this development kit is that it allows us to run multiple neural networks in parallel for applications such as image classification, object detection and segmentation, with less cost and low energy consumption.

Keywords: Artificial intelligence, Aquarium fish, Artificial neural networks

AUTOMATIC RECOGNITION AND DATA COLLECTION SYSTEMS IN THE SUPPLY CHAIN

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Abstract
Societies have to produce something new in order to live and develop. They also need to generate income by transforming the products and values produced into commercial operations. Although the common purpose of these approaches, which have been ongoing for ages, is to live and develop, their way of doing has differed in every century. In the past, trade and culture exchanges were carried out with camels and similar animals, after which steam and machinery were invented, and today, along with airways, seaways, faster vehicles and transportation routes have changed the mode of transportation of trade. This has also led to changes in people's expectations and demands, especially in recent years. The speed of transportation and information has gained importance. Now, product information and delivery speed are as important as the product. In recent years, Supply Chain Management, one of the new business systems that emerged with the development and intensive use of information and communication technologies, the development of cooperation between enterprises, and the growth of the global economy accordingly, has been intensively used to serve the purposes such as increasing customer satisfaction and gaining competitive advantage. started to be used. With its classical definition, it is the integrated management of material, information and money flow that enables the customer to reach the right product at the right time, at the right place, at the right price for the entire supply chain at the lowest possible cost. In this study, we will examine the information systems used in this field that contribute to SCM.

Keywords: Supply Chain, Automatic Identification, Data Collection Systems

EXAMINATION OF THE EFFICIENCY OF THE BRIDGE SIMULATION SYSTEMS WHICH USED MARITIME EDUCATION AND TRAINING IN VOCATIONAL SCHOOLS AND FACULTIES AT TURKEY

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Abstract
STCW (Standards of Training Certification and Watchkeeping) Convention has been issued about, international standards for the training, certification and watchkeeping of seaman. Turkey is a party to this contract. In order to ensure compliance with the rules specified in STCW-78 and its amendments, Turkey Republic Ministry of Transport and Infrastructure Ministry pusblished Seaman and Marine Pilot Education and Examination Directive in 2018. This directive includes minimum educational requirements that have to be applied in maritime schools. Approved bridge simulation is required for practical training in maritme schools whose profiency is watchkeeping officer and oceangoing watchkeeping officer. When the simulations used by vocational schools and faculties were examined, cause of simulation founder firms is distribütör Transas and Ari trademark in Turkey, it was seen that this two trademark simulations were mostly used. In simulation system selection, the use of the latest technology hardware and the use of software similarity of real systems are important reasons of simulation choice. In addition, the service speed and quality provided are other important reasons of simulation choice.

Keywords: Radar, Global Positioning System, Automatic Identification System

OPTICAL TUNABILITY OF DEFECT ASSISTED DILUTE MAGNETIC SEMICONDUCTOR NANOCRYSTALLITES PRODUCED BY COST-EFFECTIVE SILAR METHOD

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Abstract
Material researches in nanoscales have grown exponentially over the past decades owing to the fact that these nanosized structures may possess the extraordinary physical and chemical properties that may not be available in their bulk forms. In diluted magnetic semiconductor (DMSs) nanoparticles (ZnO, In2O3, TiO2, CdO, SnO2, etc.), the particle size, and shape also affect the structural and optical properties which can control their performance in applications like display panels, gas sensors, LEDs, catalysis, solar cells, memory devices and so on. The structural and optical properties of these nanometric DMSs can be further modified doped with transition metals (TMs), such as Ni, Fe, Mn, Co, Cr and so forth, which can influence the defect sites like oxygen vacancies and charge carrier density found in the host DMSs. Moreover, there are various deposition methods to produce doped DMSs for instance hydrothermal technique, sol-gel, RF-DC magnetron sputtering, spray pyrolysis, pulsed laser deposition, successive ionic layer adsorption and reaction (SILAR) method, etc. Among these synthesis methods, the SILAR method is easy to control without any expensive instrument such as vacuum. Here, we present the structural and optical influences of TM defect donors on the tin oxide (SnO2) nanocrytallites grown by the SILAR deposition method.

Keywords: Semiconductor thin films, XRD, Uv-vis spectroscopy, Engineering optical

IMPURITY CONCENTRATION DEPENDENT MODIFICATIONS IN RUTILE TYPE METAL OXIDE SEMICONDUCTOR NANOCLUSTERS FOR PHOTONIC APPLICATIONS

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Abstract
In recent years, production and characterization of materials in the nano-ranges have gained substantial reputation around the scientific world since physical and chemical aspects of many materials are bound to be reshaped as particle size shrinks to the nanometer sizes. Therefore, metal oxide semiconductors (MOSs) in nanosizes have also attracted researchers interests due to their enthusiastic properties which are utilized in optoelectronic applications such as photonic devices. In addition to that, impurity dopings are known to be highly effective in order to adjust material properties as desired. Tin oxide (SnO2) is an n-type wide bandgap MOSs (3.6 eV) which has high transparency and conductivity as well as large exciton binding energy (130 meV). These SnO2 nanoclusters have been prepared by different methods such as molecular beam epitaxy, chemical bath deposition, vacuum thermal evaporation, spin coatings, sol-gel method, hydrothermal method, electron beam evaporator, etc. However, these growth techniques are rather costly when fabricating nanostructures in mass amounts. Thus, successive ionic layer adsorption and reaction (SILAR) method is employed here to prepare different concentrations of impurity doped rutile type SnO2 nanoparticles, which requires no sophisticated experimental set-up. And, the relavant structural and optical assessments will be presented.

Keywords: Metal oxide thin films, SEM, PL spectrum, Tauc optical band gap plots

EFFECT OF CISTUS LAURIFOLIUS EXTRACT ON LACTATE DEHYDROGENASE RELEASE IN VITRO

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Abstract
Cistus laurifolius (C. laurifolius) belongs the genus Cistus L. mainly growing in the Mediterranean region. In folk medicine, C. laurifolius has been used for anti-inflammatory activity, anti-bacterial effect, wound healing capacity and pain relief. In this study, water extract of C. laurifolius leaves was prepared and lyophilized by rotary evaporator. Various concentrations of extract dissolved in DMSO were applied cell lines in vitro for 3 days. Release of Lactate Dehydrogenase (LDH) was measured for presence of damage and toxicity in cell line. As a result of statistical analysis, it was determined that highest concentration of extract significantly increased LDH release at the end of the 2nd and 3rd days ($p<0.05$). We can conclude that C. laurifolius extract may be evaluated to induce necrotic cells when used high concentrations. Although C.laurifolius extract may cause necrotic cell death in cancer cells, new studies are required to evaluate this effect in normal cell lines. Additionally, other cell death pathways need to be studied to evaluate cell death or toxicity. In vivo experiments should not be initiated without collecting sufficient data in in vitro studies.

Keywords: C.laurifolius, LDH release, necrotic cell, in vitro

DETERMINATION OF THE EFFECT OF BLASTOCYSTIS PRESENCE ON MICRORNA EXPRESSION PROFILE IN HEALTHY INDIVIDUALS-EVALUATION OF PRELIMINARY DATA

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Abstract
MicroRNAs (miRNAs) are small RNA molecules encoded by the genome that are not converted into protein which are recently used for the elucidation of the pathogenesis of many diseases and diagnosis. miRNAs mostly display specific expression profiles during biological processes such as infection. Blastocystis sp. has been proposed as a possible cause of gastrointestinal and extraintestinal clinical signs. Blastocystis sp. is a frequently reported parasite in healthy individuals without gastrointestinal symptoms, but is also detected in patients with irritable bowel syndrome (IBS), skin diseases, and in immunocompromised patients. There is no information about the change of miRNA expression profile with the co-existence of Blastocystis sp. Materials&Methods Within the scope of the study, stool and blood samples were collected from healthy individuals. Stool samples were examined under light microscope in terms of Blastocystis presence with native-lugol and confirmed by trichrome staining. Total RNA extraction and cDNA synthesis were performed from serum of the patients/controls by kits following the manufacturer's instructions. miScript miRNA HC PCR Arrays were used for the detection and quantification of miRNAs in serum. The analyzes were performed with the online analysis tool Results The miRNA expression profiles of 6 healthy individuals (n = 3 Blastocystis sp. positive, n = 3 Blastocystis sp. negative) were analyzed comparatively. As a result of the analyzes, it was determined that the expressions of 7 miRNAs increased at least> 3 fold in the serum of individuals with Blastocystis sp. positive when compared to individuals with Blastocystis sp. negative. Conclusion With this study, it was shown for the first time in the literature that the presence of Blastocystis affects the miRNA expression profile. In addition, the detected miRNAs were found to be mainly involved in processes that control the regulators of cell cycle, growth, apoptosis, morphogenesis, development and immune responses. It has been observed that these miRNAs can be effective in processes that control cell-cell and cell-matrix interactions, proliferation, immune system cell migration, and the induction of cytokines. It is thought that by examining these pathways in detail, the clinical reflections associated with Blastocystis sp. will be understood more clearly.

Keywords: Blastocystis, microRNA, miRNA expression profile

A CONTENT ANALYSIS ON THE USE OF CARTOONS IN MATHEMATICS EDUCATION

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Abstract
This study aimed to determine the trends of studies on the use of cartoons in mathematics education between 2008-2020 in Turkey through thematic studies. Accordingly, 13 scientific articles and 1 doctorate and 19 master's theses, which are open to access from the database of YÖK National Thesis Center, were included in the study with the searches made on Google academic and Dergipark platforms. This work is a field survey and a document review study. Content analysis, one of the descriptive analysis methods, was used in the analysis phase of the study. The studies included in the study were classified according to certain themes and entered into the study review form. In the study review form, the studies were processed according to the publication type, publication year, research approach and method, sample type, data collection tool and generalized research findings. The data obtained were transformed into tables containing frequency and percentage calculations. Based on the findings of the study, the studies that deal with the use of cartoons in mathematics education; It was concluded that the most concentrated on the graduate type, the highest number was reached in 2019, more quantitative approach types and experimental methods were studied, and the samples were mostly selected from secondary school students in the studies. According to their generalized findings, the effects between cartoon-achievement and cartoon-attitude variables were mostly examined in studies. It has been determined that the cartoons have a significant and positive effect on these two variables. It was concluded that cartoons were mostly used as concept cartoons in the mathematics teaching process and were effective in eliminating misconceptions, that cartoons attracted students' attention to the subjects, increased their interest and motivated them to the lesson.

Keywords: Cartoon, mathematics education, content analysis.

COMPOSITE CATHODE MATERIALS FOR LITHIUM ION BATTERIES

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Abstract
The increasing demand in energy storage has stimulated significant interest in lithium ion battery (LIB), and it is considered to be one of the most promising systems due to its advantages over other rechargeable batteries in terms of energy density and cycle life performance. To expand the use of LIB, for instance as the onboard energy storage for electric vehicles (EVs) or hybrid electric vehicles (HEVs), the specific energy density has to be increased. Many efforts have been directed toward development of new electrode materials, especially cathode materials that have improved specific capacity, stability, rate capability, and cycle life . To achieve this goal numerous lithium intercalation layered materials such as inorganic transition metal oxides, sulfides, and phosphates have been explored for positive electrodes as an alternate to presently used LiCoO2 . The objective of this study synthesize new cathode materials for lithium ion batteries to improve its properties like capacity, stability etc. For this goal we synthesized boron doped lithium vanadium oxide and lithium manganese oxide blends via sol-gel method. After calcination and carbon coating processes resulting cathode materials were characterized by physical and electrochemical methods. Then resulting materials were used as cathode for lithium ion battery.

Keywords: Lithium Ion Battery, Cathode, Sol-Gel Method

DESIGN OF MARCHING FORTIFICATION SYSTEMS FOR MINE GALLERIES

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Abstract
The rapid development of technology throughout history has also closely affected mining fortification systems. Over time, the need for fortification structures with high specific strength, high applicability, creating continuity in excavation, depending on the purpose, begun to increase. In line with these requirements, the fortification system, which is the current technology frequently used in mining foot machines has also started to be used in the main galleries. Fortification systems designed with low weight and high strength materials offer the possibility of continuity in excavation by allowing the establishment of fortification structures without interrupting the excavations.There is a cost arising from R&D studies on the fortification systems. However, with the developments in engineering systems, the structures at the idea stage can be easily transformed into a model, edited and tested, through computational science and engineering, which has become increasingly popular in recent years.Thus, a great profit is obtained in cost and time with the realization of R&D studies. In this study, the design, and modeling of the marching fortification structure, which is planned to be used in the galleries of the mining facility named Ömerler B, located in the Kütahya - Tunçbilek coal basin are explained. Within the scope of the study, the fortification system planned to be implemented was designed with on-site examinations, taking into account the required standards. Then, through the Solidworks program Premium module, it was modeled in three dimensions; information on its suitability for galleries, usability and occupational health safety was obtained.

Keywords: Marching Temporary Fortification System, Design, Mining

MONITORING AND CONTROL OF SENSORS WITH SMART PHONE

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Abstract
With the development of technology, the need for remote control of devices has started to increase rapidly. With the Internet of Things, many studies have been carried out in different fields today, and organizations in different industries use this technology to increase efficient work and provide better quality customer service. Controlling devices over a network is possible with the Internet of Things. IoT devices can be controlled from environments such as web or mobile. In this study, a device has been developed to monitor gas, temperature, flame and humidity sensors with smart phones. In the developed device, the IoT application was made using the ESPDuino-32 development board containing the ESP32 wifi module. In the developed device, GSM communication has been added together with the Internet of Things. With the developed device, the sensor data on the device is monitored in real time via the mobile application connected to the network. At the same time, in case of not being connected to the network or when there is an internet problem, any sensor information in the device is sent with a message notification. Thus, with the low-cost device, remote control and monitoring of data information was realized using gas, flame, temperature and humidity sensors.

Keywords: ESP32, Sensor, GSM, IoT

LITHIUM SALT DOPED POLY(EHA-CO-MMA) AS A CONDUCTIVE POLYMER ELECTROLYTE FOR LITHIUM ION BATTERIES

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Abstract
Lithium ion conducting polymer electrolytes are materials of great scientific and technological importance. Traditional Li-ion battery technologies, based on liquid electrolytes, suffer from unsatisfactory safety level. Polymer electrolyte-based, all solid state Li-ion batteries are regarded as better option and are believed to replace traditional technologies in the majority of prospective applications. 1This is mainly motivated by their advantages overconventional liquid electrolytes, such as flame resistance, flexibility and lowcost in design, functioning as a separator.2To achieve this goal, ascientific and technological breakthrough in the field of lithium conducting polymeric materials is strongly desired. In this study we synthesized lithium salt doped Poly(ethylhexylacrylate-co-methylmethacrylate) via free radical polymerization. After synthesis resulting polymer was precipitated in hexane for removing and unreacted products and unwanted oligomers. After purification process resulting polymer was characterized by FT-IR, 1H-NMR, GPC, DSC,SEM and TGA. Then polymer was blended with several ratios of lithium salts and used as electrolyte in Li-Ionbattery.

Keywords: Lithium Ion Battery, Polymer electrolyte, Conductive Polymer

INVESTIGATION OF THE HOT FORMABILITY OF 30MNVS6 STEEL BY RECKWALLS PROCESS

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Abstract
The ball joint, which is a part of automotive suspension systems, is essentially an important component that ensures the continuity of the axle connections and helps the automobile joints to remain as a whole without separating in motion. Both the metallurgical structure and the surface quality of ball joints produced by forging directly determine their fatigue life. A ball joint that does not contain high level of roughness, deep scratch and crack on the surface is expected to operate in longer service conditions. Therefore, the forging technique used in ball joint production is important. In this study, it is focused on the production of ball joints from 30MnVS6 steel using conventional drop forging and the Reckwalls process providing a better mold filling. Initially, 30MnVS6 steel was multiple hot drop forged at about 1250 ° C and non-filling defects on the part were investigated. It was aimed to reduce these defects with the Reckwalls process, and critical zones including fold and forging non-filling defects was determined by using the Simufact software program. The design of the part-specific Reckwalls mold for the Reckwalls process was made with the VeraCad design program. As a function of the crushing ratios in the software, the Reckwalls process was completed in one step and the metallurgical and mechanical competences of the part were determined. By Rekwalls process, the parts having no surface defects were manufactured and not only reduction in raw material weight for final part production but also time per part production were achieved in the production line.

Keywords: 30MnVS6 steel, forging, Reckwalls process, characterization

IMAGE PROCESSING AND OBJECT TRACKING APPLICATIONS WITH SPIDER ROBOT

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Abstract
Within the scope of this project, it is aimed to perform Image Processing and Object Tracking Applications with Spider Robot.Within the scope of the purpose, the autonomous movement of the robot was made with object recognition and object tracking applications. Image processing application was made with Raspberry Pi 3 B + board. The image processing algorithm was made using the OpenCV library in Python language. Motor controls are made with Arduino development board. The motion control is done by transferring the object detection data coming from Raspberry Pi board to Arduino board. UART communication protocol is used for the communication of the two cards. The robot skeleton moves forward or backward with PWM signals, with the servo motors on the 4 arms operating in a certain order. PWM signals are created with the data to be transferred from the Raspberry Pi board to the Arduino board.The program that detects the object starts the motion by positioning the servo motors. Motor movements are shaped according to the position of the object to be tracked on the camera screen. Within the scope of the project, it was aimed to detect and track a red object.

Keywords: Image processing, OpenCv, Raspberry Pi, Arduino, PWM, Spider Robot, Servo-motor, UART.

EX-SITU CONSERVATION OF SOME ENDEMIC TREE AND SHRUB TAXA IN THE PROVINCE OF ANKARA AND ITS SURROUNDINGS IN THE NATIONAL BOTANICAL GARDEN OF TURKEY

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Abstract
Botanical gardens are recreation and plant science areas created by grouping various plants with similar biotopes that are labeled with their botanical names in a planned manner, where activities such as conservation, cultivation, exhibition and educational activities are carried out. Within the scope of the 2020 business plan of the Project (TAGEM/1952) carried out in The National Botanical Garden of Turkey with the support of The General Directorate of Agricultural Research and Policies; It is aimed to take some of the endemic tree and shrub taxa that grow naturally in Ankara and its surroundings ex-situ in The National Botanical Garden of Turkey. In the field studies carried out in the summer and autumn months of 2020 for 8 endemic taxa in Ankara and Afyon locations; Herbarium samples of these plants were created, and 7 taxa were transplanted by removing at least 1 living individual from each taxon from their natural location and taking them into pots with their own soil. The endemic plants brought to The Botanical Garden were kept in the shading greenhouse during the winter season and the necessary maintenance work was carried out. In May 2021, it was planted in the areas in The Botanical Garden, which has similar characteristics with the biotopes of endemic individuals taken in pots, and an observation book was started to be kept. As a result of this study, adaptation of endemic taxa to an area outside the area will be achieved. In addition, in the following years, ex-situ conservation of these plants will be carried out within the scope of the project, and the awareness of future generations will be ensured and their use in urban landscapes will be encouraged by exhibiting these plants in The National Botanical Garden of Turkey.

Keywords: Endemic plant, ex situ conservation, The National Botanical Garden of Turkey

USAGE PURPOSES, ADVANTAGES, DISADVANTAGES AND SYSTEM COMPARISONS OF VRF AND FAN COIL SYSTEMS

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Abstract
Nowadays lots of heating and cooling systems are available. Considering their advantages, VRV / VRF and Fan Coil (FCU) systems are the most commonly used. VRF, stands for variable refrigerant flow rate. It is an air conditioning system in which multiple indoor units are controlled by a single outdoor unit. A VRF air conditioning system controls the flow of refrigerant depending on the changing capacity needs of the building. It consists of the outdoor unit outside the building and indoor units used to cool and / or heat the living spaces inside the building. They are large systems consisting of fan coils, air handling units and boilers. In this system, the cooled water, not the building cooling liquid, is transmitted to the fan coils to cool the spaces. The hot water heated in the boiler in winter conditions is circulated in the same fan coils instead of cold water. In summer, the air inside the building is cleaned, refreshed and humidified. Air handling units can operate entirely with indoor air as well as with up to 100% outside air. In this study, it is aimed to introduce VRF and Fan Coil systems, advantages, disadvantages, to apply both systems to the sample project, to evaluate the design results and to present suggestions, if any.

Keywords: Heating, cooling, energy efficiency, fan coil, VRF system

TURKISH WARFARE CAPABILITY AND READINESS ON CYBER SPACE AS A FIFTH DOMAIN

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Abstract
The concept of Cyber Space, which has found more place in the literature in recent years, is considered as a field of military discipline in this study. It's a space made by humanity itself. In the Cyber Space the humanity has increased its presence every day and is considered the fifth military discipline after land, air, sea and space. It can be clearly observed that the world's economically and technologically leading countries began to devote much attention to this concept and increase their investments. Cyber Space is explained in conjunction with cases of history to present day precedent in how vulnerability and activities affect the security of countries and produce consequences. The prevention and deterrence strategies of countries exist on cyber space are discussed. An assessment was made according to results of Turkey's situation, approach to this concept and warfare capability. The aim of this study is to ensure up to date assessment of Turkey's current situation and to lay a groundwork on what's needs to be done in the future.

Keywords: Cyber Space, Cyber-Warfare, Fifth Domain, National Security

REMOTE MONITORING OF THE LOCATION OF ELECTRIC FUSES WITH SIM800 GSM MODULE

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Abstract
Electric fuses are one of the protection electrical apparatus used in domestic and especially industrial applications. It has many advantages over other protective electrical apparatuses such as small dimensions, fast action and low costs. Electric fuses; Open / closed positions may change due to natural events such as instant short circuits, loose connections, voltage fluctuations, leakages, rain, lightning. System continuity should also be ensured when the open / closed position of the electrical fuses changes. Especially in the production facilities, if the problems caused by the open / closed position change of the electrical fuses are not found / fixed within minutes, they can cause financial damage to the enterprises. According to the method suggested in this study, the users are informed and early intervention is provided by informing the open / closed position of the electrical fuses. In this way, it is aimed to prevent possible material and moral damages and disruptions in system continuity caused by the safe use of electricity. In this article, the method of remotely monitoring the on / off positions of electrical fuses with SIM800 Gsm module communication and wifi communication methods is described.

Keywords: electrical contact, electrical fuse, gsm / wifi communication methods, system continuity

INVESTIGATION OF THE USE OF CATALYTIC MEMBRANES IN CHEMICAL REACTIONS

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Abstract
In recent years, important studies have been carried out to develop clean and green technologies, especially in the chemical industry, in order to reduce the damage caused by mankind to the environment. Catalytic reactions are the base of the chemical industry. Around 90% of chemical production are catalytic reactions. Membrane science and technology is an important field in which more environmentally friendly, cleaner production and separation methods have been developed. Membranes are basically semi-permeable barriers used in separation processes in industry. In addition, they can be combined with catalysts and can be used in reaction processes. Catalytic membranes are a type of membrane in which the separation and reaction process takes place simultaneously in a single unit. They are an alternate solution to catalyst problems in the chemical industry. These types of membranes are also environmentally friendly and are called green catalysts. They can be polymeric, ceramic and metallic depending on the production material and utilization conditions. The catalyst can be impregnated or coated on the membrane in the production of catalytic membranes. In addition, the membrane by itself can function catalytically. Catalytic membranes have advantages such as increasing reaction efficiency by breaking the reaction balance and shifting the conversion to the products side in reaction processes, reducing separation costs, non-corrosive, easily separating the catalyst from the environment, reusing and environmentally friendly. Catalytic membranes are especially used to increase reaction efficiency in esterification, transesterification and acetilization reactions. It is used in the production of fuel additives such as solketal by acetilization, in the production of biodiesel by transesterification, in the production of environmentally friendly organic compounds used in the petroleum, pharmaceutical and food industries by esterification. In this study, basic information about catalytic membranes were given. Their Production, advantages and reactions were mentioned.

Keywords: Catalytic membrane, Catalytic reactions, Green catalysts

A FUZZY LOGIC SYSTEM FOR AIR DEFENSE SYSTEM

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Abstract
Fuzzy logic is an approach that enables us to bring more accurate solutions to the problems we encounter in real life, contrary to classical logic. Because in daily life there is not only black and white, gray is also included in our life. After it was put forward by Zadeh in 1965, it has been used in many fields such as engineering, construction, genetics, medicine etc. Air defense systems came into our lives with the use of warfare just after the invention of the aircraft and are indispensable weapon systems for nations to ensure the sovereignty of their airspace. With the developing weapon technology in recent years, the importance of air defense systems has also increased and they have had to operate in more complex environments. Therefore, they are expected to eliminate air threats in these complex environments. In such environments, it is necessary for air defense systems to obtain an accurate and fast threat assessment and rating. In this study, fuzzy logic system is used to evaluate air targets for an air defense system. By the help of experts, parameters such as speed, distance, altitude, radar cross-sectional area, jamming signal level of air targets determined to test all kinds of scenarios are fuzzied with the software developed on the MATLAB program and the level of the threat was determined. Although there are studies on air threat assessment using fuzzy logic in the literature, these studies are generally carried out for ship air defenses, and the most important threats, ballistic missiles and cruise missiles, and missiles launched from aircraft are ignored. Thanks to the developed model, the threat levels of various numbers and types of air targets directed towards air defense systems operating in complex air warfare environments are determined and the survival of air defense systems is ensured.

Keywords: Fuzzy Logic, Air Defense Systems, Threat Assessment

ESTABLISHING A PORTABLE EXPERIMENTAL SETUP TO DETERMINE THE EFFICIENCY OF PHOTOVOLTAIC SYSTEMS AT DIFFERENT GEOGRAPHICAL LOCATIONS AND CONDITIONS

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Abstract
It is critically important to efficiently use the renewable energy sources. There are a lot of research on efficiency of photovoltaic systems (PV) known to be the most important one of these sources. Our country has recently made substantial investments in PV systems, as well as other countries. Many researches have been carried out on the R&D activities related to panel production for the PV systems. Also, the geographical location and conditions required for the establishment of these systems have commonly investigated since it is a good potential topic for future research. There are a few parameters that can affect system efficiency as well as the panel efficiency for the PV panels. Some of the parameters are radiation, tilt angle of panel, humidity, temperature, wind speed, shading factor, contamination level. Several works have been conducted to investigate the effect of these parameters on the system efficiency of PV systems. The main aim of this work is to establish a mobile experimental setup, that is easy to set up, so as to examine the changes in these parameters depending on the geographical location. It is possible that this experimental setup can quickly be installed with less human effort, and accordingly, the effect of several parameters on the system efficiency can be examined and the measurements can be made at various geographical locations. In this experimental setup, two 100 W PV panels, two 60 Ah Jel batteries, a 1500 W invertor, a mobile weather station, a data logger, a radiation meter, a multimeter, two tripods, a water gage are used. This study is carried out within the scope of a master thesis supported by a project funded by Karamanoglu Mehmetbey University (BAP 07-YL-20).

Keywords: Photovoltaic system, Portable experimental setup, Solar energy, Efficiency.

NUMERICAL INVESTIGATION OF DIFFERENT IMPELLER TRIMMING METHODS USED TO REDUCE MOTOR POWER IN CENTRIFUGAL PUMP

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Abstract
Depending on the operating conditions, centrifugal pumps can operate at different points except the best efficient point. Despite the decrease in pump performance, electric motors with low power can be preferred in order to produce low-cost solutions. The most common method to decrease the electric motor power is reducing the impeller diameter by trimming. With this method, the pump's head, flow rate and the power of the pump are reduced. Energy consumption in centrifugal pump systems constitutes an important part of the cost. For this reason, it is of great importance to achieve the highest efficiency in all studies done on the pumps. When the studies in the literature are examined, it is seen that there are different impeller trimming methods. A single stage centrifugal pump belonging to SEMPA pump company was used for the study. In this study; the effect of four different impeller diameter reduction methods, namely straight, oblique, circular and triangle trimming, on pump performance was investigated using Computational Fluid Dynamics (CFD). CFD analyzes were performed using the Ansys Fluent program. 2950 rpm cycle, 170 m^3/h flow rate and 18 kW power values are determined as the operating point of the pump. Impeller diameters were reduced by 4 different trimming methods until the same power values were obtained and the determined pump performance values were compared. As a result of the study; for the pumps with reduced impeller diameter using straight, oblique, circular and triangle trimming method, 30.45 m, 30.03 m, 29.07 m, 29.36 m head and 78.45%, 77.42%, 75%, 75.64% pump efficiency were obtained, respectively. When the results are examined, it is seen that the highest efficiency is obtained in the method of reducing the diameter of the impeller with straight trimming at the same power for the selected pump.

Keywords: Impeller Trimming, CFD, Pump Efficiency, Centrifugal Pump

ASSESSMENT OF MASONRY BUILDINGS SEISMIC PERFORMANCE

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Abstract
The seismic performance of masonry buildings, which have a significant place in the existing building stock, should be determined to continue their use, considering today's living standards. Especially it is possible to safely transfer these structures, which can be in cultural heritage, to future generations, by determining the seismic risk accurately and quickly and by repairing and strengthening it when necessary. The earthquake resistant design of new masonry buildings and the determination of the safety of the existing building stock can be made according to the provisions of the current Turkish Building Earthquake Code (TBEC-2018). However, these risk assessments are a long and costly process. In order to shorten this process, Principles of the Determination of Risky Structures (PDRS-2019) has been published, and thus, according to this regulation, the seismic safety of existing buildings can be determined in a short time and at a low cost. In this study, the design and application differences of these two regulations related to masonry buildings have compared. Within this context, the seismic performance of Piyalepaşa Konağı in Kdz.Ereğli has been evaluated as an example. A three-dimensional analytical model of the building has created according to on-site measurements and observations. The seismic parameters specially selected for the location of the building have taken into consideration and analyzed by the equivalent earthquake load method. From the results of the analysis, displacements and internal forces caused by the weight of the building and earthquake forces have been determined. According to the results obtained, the seismic performance of the building has determined and the regulations were compared.

Keywords: Masonry buildings, TBEC-2018, PDRS-2019, seismic performance.

INVESTIGATION OF SOLID PARTICLE EROSION BEHAVIOR OF LOW CARBON HARDENABLE STEELS MODIFIED BY THERMO-CHEMICAL METHODS

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Abstract
The 16MnCr5, 17NiCrMo7-6 and 20CrNiMo2 steels selected as the main material in this study are low-carbon hardenable steels and are suitable for a surface treatment that can be made in a relatively low cost, especially well known, such as gas cementation. With deep cooling after gas cementation and low pressure cementation processes, surface and subsurface microstructural and mechanical properties will be further improved in these steels with different hardening ability in cross section; microstructural components and their effects on mechanical properties will be studied, especially solid particle erosion behavior of steels according to each surface treatment condition will be studied. As it is known, in the mentioned steels, there can be a residual austenite volume up to a certain depth from the surface besides the layer hardened at a certain depth after conventional surface treatments. Depending on the residual austenite volume after deep cooling in steels cemented under different conditions, the wear resistance of the surfaces against hard abrasives against solid particle erosion at varying angles will be determined. Within the scope of the study, it will be possible to associate surface modification and wear behavior with metallurgical analyzes and hardness measurements to be made from the surface to the center. Thus, for experimental steels that are widely used in machine-manufacturing technology, solid particle erosion tests to be performed under different conditions by performing three different surface modification processes and cryogenic processes, and the ideal base material and surface that allows long-life operation with minimum wear under service conditions for the aforementioned applications. Procedure technique will be determined.

Keywords: 16MnCr5 steel, 17NiCrMo7-6 steel, 20CrNiMo2 steel, surface treatment, microstructure, hardness, solid particle erosion

COMPARISON OF SCALING METHODS TO THE DESIGN SPECTRUM OF EARTHQUAKE RECORDS

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Abstract
One of the methods used in the analysis and design of the structures is the analysis method in the time domain. If this method is used, perhaps the most important variable of the analysis is the quality of the acceleration record to be selected. It is possible to mention three different sources for obtaining acceleration records. These are the acquisition of acceleration records from artificial means, simulation or real earthquakes. Acceleration records obtained from real earthquakes stand out among these, because of their advantage in creating the effect during a possible earthquake. Regardless of the way the records are obtained, what is important is that the spectrum of the recording represents the design spectrum defined in the regulations. It is seen in almost all records that the spectra of the accelerograms recorded from real earthquakes are not representative of the regulation design spectra in its current form. For this reason, the acceleration records must be adapted to the design spectra defined in the regulation with various scaling methods. In this study, the acceleration records obtained from real earthquakes were scaled "for a period" and "for a period interval" in the time domain. Moreover, these records were scaled in the frequency domain and adapted to the design spectrum, and the advantages and disadvantages of these scaling approaches were weighed.

Keywords: Earthquake acceleration recording, scaling in time history, scaling in a period interval, scaling for a period

LOAD FREQUENCY CONTROL IN NATURAL GAS CYCLE POWER PLANTS USING GENETIC ALGORITHM

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Abstract
One of the most preferred electrical energy generation systems for distributed energy generation is the generation systems that include gas turbines with simple and low investment costs. In these systems, the turbine shaft is turned by mechanical power and mechanical energy is converted into electrical energy. It is desired to transfer the energy of the produced electrical energy, but in these processes, the frequency value is always desired to remain constant. In load changes, the frequency value tends to change depending on the rotation speed of the turbine shaft surrounded by mechanical energy. However, by providing an active power balance, the changes in the frequency value are tried to be eliminated. This process is called load frequency control. The second task of the load-frequency control is to ensure a balanced generation by sharing the demanded load among the power systems connected to the grid in order to reduce operating costs. In this study, load-frequency Proportional-Integral-Derivative (PID) control was performed in the gas cycle power plant using the Genetic Algorithm (GA). A simplified mathematical model of the gas turbine create in Matlab / Simulink environment was used in the studies. Simulation results were obtained for the control of the gas turbine when loaded with different loads. The PID controller coefficients were obtained by a classical method called Ziegler-Nichols Method (ZNM) and then were obtained by GA known as optimization method. The results obtained with ZNM and GA methods were compared. It has been observed that the time to reach the reference speed of the system operated with the PID coefficients calculated by GA is faster than the ZNM method. According to the results obtained in the study, GA method is proposed as an alternative and reliable solution method for frequency control in gas conversion plants.

Keywords: Gas turbine, Optimization, Genetic algortihm, Load-frequency control

VIRTUAL REALITY BASED PEDIATRIC PHYSICAL THERAPY APPLICATION DESIGN

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Abstract
Virtual reality is defined as the artificial environment that the contents prepared in the computer are transferred to the end users through special equipment. Nowadays, virtual reality, education, health, medicine, and is used in the defense industry. It is predicted that virtual reality will be one of the most important technologies in the future. In recent years, it has been observed that the studies on virtual reality have focused on health and medicine. It is seen that the studies carried out are aimed at showing the contribution of virtual reality to health and medical services. Using virtual reality, especially as a tool to assist in physical therapy and rehabilitation process offers great contribution. In this study, a virtual reality simulation that can be used with parallel bar mechanism has been carried out using real-time position data obtained from ultrasonic distance sensor and infrared motion sensors. The data obtained from the sensors were processed and transferred to Unity-3D via Ardunio. With the location data transferred to Unity-3D, the position of the end user on the parallel bar mechanism was determined and the behavior of the objects in the virtual reality environment was checked according to the user's position. As a result of the study, a simulation that can be used with the parallel bar mechanism and provides real-time virtual reality experience to end users has been obtained. It is planned to use the simulation obtained in the study in physical therapy and rehabilitation processes.

Keywords: Virtual Reality, Sensors, Physical Therapy and Rehabilitation

EFFECT OF TEMPERATURE ON ALUMINIDE COATING OF INCONEL 625 SUPERALLOY

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Abstract
In this study, Inconel 625 nickel based superalloy widely used in high temperature applications was coated with aluminide at different temperatures using the halide activated pack cementation method. In order to provide low temperature high activity conditions in the coating structure, the subsrate material was embedded in a powder mixture of 40 Al + 10 NH4Cl + 50 Al2O3 (wt.) and processed at 700 ° C for 2 h. Superalloy was processed in a similar powder mixture at 1000 ° C for 2 h to achieve high temperature low activity conditions. After the diffusion coatings, microstructural and mechanical characterization studies were carried out on the surfaces and coating sections, and all changes depending on process temperature were examined. A thicker (425 µm) aluminide coating was obtained in the coating section by providing a more dense coating on the substrate surface at high temperature, as well as more aluminum (~ atomic-75%) accumulation. The low temperature coating structure had Ni3Al2 phase having a hardness value of 810 HV0.5. The coating obtained at high temperature was harder (1126 HV0.5) and had NiAl composition.

Keywords: Inconel 625, aluminide coating, characterization, microstructure

STRUCTURAL AND FUNCTIONAL SUCCESSIONS OF SOIL MICROBIOME IN THE FOREST ECOSYSTEMS

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Abstract
Forests are expected to face significant pressures in the future from climate change. Data from long-term monitoring can be used to answer questions on the impacts of climate change on forest ecosystems as well as the feedback of forests to the climate. Microbiological properties have been monitored in seven forest sites over a period of 10 years. Soil samples were collected in the late spring and autumn and were characterized by measuring the biomass of soil microorganisms, respiration, enzyme activities, diversity of soil microbiome, and successional processes. The general regularities of changes in the functional and taxonomic structure of soil microbial communities at different stages of the succession process have been established. It is noted that soil biomass and phylogenetic diversity are markers of succession processes in the soil microbiome. Endogenous heterotrophic succession cause increasing biomass of oligotrophic bacteria and decreasing phylogenetic diversity. Diversity is indicating, how changed microbial communities during succession. After 10 years, the fluctuation of microbial diversity at different altitudes was the same. But it should be noted that in 2008 the Shannon index fluctuated within (4.54-2.10), after 10 years the values of this index decreased by an average of 15% and ranged from 3.45 (at altitude 500 m.a.s.l) to 1.72 (at altitude 1100 m.a.s.l). Analysis of functional successions of soil microbiome showed the presence of hot spots in edaphotopes at an altitude of 700-800 meters. In these edaphotopes significantly decreased the level of catalase from 6.68±0.13 to 4.92±0.22 (cm3O2/gr. soil per 1 min), and the level of invertase from 26.10± 0.69 to 20.46± 0.41 (mg. glucose/gr.soil). Long-term monitoring of soil microbiome allowed determines climate change effect on structural and functional successions of soil microbiome in virgin forests.

Keywords: microorganism, activity, succession, soil, ecosystem.

EVALUATION OF PERSONAL DEVELOPMENT STUDIES OF ENGINEERING STUDENTS IN THE CONTEXT OF INDUSTRY 4.0

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Abstract
Industry 4.0 brings innovations and radical changes in many areas regarding production and management processes in business life. In line with these changes, the skills required in the workforce differ. In this research, the studies of undergraduate engineering students to prepare themselves for the changing business life with Industry 4.0 were evaluated. Firstly, with the brainstorming technique, the studies of candidate engineers for the preparation for business life in the age of Industry 4.0 were compiled and a survey was designed. In this survey, questions were asked such as whether the candidates did various studies to prepare for business life and how ready they felt. The results of the survey applied to a total of 104 candidate engineers were analyzed using the C&RT decision tree technique, one of the data mining analysis methods, and the independent sample t-test. As a result of the analysis made using the SPSS Clementine package program, it was concluded that the candidates who made the following four studies felt more prepared for business life in the Industry 4.0 age: (1) taking part in applied projects (2) reading books and articles on various sectors, (3) doing voluntary internships, (4) receiving foreign language education.

Keywords: Industry 4.0, Self-improvement, Preparation for business life, Data mining

IMPROVING HYDROPHOBICITY, ROUGHNESS AND HARDNESS PROPERTIES OF SPECIMENS OF BRONZE MARINE PROPELLER BY LASER SURFACE TREATMENT

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Abstract
Laser surface treatment processes are very modern technology that allows the properties of the base metal to remain intact while changing the surface properties. While the mechanical properties of the base metal meet the design needs, the need to develop properties such as corrosion resistance, roughness, hydrophobicity, hardness and cavitation resistance which is significantly dependent on hardness can be met by this method. Ship propellers are frequently exposed to cavitation erosion as they operate at high speeds in sea water, which is an ionic and corrosive environment. On the other hand, the roughness of the propeller surface and its hydrophobic properties which are largely affected by the roughness values, significantly affect the ship's resistance. In this study, the changes in the roughness, hardness and hydrophobic properties of the surface of bronze propeller material samples were investigated by using laser surface treatment methods. A super hydrophobic surface has been obtained.

Keywords: Laser surface treatment, corrosion, ship propellers

A STUDY ON THE PURCHASING BEHAVIOR OF CONSUMERS IN ELECTRONIC COMMERCE

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Abstract
Today, internet usage has become widespread with the rapidly developing and cheaper technology. As a result, electronic commerce, which is the adaptation of traditional commerce to the virtual environment, has become quite accessible and its volume has increased rapidly. Electronic commerce enables people to shop easily without spending much time, thanks to its availability 24/7, as well as a wide range of products and easy comparison between different sellers. With the increase in the number of businesses that customers can choose in electronic commerce, which has multiple advantages, competition between businesses has become inevitable. Businesses operating in electronic commerce need to know what customers want in order to gain competitive advantage. From this point of view, this study attempts to determine the factors that affect people's purchasing decision when they shop online. For this purpose, a survey on online shopping behaviors was designed and applied to 110 people from different sociocultural backgrounds. The data obtained were analyzed with the help of SPSS package program. As a result of the study, valuable information was obtained about whether and how much the demographic characteristics of consumers have an effect on their purchasing behavior. This information is very important for electronic commerce sites and companies to develop effective strategies.

Keywords: Electronic commerce, Purchasing behavior, Demographic features

ANALYSIS OF FAILURES OCCURING IN DRINKING WATER DISTRIBUTION SYSTEMS

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Abstract
Malfunctions in drinking water distribution systems cause serious water losses, deterioration of water quality, damage to consumer comfort, increase in public expenditures and traffic density, as well as interruption of system continuity. This situation makes it necessary to examine the malfunctions in the water distribution systems in the past and to solve the measures to be taken against possible future malfunctions in an optimum way with the least cost and labor force. In this study, in the selected regions of Kocaeli province, the location of the faults occurring in a certain period, the pipe type used in the network, the construction date of the line and seasonal data were analyzed and density maps were designed for faults with the ArcMap program. It is aimed to make predictions of water administrators regarding possible future malfunctions by using the density maps developed. In addition, with the results obtained from the maps, it is aimed to determine the investment areas in line with the budgets of the administrations, to prioritize the investments and to reduce water losses.

Keywords: Water distribution systems, fault analysis, water losses, fault density map, ArcMap.

INVESTIGATION OF CUTTING FORCES IN MACHINING OF AA 7075 ALLOY APPLIED WITH EQUAL CHANNEL ANGULAR PRESSING AND AGING PROCESES

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Abstract
In this study, Equal Channel Angular Pressing (ECAP), which is one of the Severe Plastic Deformation (SPD) methods and aging processes were used to improve the mechanical properties of AA 7075. The main purpose of the study is to examine the cutting forces that occur during the machining of the material obtained after the processes according to the starting materials. AA7075 material is a light and economical material whose mechanical properties can be improved by various methods. For this reason, it is a material frequently used in aerospace, aviation and automotive industries. In this study; homogenization, T6 heat treatment, ECAP, ECAP + artificial aging processes were selected as pre-test parameters for AA 7075 material. Loadcell integrated lathe was used for cutting force measurements in the machining process. In turning processes, depts of cuts are respectively 0.05mm, 0.1mm, 0.15mm, 0.20mm and 0.25mm were used as parameters. As a result of studies, the highest cutting force was seen in AA7075 T6 material, while similar cutting force values were observed in other groups. However, the increase in depth of cut parameter in all groups increased the cutting forces.

Keywords: AA7075, Severe Plastic Deformation, ECAP, Cutting Force, Aging

EFFECT OF ALLOY ELEMENTS ON CORROSION BEHAVIOR OF CAST CORSON ALLOYS

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Abstract
https://orcid.org/0000-0001-9792-9614 In this study, the effects of aluminum and magnesium alloying elements on the corrosion behavior of Corson (Cu-Ni-Si) alloy with high Ni: Si ratio were investigated. Within the scope of the study, billet materials with a composition of Cu-6.68Ni-1.67Si, Cu-6.22Ni-1.30Si-0.13Al and Cu-6.29Ni-1.31Si- 0.14Mg (wt.%) were produced by casting. Since aluminum and magnesium were dissolved in the copper matrix, both the amount of β-Ni 3 Si phase increased along the boundaries in the solidification structure and a finer cast structure were obtained by alloying. The formation of very finely dispersed δ-Ni 2 Si precipitates from the copper rich solid solution in the matrix was also observed. Corrosion behavior of alloys in saltwater environment was determined by potentiodynamic measurements in typical three electrode systems. The measurements showed that the corrosion current densities of casting alloys modified with aluminum and magnesium addition decreased and the corrosion resistance of cast alloys increased as a result of alloying.

Keywords: Corson alloys, solidification, microstructure, corrosion

SARS-COV-2 INFECTIONS AND MUTATIONS IN ANIMAL SPECIES

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Abstract
Coronaviruses, which are among the significant viruses in terms of animal health and have a large host spectrum among animals, have also caused important epidemics in terms of human health in the last twenty years. Unfortunately, SARS-CoV-2 infections ongoing to spread, despite all the measures taken globally. Because coronaviruses have high mutation rates and their genomes are large compared to RNA viruses, mutations that allow them to cross interspecies barriers are thought to be more common. Especially, mutations in the spike protein that binding to the host cell are important. For SARS-CoV-2 infections, the hypothesis that coronaviruses that infect bats or pangolins become mutated and acquire the ability to infect humans has been emphasized. Despite all the studies, the role of animals in the natural cycle of the virus is not fully known. Considering other coronaviruses that infect humans, it is possible that domestic or wild animals may be reservoirs and/or final hosts in SARS-CoV-2. OIE has reported SARS-CoV-2 in some domestic and wild animals. Cat, dog, mink, lion, and tiger are some of the animals infected with SARS-CoV-2. According to OIE, SARS-CoV-2 infections in animals are generally asymptomatic. Respiratory symptoms have been recorded in some cases, but secondary infections are also present in many of these cases. It is also reported that there is usually close contact with a SARS-CoV-2 positive human. To date, no SARS-CoV-2 infection transmitted from animals to humans has been reported. However, the presence of significant mutations in virus isolates obtained from animals is known. In the virus isolates obtained from animals, the presence of more than 100 mutations that cause amino acid changes or deletion mutations is reported. As a result, it is important to follow up mutations in order to better understand the course of the disease.

Keywords: Animal species, coronavirus, mutations, SARS-CoV-2.

CATALYTIC TREATMENT OF METAL CUTTING FLUID BY SUPERCRITICAL WATER OXIDATION

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Abstract
Metal Cutting Fluids (MCF) are used for lubrication and cooling in metal parts production and machining industries. Different chemicals such as anti-foams, anti-oxidants, anti-corrosion additives, biocides, and fungicides are mixed into MKS to be efficient and long-lasting at high production speed. Due to the oil and additives, it contains, MCF is harmful to the environment. MCF must be treated before being disposed of in the environment and many different methods have been used for treatment. One of the methods for the treatment of MCF is the supercritical water oxidation (SCWO) method. Compared to other methods, SCWO is a low-cost, highly efficient, and eco-friendly technology. In this study, catalytic treatment of metal cutting fluids by supercritical water oxidation method using Ru/Al2O3 and Pt/Al2O3 catalysts was investigated. In the presence of two different catalysts, the effect of temperature (400-600°C), pressure (20-35MPa), and reaction time (60-150s) on treatment efficiency was investigated. It has been determined that the optimum reaction conditions are 500°C temperature, 60s reaction time, and 25 MPa pressure. There has been a large increase in treatment efficiency in the temperature range of 450-500°C, with a reaction time of the 60s and pressure of 25 MPa, the treatment efficiency on the basis of total organic carbon (TOC) for Pt/Al2O3 and Ru/Al2O3 catalysts increased from 30% to 55% and from 62% to 72%, respectively. Over 90% conversion has been achieved for both catalysts at 600°C. It has been determined that the reaction time has a negligible effect on the treatment efficiency. It was observed that the effect of pressure increase on treatment efficiency was in the reverse direction. After determining the optimum conditions, the effect of the initial TOC concentration of the MCF was investigated and it was observed that its effect on the treatment efficiency was very low. At the same time, purification was carried out using an oxidizing agent and 99% purification efficiency was obtained when a 2:1 ratio of the amount of oxidizing agent to in the initial concentration of MCF was used. It has been observed that the use of Ru/Al2O3 catalyst provides higher purification efficiency than Pt/Al2O3 catalyst.

Keywords: Supercritical water, Catalytic supercritical water oxidation, Metal cutting fluid treatment

THE EFFECT OF DIFFERENT WORD REPRESENTATION METHODS ON TEXT CLASSIFICATION

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Abstract
Nowadays, data has reached quite large dimensions. The fact that a great part of this data consists of text data has made the studies in the field of text processing very important and popular. In natural language processing, words must be converted into numerical values so that the computer can understand them. Feature selection is very significant for classification. In this study, the effect of text representation methods on classification success has been revealed. In this study, a comparison was made according to the accuracy criteria using chi2 square (CHI), word2vec, glove, and fastText algorithms on the AG News data set. During this comparison, Gated Recurrent Unit (GRU) artificial neural network model was used as the classification algorithm. The chi2 square method showed the best success with a rate of 92% in the study. When we observed other methods, fastText 89%, word2vec 85% and glove 82% success.

Keywords: Text Classification, Natural Language Processing, Deep Learning, Word Representation Vectors, CHI, Word2vec, Glove

N-N AND N-H BOND ACTIVATIONS OF HYDRAZINE MOLECULE ON FE EMBEDDED GRAPHENE SURFACE: A DFT STUDY

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Abstract
In this study, the nature of bonding of hydrazine (N2H4) and N-H and N-N bond activation on (Iron) Fe_g4x4 embedded graphene surface were investigated by Density-functional theory calculations. The bond lengths of optimized surface were calculated and Bader load analysis was performed. In addition, the charge density regions of the surface were shown with a different map of the electron density of the surface.Two possible reaction pathways were considered for the mechanism of cleavage of the hydrazine molecule. The activation energy calculations required to break the N-H and N-N bonds on the reaction pathway were calculated using the CINEB method. Our results show that while the N-N bond on the Fe graphene surface breaks spontaneously, an energy barrier of 1.32 eV is required for the N-H bond. This information can be used for Fe-based catalyst research and technologies.

Keywords: : Fe-Embedded Graphene, N2H4 Decomposition,

SYNTHESIS OF POLYMER BRUSHES FOR ANTIBACTERIAL SURFACE APPLICATIONS

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Abstract
Microbial contamination is a significant issue in various areas, especially in the food industry (Kinali-Demirci, 2021). Therefore, the need for antimicrobial agents that will effectively inhibit the growth of microorganisms at every step from production to the marketing of foods is increasing day by day, and new strategies to prevent microbial contamination are needed (Dong et al., 2016; Kinali-Demirci at al., 2020). In this presented study, to overcome microbial contamination, reusable antibacterial surfaces were developed. The prepared surfaces were characterized with XPS, FTIR, AFM, water contact angle, and ellipsometer measurements. Finally, the antibacterial properties of the prepared surfaces were investigated. This new strategy has a potential to be used in the development of high-performance and low-cost, easily applicable coatings, especially for food-related environmental surfaces. References Dong, Y.-S., Xiong, X.-H., Lu, X.-W., Wu, Z.-Q., Chen, H. 2016. Antibacterial surfaces based on poly(cationic liquid) brushes: Switchability between killing and releasing via anion counterion switching, J. Mater. Chem. B, 4, 6111–6116. Kinali-Demirci, S. 2021.Cross-linked polymer brushes containing N-halamine groups for antibacterial surface applications, Polymers, 13, 1269. Kinali-Demirci, S., İdil, O. Disli, A., Demirci, S. 2020. Adenin derivatives for regenerable antibacterialsurface applications based on A-T base pairing, ChemistrySelect, 5, 10128-10134.

Keywords: Antibacterial surface, polymer brushes, surface modification

IMPROVING DURABILITY TO ENVIRONMENT AND CLIMATE CONDITIONS IN VEHICLE EMBLEMS

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Abstract
Logos of vehicle brands that are used in industrial industry sector where today's vehicle technologies are developing are produced using plastic raw materials in terms of cost and recyclability. Due to exposure logos to effects of natural conditions and corrosive environment for many years, losses in their visual and static properties occur, chrome plating for plastic logos to eliminate these losses and to produce more resistant, mechanical properties. By performing pre-nickel coating process, mechanical adhesion is increased in adhesion of coating on product. Since this process is costly, competitors perform this process more cost-effectively, with lower quality than market standards. Compared to this process method, they are made with different alternative processes and durability of logos is measured with special test method called Copper Accelerated Salt Spray Test (CASS), these logos are expected to provide strength of approximately 60 hours under certain conditions. These products have to be imported from abroad, as there are no establishments that provide optimal strength value of 60 hours in Turkey by following existing coating procedure. Production of logos will be carried out within ALBA Plastik, experimental studies will be carried out to ensure that CASS test provides reproducible 60-hour strength. With this test, goals such as stability of chemicals supplied from abroad, use of highquality chemicals and increasing layer thicknesses to desired level in terms of activeness in corrosion test will be achieved on basis of work packages and sustainability will be ensured by developing optimal production recipes for product. No deterioration in appearance of piece after cycles specified for providing thermal resistance are completed; Improvements to avoid undesirable consequences such as coating defect, bending, collapse, deformation, cracks, blistering or delamination will be emphasized, parts will be developed in accordance with ASTM B533 standard (A) values for ABS plastics.

Keywords: Plating on Plastic, CASS Test, Chrome Plating, Electroplated Plating.

ENERGY EFFICIENCY APPLICATIONS IN CHEMICAL FERTILIZER FACTORIES

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Abstract
The industry, economy and population are growing rapidly in the world and in our country. In parallel with this growth, the energy need is constantly increasing. On the one hand, countries develop various policies in order to obtain the energy they need from alternative sources uninterruptedly, cheaply and securely; on the other hand,it tries to reduce greenhouse gases released into air. For these reasons, energy efficiency, which is the cheapest, most environmentally friendly and domestic resource is one of the basic policies of countries. In this study, the productions and process flows of the fertilizer production facilities were investigated, and the resource efficiency, energy losses and process efficiency issues in the fertilizer industry were examined. In addition productivity-enhancing projects were carried out in the fertilizer industry using 6 sigma and kaizen methodologies. As a result of the studies, energy savings are achieved without sacrificing product quantity and quality. As another outcome of the study, it was seen that maintenance costs decreased.

Keywords: Energy, energy efficiency, fertilizer plants, maintenance,

INVESTIGATION OF TRIBOLOGICAL PROPERTIES OF AL-6110-A-T4 ALUMINUM ALLOY

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Abstract
Al-6110-A-T4 piston and cylinder liners are used in environments exposed to abrasion at high temperatures. Therefore, it is important to determine the tribological properties of these alloys at high temperatures. In this study; The temperature and friction coefficient changes of Al-6110-A-T4 aluminum alloy at different rotational speeds were investigated. Friction tests were performed in a pin-on-disc tester with 5 N load and three different disc revolutions (300 rpm, 400 rpm and 500 rpm) according to ASTM G99 test standard. The temperature formed on the contact surface during the test was measured instantaneously with a thermal camera. It was observed that the temperature values of the samples increased with the increasing speed as the number of cycles increased. The sample temperatures measured at 400 rpm and 500 rpm were increased by 14.02% and 17.89%, respectively, according to the temperature value obtained at 300 rpm. It has been found that increasing temperature decreases the friction coefficients slightly.

Keywords: Al-6110-A-T4 material, pin-on-disk friction test, temperature, wear.

KOCAELI PROVINCE BETWEEN TUTUNCIFTLIK - KARAMURSEL CARRYING DANGEROUS GOODS CARRIAGE FROM THE SEA (BY CAR FRONT) INVESTIGATION IN TERMS OF ENERGY

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Abstract
Within the scope of this study, the traffic in Kocaeli city was observed and it was ensured that there was an effort to transfer the traffic of rubber-wheeled vehicles loaded with dangerous substances from the sea, which is thought to be a solution to possible traffic congestion in TEM, D-100 and D-130, and this was examined in terms of energy. The proposed regulation results are also planned to be submitted to Kocaeli Metropolitan Municipality as a proposal to be included in the Kocaeli Transportation Master Plan. In the studies carried out, it was seen that hazardous materials were filled and exited from Kocaeli region by using D-100, TEM and D-130 roads, alternative routes were investigated in terms of traffic density and energy transfer in this region. In addition to the highways that have developed in recent years, it has been planned to evaluate the sea transportation among the alternatives and has been evaluated by the working managers and teams. The most useful of these alternatives is planning to transport vehicles loaded with Dangerous Goods from the sea by car ferry.

Keywords: Transportation, Energy, Alternative Transportation, Kocaeli Körfez

OBJECT TRACKING IN UNDERWATER VEHICLES WITH ANFIS METHOD

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Abstract
The aim of this study is to redesign the control system of an unmanned underwater robot that can accompany and follow the movements of divers in underwater research and exploration. Firstly, it will determine the target it will follow with the underwater image processing methods. Then he will determine the movements that will make with the fuzzy logic method. After that, it will provide its own movement by sending energy to the motor system. Within the scope of this thesis, previously Under the leadership of Assoc. Dr. Serhat YILMAZ, we renewed the underwater robot's control system, which is implemented with the PID control system, with the fuzzy logic control system, which we think will give more efficient results. Thanks to the developed fuzzy logic algorithm, it is ensured that the turns are sharper and in the desired forms compared to the PID controller. Fuzzy logic application was developed with Python programming language and programmable Raspberry Pi electronic board.

Keywords: Object Tracking, ANFIS, Fuzzy Logic, Underwater Vehicles, İmage Processing

LES MODELING OF WEAKLY TURBULENT RAYLEIGH-BÉNARD CONVECTION USING MIXED-SCALE SGS MODEL: EFFECT OF THE MODEL PARAMETER A

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Abstract
Mixed-Scale subgrid-scale model was applied to Rayleigh-Bénard convection in weakly turbulent regime. For this purpose, Mixed-Scale model was combined with an efficient non-dissipative, variable density and viscosity numerical method and implemented into an in-house solver written based on an object-oriented library PETSc. Effect of the model parameter α, which controls the influence of resolved turbulent velocity fluctuations and length scale, on the turbulence statistics was investigated. It was found that model predictions on the stand-alone turbulence statistics for temperature and velocity were not significantly affected by α. However, some advanced turbulence statistics such as turbulent kinetic energy and turbulent heat flux have showed dependece on α. Turbulent kinetic energy distribution near thermal boundary layers was poorly estimated by use of the value of α suggested in the literature. Moreover, turbulent heat flux in the core region was over-predicted. Finally, the integrated Nusselt number values, that represent the overall behavior of the model, were found comparable to the reference Direct Numerical Simulation result for all α's. When using the Mixed-scale model, the value of α should be considered, at least, as a fine-tuning parameter and carefully adjusted in simulations for improved accuracy.

Keywords: Large Eddy Simulation (LES), Subgrid-Scale (SGS), Mixed-Scale model, Rayleigh-Bénard turbulent convection

OIL AND WATER ABSORPTION CAPACITY OF WHEAT, RICE AND GRAM FLOUR POWDERS

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Abstract
The aim of this study is to evaluate oil and water absorption capacity of wheat, rice, and gram flour. The experiment was designed using Taguchi experimental model for observing best formulations of food powders. The experiment was design according to following formulations i.e. wheat flour (100, 80, 75, 70, 20 and 10 g), rice flour 100, 80, 75, 70,25,20,10 g) and gram flour (100, 80, 75, 70, 25,10g) were used to make food powder formulations. Each sample with formulations were analyzed for physiochemical and functional properties. The observations were determined (i.e., moisture, loose bulk density, tapped density, ash, dry matter, gluten, and functional properties swelling capacity, least gelation concentration (LGC), foam capacity (FC), foam stability (FS), emulsion capacity (EC), oil holding capacity (OHC) and water holding capacity (WHC)). The present study was resulted that the highest value of moisture, loose bulk density, tapped density, dry matter, gluten, swelling capacity, least gelation concentration, foam capacity, foam stability, emulsion capacity, water holding capacity and oil holding capacity were 55.54%, 0.97 g/mL, 0.98, 66.46%, 0.98%, 4.42%, 32.28%, 15.67, 26.77%, 20.24%, 22.49%, 20.22 g of water/g of flour and 22.53 g of oil/g of flour, respectively. The obtained results showed a remarkable wheat, rice and gram flours of water holding capacity and oil holding capacity, which indicates the enhanced hydrophobic character of proteins in the flours. The results were confirmed under industrial conditions, and can be considered as favorable for the preparation of food powder formulations. This research will help the industry to make easy flow during food powder processing and packaging at national and international level to make easy flow.

Keywords: Cereal flour, food powders, formulations, foaming capacity, gluten.

DEVELOPMENT OF BISCUITS INCORPORATED WITH CARROT AND COWPEA POWDER

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Abstract
The aim of this research was development of biscuits incorporated with carrot and cowpea powder. The experiment was designed by using Taguchi experiment model. Each biscuits sample were formulated by using carrot and cowpea powder, calculated from the biscuit treated with 80% wheat flour 15% cowpea flour and dried carrot powder were added for effect availability of biscuits and physiochemical parameters. Each treatment was subjected for physiochemical analysis. Fat, protein, moisture and ash, the result showed for treated T3 showed statically significant for parameters. Biscuits prepared with various formulations were given to the panel of seven judges for sensory analysis. Samples of biscuits incorporated with 80% wheat and 20% carrot and cowpea powder showed best for colour, flavour, aroma, respectively. It is concluded from the study that the use of carrot powder and cowpea given high nutrition delicious tasty and it is appropriate for new variety which makes a low price.

Keywords: Cowpea, carrot, formulations, biscuits.

ROULETTE FITNESS-DISTANCE BALANCE BASED AQUILA ALGORITHM (RFDB-AA)

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Abstract
Nowadays, new heuristic algorithm studies for the solutions of optimization problems are increasingly interested to attention. In particular, due to the increasing complexity of applications that involving optimization problems in the engineering, there is a need for new algorithms that can be alternative to the algorithms in the literature. The Aquila Algorithm is one of the heuristic algorithms which represents the behavior of an eagle species in natüre that provide effective results for such problems. However, the advantages of a heuristic optimization algorithm as well as its weaknesses stand out in optimization problem applications. For this reason, there may be a need for configurations such as improving the search capabilities or the solution quality of an optimization algorithm. In this study, an enhancement that based on Roulette Fitness Distance Balance (RFDB) is proposed to improve the search capability and solution quality of the Aquila algorithm. The proposed improvement results have been compared with the original Aquila algorithm to show the efficiency of the algorithm's performance. The comparative results showed that the RFDB-AA can be used effectively in solving optimization problems.

Keywords: Roulette fitness-distance balance (RFDB), Aquila algorithm (AA), Heuristic algorithm, Optimization

OVERVIEW OF TRADITIONAL METHODS AND ARTIFICIAL INTELLIGENCE TECHNOLOGY IN LUNG NODULE DETECTION

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Abstract
A Lung cancer is one of the leading diseases that cause death in the world. It is important to be diagnosed as early as the treatment of lung cancer as well as the fight against cancer-related deaths. We recommend the use of artificial intelligence in medical imaging technology instead of the currently used Computed Tomography, X-ray, Positron Emission Tomography images manually by a radiologist and Needle Biopsy methods that give the patient physical and mental difficulties. It should be kept in mind that lung nodules that are ignored and overlooked in the process of reporting medical images by the physician will turn into cancer cells and cause deaths due to not being diagnosed at an early stage. The cancer-fighting process will be carried out more easily through fully automatic software that perform analysis and classification of CT, PET and X-Ray images currently used. The dissemination of artificial intelligence technology software with high sensitivity and success in detecting and classifying nodules will prevent medical errors in the current system, and referral and orientation processes will be managed more accurately by healthcare facilities that do not have radiologists. This will be more advantageous in terms of manpower and cost for hospitals with heavy workloads. The advantages and advantages of medical imaging technology over existing lung nodule diagnosis methods by means of a fully automated system designed using artificial intelligence algorithms are explained in this study.

Keywords: Nodule Detection, Computed and Positron Emission Tomography, Biopsy, Artificial Intelligence Technology

POLİFENOL KAYNAĞI ZEYTİN AĞACI (OLEA EUROPAEA L.) YAPRAĞI'NIN ANTİOKSİDATİF VE ANTİ-İNFLAMATUVAR AKTİVİTELERİ

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Abstract
Zeytin ağacı (Olea europaea L.) yaprağı'nın antioksidan, antihipertansif, antiaterojenik, antiinflamatuar, antifungal, antiviral, antimikrobiyal gibi birçok biyoaktif özelliklere sahip olduğu bilinmektedir. Bu çalışma kapsamında, Saccharomyces cerevisiae'de karbon tetraklorür (CCl4)'ün neden olduğu oksidatif hasara karşı zeytin ağacı (Olea europaea L.) yaprağı'nın immünomodülatör rolleri araştırılmıştır. Çalışmada 4 grup oluşturulmuştur. Çalışma grupları şu şekildedir: (1) Kontrol Grubu: Sadece maya ekilen grup; (2) CCl4 Grubu: CCl4 (15 mM) verilen grup; (3) Zeytin Ağacı Yaprağı Grubu: Zeytin ağacı yaprağı (% 10) verilen grup; (4) Zeytin Ağacı Yaprağı + CCl4 Grubu: Zeytin ağacı yaprağı (% 10) + CCl4 (15 mM) verilen grup. Saccharomyces cerevisiae kültürleri 1, 3, 5 ve 24 saat boyunca 30 °C'de geliştirildi. Lipit peroksidasyonu malondialdehit (MDA), glutatyon düzeyleri (GSH), hücre gelişimi ve katalaz (CAT) aktivite ölçümleri spektrofotometre ile belirlendi. Total protein yoğunlukları SDS-PAGE elektroforezi ve Bradford protein yöntemi ile belirlendi. Elde edilen sonuçlara göre; CCl4 grubu ile kıyaslandığında hücre gelişimi (1, 3, 5 ve 24 saat), total protein sentezi, GSH ve CAT aktiviteleri (24 saat) zeytin ağacı yaprağı gruplarında artarken, MDA seviyesi (24 saat) azalış göstermiştir. Zeytin ağacı yaprağı'nın güçlü antioksidan etkileri sayesinde hücre içinde oluşan oksidatif stresi azaltarak hücre büyümesini ve total protein sentezini arttırdığı belirlenmiştir.

Keywords: Oksidatif hasar, Polifenol, Saccharomyces cerevisiae, SDS-PAGE, Zeytin ağacı yaprağı

ALOE VERA YAPRAĞI'NIN ANTİOKSİDAN ETKİSİNİN SACCHAROMYCES CEREVİSİAE KÜLTÜRÜNDE BAZI MOLEKÜLER PARAMETRELERLE ARAŞTIRILMASI

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Abstract
Aloe vera eski medeniyetler tarafından binlerce yıldır kullanılan şifalı bir bitkidir. Tropikal ve subtropikal bölgelerde yetiştirilen Aloe vera; gri yeşilden parlak yeşile kadar değişen renklerde, üçgen şeklinde etli yapraklara sahip ve yapraklarının kenarlarında küçük beyaz dişler bulunan, kaktüs benzeri bir bitkidir. Aloe vera yaprakları; antioksidan, antibakteriyel, antifungal antimikrobiyal, antienflamatuvar, antidiyabetik, antikarsinojenik özellikleri, bağışıklık ve gastrointestinal sistem üzerindeki olumlu etkileri ve nemlendirici ve yaşlılık karşıtı özelliklerinden dolayı sağlık ve kozmetik alanlarında kullanıldığı bilinmektedir. Bu çalışmada sispilatin ile Saccharomyces cerevisiae'de oluşturulan oksidatif hasara karşı Aloe vera yaprağının koruyucu rolü araştırılmıştır. Çalışmamızda dört grup oluşturulmuştur. Gruplarımız: (1) Kontrol Grubu: Sadece maya ekilen grup; (2) Aloe Vera Yaprağı Grubu: Aloe vera yaprağı (% 10) verilen grup; (iii) Sispilatin Grubu: Sispilatin (15 mM) verilen grup; (iv) Aloe Vera Yaprağı + Sispilatin Grubu: Aloe vera yaprağı (% 10) ve sispilatin (15 mM) verilen grup. Saccharomyces cerevisiae kültürleri 1 saat, 3 saat, 5 saat ve 24 saat boyunca 30°C'de geliştirilmiştir. Hücre gelişimi (1 saat, 3 saat, 5 saat ve 24 saat), lipit peroksidasyonu MDA (malondialdehit) analizleri (24 saat), glutatyon (GSH) seviyesi (24 saat) ve katalaz aktivitesi (24 saat) spektrofotometre ile belirlenmiştir. Total protein değişiklikleri SDS-PAGE elektroforezi (24 saat) ile tespit edilmiş ve Bradford metodu ile hesaplanmıştır. Elde edilen sonuçlara göre, Aloe vera yaprakları gruplarında sispilatin grubu ile kıyaslandığında hücre gelişimi, GSH seviyesi, katalaz aktivitesi ve total protein sentezi artarken, MDA seviyesi azalış göstermiştir. Sonuç olarak, Aloe vera yaprağının antioksidan etkisinden dolayı Saccharomyces cerevisiae kültüründe oksidatif hasarı azaltıp, hücre büyümesini ve total protein sentezini arttırıcı bir role sahip olduğu belirlenmiştir.

Keywords: Aloe vera, Sisplatin, Oksidatif hasar, Protein, SDS-PAGE

ENERGY STORAGE TECHNOLOGYS IN SHIPS AND APPLICATIONS

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Abstract
Ship technology is constantly evolving mainly in both power supply and propulsion source topology aspects. Ship propulsion systems are moving from mechanical to electrical and hybrid systems. Recently power systems on ships have been integrated into electrochemical storage and power systems from combustion. Modern electric ships act as an island micro grid with a power capacity of up to 100 MW and consist of many generators including energy storage and renewable resources. All-electric ships will be more efficient by replacing the conventional mechanical system with electric drive. The all-electric ship concept has become standard by adapting it to large shipyards and large cruise ships in the world, and is also applied to ferries and special types of some boats. In this study, energy storage systems on ships are evaluated and suggestions for future studies are presented. New applications for advanced energy storage include connections to ship power systems. Storage systems help to work to avoid inefficient zones of engine operation. It also prevents low load operations at the port and reduces emissions from the engine. At the same time, advanced energy storage provides backup standby power with zero fuel consumption. In this way, the cost of operating the ship can be minimized, the balance of energy and power is achieved in the ship's power systems, and greenhouse gas emissions can be limited. In parallel with rapid developments in transport technology, port networks in the future should be carefully designed to meet the needs of modern ships. In this study, the advantages and disadvantages of propulsion and power supply technologies on ships are presented. Propulsion systems and power supply applications of ships are examined.

Keywords: Energy storage, ship, hybrid power system, battery

EFFECTS OF CACO3 ADDITION ON THE MECHANICAL PROPERTIES OF AL/AL2O3 COMPOSITE FOAMS

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Abstract
Currently, metal foams are used in the automobile industry due to their shock-absorbing and lightness properties. Metal foams are composited with ceramic-based additives to increase their strength properties. In this study, closed-cell composite metal foam production was carried out by the powder metallurgy method. For this purpose, CaCO3 (7 wt.%, 12 wt.% and 17 wt.%, respectively) was added to the Al/Al2O3 powder mixture containing 5% Al2O3 by weight, after the grinding process. The CaCO3 doped Al/Al2O3 powder mixture was wet mixed and pulverized in the mortar after drying in the oven. Three separate powder mixtures were formed under 40 MPa and first sintered at 550 °C for 1 h and in the second stage at 1000 °C for 4 h. The density, mineralogical analysis (XRD), microstructure (SEM) and compressive strength of the samples were investigated. The effects of CaCO3 agent on the mechanical and microstructural properties of the composite metal foam filter under certain production conditions were investigated.

Keywords: Composite metal foam, Powder metallurgy, Ceramic

THE EFFECT OF SCIENCE ACTIVITIES CONDUCTED WITH DESIGN-BASED RESEARCH APPLICATIONS ON 8TH GRADE STUDENTS' THE 21ST CENTURY SKILLS

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Abstract
In this study, the effect of design-based application activities prepared within the scope of science lesson on the 21st century skills of middle school 8th grade students was investigated. 65 students attending the 8th grade of secondary school, determined through random sampling, participated in the study. During the research process, the case study method was preferred. For this reason, qualitative research approaches were used in some parts of the application and quantitative research approaches were used in some parts of the application. As a data collection tool in the study, "21st Century Skills Scale","Observation Form","Interview Form" and "Design Practices Evaluation Rubric" were used. The research was applied for 6 weeks. Descriptive, inferential and content analysis were used while analyzing the research data. As a result of the research, it was determined that students had difficulty in comprehending the design-based application activities at first, and there were positive significant differences and improvements in skill and attitude levels after adapting to the activities. In addition, it was observed that there was an improvement in students' critical thinking, analyzing, making inferences, designing original products, and working with the group.

Keywords: 21st Century Skills, Design Based Research, Science Education

DIGITAL DETAIL ENHANCEMENT IN THERMAL IMAGES USING AVERAGE FILTER

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Abstract
Images obtained using thermal cameras are called thermal images. Thermal images are used in many fields today. However, these images have low contrast, generally blurry, critical ratings of noise and not having clear edges. Therefore, it is very significant to increase the details in the scene (Digital Detail Enhancement), to be able to distinguish the targets in the scene, to reduce the noise and to sharpen the edges in IR image processing. This study proposes an approach in which details and contrast are enhanced to improve thermal images. In the proposed approach; Firstly, The thermal image is seperated into low and high frequency components using the mean filter. An adaptive double plateau histogram equalization method is applied to the low frequency component. Gradual gain is applied to the high frequency component. These two images are then combined, holding the enhanced low frequency and high frequency components. During these processes, 12 bit or 14 bit resolution high dynamic range IR images are reduced to 8 bit resolution.When the experimental results are examined, it is observed that the proposed method gives good results when compared with other methods.

Keywords: Mean filter,thermal image,digital detail enhancement

ANTI-ROLL BAR DESIGN ON INDEPENDENT RUBBER SUSPENSION AXLE OF CARAVANS

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Abstract
Caravans are systems that meet the accommodation needs of people while traveling and provide transportation from one place to another. In recent years, caravan use has become increasingly popular. However, the handling characteristics of caravans are different from other vehicles. It is based on responding to the requirements rather than being performance-oriented due to both their designs and structures. For these reasons, caravans and other towing systems are one of the most susceptible vehicles to sway and swing when cornering. Several stabilization systems have been developed for caravans to eliminate these problems. These systems can be mechanical, electronic or electromechanics. However, they increase system costs. Anti-roll bars, which are frequently used in vehicles, can be developed for caravan systems and can be applied in a cost effective manner. In this study; after the anti roll bar was designed to adapt to the caravan axle, the deformation analysis under-load was performed with the finite element method. With the anti-roll bar developed for caravans, it is aimed to reduce the sway that often occurs in caravans and to increase cornering performance as a low-cost stabilization system.

Keywords: Caravan, anti-roll bar, stabilization system

APPLICATION OF DATA MINING ALGORITHMS FOR CUSTOMER RECOMMENDATIONS IN RETAIL MARKETING

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Abstract
It is an obligation to follow the sectoral developments closely and being contemporary in this manner fast developing in today's industrial world. Usage of data mining procedure provides the chance to keep their place in the competitive race and to utilize the new opportunities of technological improvements is one of the useful equipment for organizations. In this study the aim is to understand the client portfolio and to create positive effects on the present consumer relations together with providing advantages at the markets having similar consumer configuration. The data mining procedures have been one of the most studied topics in the last period by starting from the purchasing habits of clients to increase the market share by employing the special products, using some strategic marketing tools to keep the present consumers and effective methods to reach new consumers for raising the retail sales charts. In this study, by using the results of analysis performed on the purchasing habits of 185 clients of a retail sales firm, to perform some works to make chances on the marketing strategies is planned. The aim to use the data mining procedures in this study is to exhibit the hidden patterns in the data set which cannot be discovered by using classical statistical methods. The data mining applications will provide to find the true groups when classifying the grouped data according to their similarities. The data set consisted demographic features of the clients and various information about products is analysed with the data mining procedures, including Decision Tree, Random Forest, Gradient Boosted Tree, ID3, CHAID, Naive Bayes, K-NN, and Logistic Regression. The performance of these methods will be compared by employing the most suitable performance of algorithm to the data set for defining the purchasing trends of selected clients. The main goal is established to raise the effectiveness level of sales and marketing strategies of the firms by preparing suitable suggestions. To realize this aim, new materials will be supplied to minimize the time and money loss for trial and error and to take fast actions for developing new strategies to increase the volume.

Keywords: Data Mining, recommendation, retail marketing

ANALYSIS OF CRITERIA IN MARKET MANAGEMENT VIA AHP METHOD

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Abstract
Today, the number of businesses operating in the market sector is gradually increasing. In this environment, there are criteria that managers should pay attention to in order to receive more demands from their competitors. It is important to determine which of these criteria are and how important. In the study, it is aimed to determine the importance of the important criteria affecting the market management in a supermarket that is a food retail sector business. The main and sub criteria were obtained as a result of the literature search. For these purposes, the data was obtained by interviewing the managers of the market in question. Analytical Hierarchy Process (AHP) method was used in modeling the interaction between criteria of six main criteria and twenty-two sub-criteria considered in market management and determining the criterion importance levels. The weights of pairwise comparison matrices were obtained by AHP method. As a result of these analyzes, the most important main criteria targeted by managers are; is customer satisfaction. The criteria to be discussed later were determined as shelf / aisle management in order of importance, in-market components, non-market components, and market image risks. An increase in sales is expected by enabling the market managers to focus on the important criteria to be considered in management.

Keywords: Analytical Hierarchy Process, Market Management, Customer Satisfaction.

MEASURING SUPPLY CHAIN RISK FACTORS IN A FURNITURE MANUFACTURER

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Abstract
The success of businesses in their sector depends largely on their performance in their supply chains. In this context, by determining and preventing the risks in the supply chain, performance will be increased and one of the steps that will positively affect the prestige of the enterprise will be taken. The purpose of thisstudy is to show supply chain risk factors in a furniture manufacturer on a model and determine relatively important factors among them. In this study, the criteria and sub-criteria were determined from the literature and a hierarchical structure was developed with the Analytical Hierarchy Process (AHP) Method. The model in question consists of 5 main criteria and 20 sub-criteria. The data were obtained through face-to-face interviews with experts working in a furniture manufacturer and evaluating the paired comparison matrices explained to them. The results were obtained by calculating the weights of the pairwise comparison matrices. The most important of the supply chain risk factors are the risk of epidemics, information technologies risk, currency fluctuation risk, and occupational accidents risk. The least important risk factor was the risk of conflict over the contract. This study is expected to contribute to business managers by making businesses more sensitive to potential risks in their supply chain decisions.

Keywords: Risk Factors, Supply Chain Management, Analytical Hierarchy Process.

ELECTROCHEMICAL PROPERTIES OF AZINE-BRIDGED BINUCLEAR ZN(II), CO(II) AND CU(II) PHTHALOCYANINES

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Abstract
The investigation of the electrochemical properties of phthalocyanine complexes are very useful for electrochemical applications such as electrocatalytic, electrochromic and electrosensor. Therefore, electrochemical studies on azine-bridged binuclear Zn(II), Co(II) and Cu(II) phthalocyanines have been reported in this work. Cyclic voltammetry (CV) and square wave voltammetry (SWV) measurements were carried out with Gamry Interface 1000 potentiostat/galvanostat. The working electrode was a Pt disc with a surface area of 0.071 cm2. A Pt wire served as the counter electrode. Saturated calomel electrode (SCE) was employed as the reference electrode. Electrochemical grade tetrabuthylammonium perchlorate (TBAP) in extra pure dichloromethane (DCM) was employed as the supporting electrolyte. Cyclic and square wave voltammetry revealed well-defined Pc ring and metal-based oxidation and reduction processes within the complexes. Cyclic and square wave voltammetries show that while Zn(II)Pc gives up to theree Pc ring-based reduction and one Pc ring-based oxidation processes having diffusion-controlled reversible electron transfer properties, Co(II)Pc represents one Pc ring-based and one metal-based reduction and one Pc ring-based and one metal-based oxidation processes having diffusion-controlled reversible and quasi reversible electron transfer characters. Cu(II)Pc gives two Pc ring based reduction processes in addition to the two Pc ring-based oxidation process. The derived electrochemical parameters of the complexes, presented in Table 1, are in agreements with similar complexes in the literature.

Keywords: Phthalocyanine, electrochemical, cyclic voltammetry, square wave voltammetry

PREVENTING SILICATE DEPOSITE IN REINJECTION WELLS IN GEOTHERMAL POWER PLANTS

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Abstract
Geothermal energy is an important resource for power and heat generation. The most important operational problem of geothermal power generation facilities is scaling. As the mineral-rich underground waters rise to the earth, the solubility of silicon and minerals in the water decreases and precipitation occurs with the decrease in pressure, acidity and temperature. In geothermal systems, a layer is formed in the pipe due to precipitation. This layer is called scale or deposit. This scale reduces the electricity generation efficiency as it reduces the internal diameter of the plant's piping systems. Silica is one of the most common mineral deposits encountered in the geothermal development process. In order to reduce or completely eliminate the potential of the geothermal fluid to create silicate deposits, the effect of different dosages has been examined in order to ensure the continuity of the efficiency of the power plants and to minimize the cleaning need of the reinjection wells by developing a product with polycarboxylic acid with high silica inhibition feature.

Keywords: geothermal, scale, inhibitor, stibnit, energy efficiency

STUDY OF THE USAGE OF OPTIMIZERS IN ROOF TYPE SOLAR POWER PLANTS IN TERMS OF PRODUCTION EFFICIENCY, SAFETY AND COST.

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Abstract
Increase in world population and rapid advances in technology results in the increase of the demand of energy by human beings day by day. In addition to having many negative effects, fossil fuel resources are depleted. Regarding these problems, utilization of clean, environmental friendly and sustainable renewable energy becomes a must. Solar energy is the base for these resources. With the beginning of the widespread utilization of the solar power, construction of land and roof type solar power plants has increased both in the world and in our country. In this study, the recently built roof type solar power plant located in Kocaeli, Çayırova province with an installed capacity of 1410 kWp / 1200 kW has been simulated with PVsyst software and energy production is analyzed. In addition to this simulation, the present system is resimulated using optimizers and optimizer compatible inverters without changing the location, number, power and brand of the solar panels to make energy production analysis. The production statistics and performance of system for 20 years of time period were examined and investment cost, also period of return of investment and energy costs were calculated for both of the simulation studies. Besides, advantages and disadvantages of the simulated system with optimizer have been determined. The effect of using optimizer in system design to productivity, cost and safety is examined in comparison.

Keywords: Solar Power Plant, Production Effectiveness, Optimizer, Feasibility Analysis.

CHARACTERIZATION OF THE STAINING PROBLEM IN COPPER COATED LOW CARBON STEEL SHEET

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Abstract
Copper is a coating material widely used in automotive, electronics and medical applications thanks to its electrical conductivity, corrosion resistance, deformation and anti-bacterial properties. In addition, copper plating process is applied to steels for various brazing applications in the automotive industry. In this study, the analysis of a coating problem seen in electrolytic copper coated low carbon steel materials produced for brazing application and adversely affecting the brazing process was carried out. Surface roughness measurements, section Vickers hardness measurements, optical microscope surface and section studies, SEM / EDS analyzes were performed on samples taken from problem free (OK) and problematic (NOK) sheets. As a result of the analysis made; It has been determined that the problem is the Cu oxide regions formed on the Cu coating surface and this oxidation is caused by the C-based impurities embedded in the surface of the steel. It was concluded that the existing surface preparation baths were insufficient for NOK sheets. As a result of the ultrasonic cleaning process applied to the problematic sheet, the problem has been prevented.

Keywords: Electroplating, Coating Failure, Electron Microscopy, Optical Microscopy, Oxide Characterization

POSSIBLE EFFECTS OF PHENOXYETHANOL ON SKIN AND THE USE OF PHENOXYETHANOL CHEMICAL AS A PROTECTIVE IN COSMETICS

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Abstract
Cosmetic products appear almost everywhere in our lives. Cosmetic products can be classified as products that are mainly produced to heal, care and beautify a person. Cosmetic products contain water in their contents during their production process, causing deterioration of the formulations and contents of cosmetic products, it is observed that chemicals that have a protective effect at certain concentrations are used as protective materials throughout the world. Microorganism contamination in the content of the products introduces unignorable health risks for the consumer. In order to prevent microbial growth in the products, it is recommended to add some substances with different chemical structures, known as preservatives in cosmetic product formulations. However, since the preservative substance would possess properties that bond with the cosmetic contents and has a wide spectrum, possibilties of allergen and irritaion on the consumer has to be considered. Based on the existing safety data for the concentration of 1%, the use of phenoxyethanol in cosmetics is considered safe. In experimental studies on phenoxyethanol, maintaining the concentration value specified by the Cosmetics Regulation slightly above (1% or close), the rate of observation of factors such as urticaria and dermatitis seem to be increasing. Due to these effects, the use of phenoxyethanol in a period such as the next 10 years may vary on the content basis, the concentration value can be reduced or the damages such as paraben can be determined more clearly later. In this study, the usage areas of phenoxyethanol (C8H10O2), which is frequently used as a preservative in cosmetic products in recent years, the possible toxic effects on the skin over time, and the interpretation of the data obtained from animal experiments will be made.

Keywords: Cosmetics, Cosmetic Preservatives, Phenoxyethanol, Skin

EFFECTS OF MANEB FUNGICIDE ON THE GROWTH OF EISENIA FETIDA

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Abstract
Fungicides are used to protect agricultural products and to minimize the damage which caused by fungal pathogens, These chemical products used in high amounts in our country, besides being used in the fight against pests, also harm non-target organisms like earthworms, soil bacteria etc. No study was found on the toxic effects of maneb fungicide on Eisenia fetida (red California worm). E. fetida is a widely used model organism and is preferred especially in studies examining the effects of environmental pollutants. The aim of this study was to determine the median lethal concentration (LC50) value and to investigate the effects of different concentrations of maneb on E. fetida. Six different concentrations of maneb (500, 600, 700, 800, 900 and 1000 mg/kg dry soil) and control group (no treatment) were used. The experiment procedure was carried out acoording to OECD guidelines. Three replicates were performed for each concentration. The final weights of the worms, morphological abnormalities and the mortality percentage were recorded on the 14th day.The statistical analysis of data was performed using SPSS 26.0 statistical software (SPSS Inc., Chicago, IL, USA). Probit analysis was used to determine LC50 value. Data for growth-inhibition level was subjected to one-way analysis of variance (ANOVA) using Fisher's least significant difference test for contrast of the differences among treatment means. The data were displayed as means ± standard deviation (SD), and p-values less than 0.05 were considered statistically significant. LC50 value was 872 mg/kg. It was observed that maneb caused an increase in growth inhibition parallel to increasing concentration. While the average weight of the worms in the control group increased by 27 %, the average weight decreased by 40 % at a concentration of 1000 mg / kg. All of the worms were examined and no observed any morphological abnormalities except just one from the highest concentration.It was determined that the worms exposed to the maneb were negatively affected in the artificial soil. Based on this, it was revealed that maneb fungicide may cause toxic effects on non-target organisms. Alternative biological methods may be preferred in pest control.

Keywords: Eisenia fetida, Fungicides, Growth Inhibition, Pesticides.

INVESTIGATION OF PROPERTIES OF AL2O3 ADDED SUPERHYDROPHOBIC EPOXY FILMS ON DIFFERENT SURFACES

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Abstract
Superhydrophobic surfaces with properties such as self-cleaning and water repellency have high surface roughness and low surface energy. The superhydrophobic surfaces has been started to be widely used in many areas such as especially hydromarin, automotive, biomedical, textile etc. with increasing interest in recent years [1-4]. It is important that the coating application's fast, scalable and economical in obtaining a superhydrophobic surface. Considering these criteria, adding nanoparticles to the polymer matrix to provide micro/nano roughness is an easy and low-cost method. Although there are many studies on micro and nanoparticles such as TiO2 and SiO2, new inorganic particles are also needed [5-7]. In this study, superhydrophobic epoxy coatings were obtained on different surfaces by using hydrophobic inorganic aluminium oxide (Al2O3) nanoparticles. Epoxy solutions containing different concentrations of nanoparticles were coated on glass, metal and roughened metal surfaces by dip coating method. The water contact angles of the surfaces were determined via the KSV CAM 100 contact angle meter device, and the surface morphologies were determined via a scanning electron microscope (SEM). Corrosion resistance was observed by testing it in the corrosion cabinet. The obtained surfaces show superhydrophobic properties with a contact angle greater than 150 °.

Keywords: Superhydrophobic Surface, Al2O3, Epoxy Polymer

MESO-MECHANICAL MODELING OF ELASTICITY MODULE OF CEMENT BASED COMPOSITES CONTAINING LIGHT AGGREGATE

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Abstract
Since there is an increase in types of concrete used in industry, it is becoming more important to know the factors that cause and affect on the crack formation and propagation in concrete. It is possible to determine where, in which conditions and how the failure of concrete will occur with using the principles of fracture mechanics. Thus, the determining the modulus of elasticity of concrete is vital and it is known that the application of meso-mecahnical modeling gives a realistic approach. There are several known methods, mainly parallel and serial models, to estimate the modulus of elasticity of cement based material. In all methods, only the moduli of elasticity and volume ratios of the aggregate and cement paste are taken as parameters while the the particle size and other surface properties of the aggregate are not taken into account. In this study, the meso-mechanical modeling based on the fracture mechanics were used to estimate the modulus of elasticity of cementitious composites containing various types of aggregates and low water/cement ratio. In order to determine the effect of cement paste and aggregate on the modulus of elasticity of concrete, meso-mechanical relations were used in composites produced using cement paste and normal and lightweight aggregates with different particle sizes. The moduli of elasticity of composites were calculated by meso-mechanical modeling which varies depending on the surface area ratio factor (β) of the bonded coarse material. The comparison of the moduli of elasticity of composites obtained from meso-mechanical modeling with that from the experimental results were also presented.

Keywords: Aggregate size, lightweight aggregate, modulus of elasticity, meso-mechanical modeling.

A STUDY ABOUT THE EFFECT OF DISTANCE EDUCATION ON STUDENTS DURING THE PANDEMIC

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Abstract
Pandemic can be defined as the spreading of a disease in a certain region among a certain group of people more than expected over a certain period of time. The new type of coronavirus has emerged in Wuhan, China and has affected the whole world. This epidemic, which is called Covid19 due to the year of its occurrence in 2019, first appeared in our country on 11 March 2020 and as a precaution, schools and universities have started distance education since March 16, 2021. Within the scope of this study, the effects of distance education on students who started their education periods at the university face to face but had to take online courses and education to minimize the spread of the virus were investigated. Students who started their education life with distance education were not included in the study. Within the scope of the study, firstly, the history of education and its transformation into online education were examined, and then the satisfaction of students from 6 different universities, especially Kocaeli University undergraduate students, regarding distance education practices was examined. The survey results, in which 200 students participated, were examined through the SPSS Clementine program and the decision tree structures of the data were created. Study data; It was analyzed by descriptive tests, T-Test, ANOVA tests. 64 of the participants (32%) agreed with the idea that distance education courses are as efficient as face-to-face education, 74 (37%) were undecided on this issue, and 62 (31%) disagreed with this idea. It was observed that 121 of the participants (60.5%) stated that the distance education system was suitable for them, and 79 (39.5%) of them stated that it was not suitable for them. In the study, the participants were asked questions about the efficiency of distance education lessons, how they participate in the lessons, and whether their rate of watching increased during the exam periods and the results were evaluated.

Keywords: Distance Education, Decision Trees, SPSS Clementine

CURRENT THREAT: ZOONOSES

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Abstract
According to the World Health Organization (WHO), any disease or infection that is naturally transmitted from animals to humans is classified as a zoonosis. "Zoonoses" derived from the Greek word "Zoon" meaning animal and "nosos" meaning disease. It is known that 75 percent of infectious diseases in humans are of animal origin. Zoonotic diseases can be caused by various microorganisms such as bacteria, virusess and other foodborne and water borne pathogens. A wide variety of animal species, both domestic and wild, act as reservoirs for these pathogens. Geographical distribution, population density and climate changes have great impact on the emergence of zoonoses and their distribution. Zoonotic diseases are a global threat. These diseases both affect public health and cause socio-economic problems all over the world. The negative effects of zoonoses appear as multilateral restrictions that can include all sectors worldwide. In order to overcome and control zoonotic diseases, it is necessary to develop collaborative and effective mechanisms before new threats emerge. For this purpose, it is of utmost importance to implement the "One health" approach in order to minimize all negative effects on the society. In this context, veterinarians, humanitarians, public health and environmental health experts should gather under the same roof, efficient action plans should be prepared, risk analyses should be created and disease control policies should be implemented.

Keywords: Animal, public health, zoonotic disease

ANALYSIS OF SUPPLY CHAIN PERFORMANCE CRITERIAS WITH AHP IN SHEET METAL INDUSTRY

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Abstract
Sheet metal is a resource that is being used in various industries, espescially automative. Minimization of scrap and wastage and maximization of efficency of sheet metal, which is a material with low supply, requires a succesfull supply chain management. This work aims to define the most important performance criterias in sheet metal industry. In order to reach this target, supply chain performance criterias were analyzed with AHP through the first and sub processes of Supply Chain Operations Referance (SCOR) model. Implementation was carried out in a sheet metal company which based in Tuzla district of Istanbul. Collecting data process was carried out by introducing a survey which was prepared by coupling double AHP matrixes to be scored by four managers who are in charge within supply chain.Priorities were defined while the datas were processed by being calculated in Microsoft Excel. The observations indicates that the most important criteria takes place in tracking resources within procurement process. Secondly important criteria is the rapidity of production output. In order to improve this situation, an automatic packaging machine was recommended to the company to be joined to the packaging process while being expected to improve the overall performance. The thirdly important criteria is the deduction of the resource recievement time. To reduce this time, supplier selection or even changing supplier options were decided to be judged.

Keywords: Analytical Hierarchy Process, Supply Chain Operations Referance Model, Supply Chain Performance Criterias, Sheet Metal Industry

RULE-BASED FUZZY LOGIC AND ACADEMIC PERFORMANCE EVALUATION

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Abstract
In this study, a performance evaluation system using rule-based fuzzy logic is proposed for academic performance evaluation. With the developing business life and the competitive environment brought about by this development, the concept of performance measurement becomes more important. Based on this, today all institutions need to measure the quality of the product they produce or the service they provide, and the performance of their machines and employees. While classical mathematical methods are sufficient to measure the performance of machines, mathematical methods may be incomplete in terms of exact accuracy of the measurement when evaluating in an environment where there is a human factor. It is inevitable to make a performance measurement by considering the human with its complex structure and to use methods that can make more flexible decisions in this evaluation. Using linguistic expressions rather than using crisp numbers and criteria will be more humane in evaluating an academic's performance. As an example in this study, performance of 43 faculty members working in a university located in higher education of Turkey and performance of the departments they belong to are evaluated. In the performance evaluation, the activities of the faculty members were divided into groups and subgroups as research, education and administrative activities, and an evaluation was made for each group. In the evaluation, the works of each faculty member in the activity groups were scored, fuzzy inference was made by comparing these scores with the success of the department and faculty and the performances of the faculty members were determined. Thus, with the proposed method, the performances of faculty members and departments create the opportunity to express them independently from their scores, departments and faculties, and facilitate decision-making processes of decision-makers.

Keywords: Academic performans, Academic Success, Fuzzy logic, Performance evaluation

EMOTION DETECTION WITH DEEP LEARNING METHODS

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Abstract
Recently, facial emotion recognition has been an important research topic to enable human-computer interaction. The many works are carried out using different information such as speech signal, facial expressions, body language and electroencephalography (EEG) to recognize human emotions. Emotion detection can be used to measure the satisfaction of the employees of the companies in their work, in the health field, in the automotive industry to detect the emotion of the driver, and to make video games better. In this paper, two different approaches using deep learning method are used to detect emotion from images and their performances are compared. The first approach used emotion recognition is based on to detect face from images and then to estimate emotion from detected faces. ShuffleNetV2 network is used to detect faces with high accuracy and then the classification process is performed using deep networks according to 7 emotion classes for the face found. The training is carried out using FDDB (Face Detection Data Set and Benchmark) dataset for face detection. For emotion detection, the FER2013 dataset and the dataset created from different people are combined. In the other approach, emotion detection is made with the object detection method. YoloV4 network is used for this purpose. The two methods applied were tested on 157 images of different people. As a result of the test of the first method, the emotion prediction performance of the model was 59.23%, and the second method's emotion prediction performance was 72.66%.

Keywords: Deep Learning, Image Classification, Object Detection, Emotion Detection

INSPECTING QUALITY OF ENERGY ON SHIPS

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Abstract
Demand for the electrical energy is increasing by devoloping technology, industrilazition and increasing population. The amount of consuming electrical energy is one of the major parameter for the level of improvement. Add to the icrease of this type of demand; the equipments used for increasing production quality and efficiency which have automation system produced neccessity for more secure and qualified energy. At last the title that is known at the literature as quality of energy was born. Uninterraptuble energy of electricity, according to that, voltage are the parameters that is directly effecting the quality of energy, also described quality of energy which is described as values that has to be the demanded power factor and frequency are one of the issues that is working on and taken seriously at recent years. Major Properties which have to be for the quality of energy that is distributed to the energy are summerized as supplying the uninterraptuble flow of electricity, being secure and quality of materials and produce best voltage and frequency values for the system. Studying and inspecting the quality of energy on ships, analize the results of values that is taken from the ship systems are targeted in this thesis. Before inspecting and studying the quality of energy on ships, the characteristics of electicity, the factors that is effecting the quality of energy, the purpose of inspecting the parameters for the quality of energy, major description and mathematical issues, harmonics and its effects, the type of improved solutios and as a result the stuation of ships are studied. As a result of studies, the improvments that are able to be done has searched and results of the improvements are valued.

Keywords: Ships, Qualıty Of Energy, Energy Efficiency.

DESIGN AND ANALYSIS OF HIGH GAIN DUALBAND COMPACT ANTENNA WITH FORK AND SQUARE SLOTS FOR FUTURE 5G TECHNOLOGY

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Abstract
In this work, a multi-band rectangular patch antenna is constructed within the scope of future 5G wireless applications using an inset feed line technique. The antenna is built on the substrate of Rogers RT-5880 with dimensions 15 mm × 15 mm × 0.508 mm that has 2.2 relative permittivity and 0.0009 loss tangent. The multi-band antenna operates at 10 GHz and 30 GHz. To eliminate interference between the bands of systems, a two couple of Fork-slots, as well as square slots, is made within the main patch for removal of undesired frequencies. The proposed directional antenna has a high three-dimensional gain of 6.15 dB and 10.7 dB at 10 GHz and 30 GHz, respectively. The patch antenna is simulated by using one of the commercially available EM simulators like the Computer Simulation Technology Microwave Studio suit (CST MWS).

Keywords: High gain, 5G, Fork-Shaped, 30 GHz, Inset feeding, Multi-band

SUSTAINABILITY IN WASTE MANAGEMENT

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Abstract
In this study, it is aimed first to present a brief conceptual framework and then to present opinions about the status of sustainability in waste management. Due to the increasing population growth in the world day by day, the decrease in natural resources, which is one of the problems of today, and the prevention of the decrease in the life of our world in parallel with this situation is primarily individual and then social responsibility. The big step to remedy this situation is that sustainable life becomes a lifestyle in human life. The first step of international cooperation in the field of environmental protection took its place as "sustainable development / development" in the report named "Our Common Future" (Bruthland Report) published in 1987 (Kaplan, 1997: 9). In the Bruthland Report, the term sustainability is expressed as "meeting the needs of today without compromising the ability of future generations to meet their own needs". In international meetings such as 1992 Rio Conference, 1996 Habitat II, 1997 (Rio + 5) World Summit, 2002 Johannesburg Conference, following the Bruthland Report, sustainable development issues were frequently mentioned and continued to shape our world. In Turkey, the concept of solid waste was used for the first time in the Environmental Law published in 1983. In the process of harmonization with the EU, environmental legislation has accelerated the process of combating solid waste in Turkey. Waste management in our country is carried out on the basis of the waste hierarchy (prevention, reduction, reuse, recycling, recovery, disposal) included in the regulations published based on this law, especially the Environmental Law. Sustainable waste management; To ensure that the waste hierarchy is transferred to future generations without harming the environment and human health, by focusing on waste prevention, reuse, recycling and recovery. Our world must continue to exist so that values such as knowledge, art, and natural heritage can continue to be passed down from generation to generation. For this, sustainable living should come to an end consciously in every individual, in every home, in every society.

Keywords: Waste management, population growth, sustainability, Environmental Law

SYNTHESIS AND OPTICAL PROPERTIES OF GOLD NANOSTARS

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Abstract
Gold nanoparticles (GNPs) are a promising photothermal agent recently in the biomedical field with their strong absorption in the NIR region, high photothermal conversion efficiency, excellent photothermal stability, and biocompatibility [1]. Also gold nanoparticles with their outstanding physicochemical features have influenced various fields of (bio)chemical science so deeply that some researchers have called the last two decades “the golden age”. GNPs can be obtained in shapes such as spheres [2], rods [3], stars [4], and have found many application areas in biomedical systems. Gold nanostars (GNSs) are highly efective in converting light into heat, with multiple sharp ends, among anisotropic GNPs [5]. These features have been confrmed experimentally and theoretically in many studies . In this study gold nanostars will be synthesized and characterized with different techniques

Keywords: gold nanostars , NIR absorptions , Gold nanoparticles

PERFORMANCE ANALYSIS OF GID-CONNECTED PHOTOVOLTAIC SYSTEMS IN UNLICENSED ELECTRICITY GENERATION

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Abstract
In October 2013, electricity users were authorized to produce their own energy and transfer the remaining production to the National Grid, and regulations on electricity production in the electricity market were also issued. When we want to build a photovoltaic system to meet all electricity supply or some of it, type of solar panels, production capacity and inventor's choice should be taken into consideration. Hence, the analysis of solar panels connected to the inverter supply grid power used in Faculty of Technology, Kocaeli University, which has got 5.1 kWp capacity completed and through setup-cost analysis, a calculation, to understand in how many years this system's setup-cost can compensate for itself. Additionally, updated information regarding unlicenced electricity production depending on photovoltaic systems was provided.

Keywords: Unlicenced Electricity Production, PV (Photovoltaics) performance of the system, fotovoltaic systems cost analysis.

PREDICTION OF PIPELINE PROJECTS CONSTRUCTION COSTS UTILIZING MACHINE LEARNING TECHNIQUES

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Abstract
Pipeline construction projects are uncontrollable and contains wide variety of uncertain and unexpected site conditions and it's hard to finish project with estimated time and budget because of the permanent change of construction site. Considering the unstable conditions and project scope it's hard to predict construction costs of pipeline projects. In this study, six ML techniques compared for predicting the construction cost of pipeline projects with a created test dataset For evaluation process, 10-fold cross validation is utilized to examine the predictive techniques. Clearly, the M5P model was found to be the best and the IBk was found to be the poorest performing techniques.

Keywords: Cost Prediction, Pipeline Projects, Machine Learning.

USE OF GRAPHENE AND SILVER BASED RESONATORS IN ENERGY HARVEST DESIGNS

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Abstract
In this study, a signal-absorbing metamaterial unit cell structure consisting of 4 resonators with the same dimensions was designed. Simulation data were obtained by using graphene and silver metamaterials in the designed structure. Simulation studies were carried out in the CST Microwave Studio program. Simulations were carried out using the optical properties of graphene. The reason why silver material is preferred with graphene in simulations is because silver is widely used in resonator designs and is the best conductor. In order for simulations to contribute to 5G technology, the frequency range studied has been determined as 1-20 GHz. When the simulation data is analyzed, the efficiency values are averaged; It has been observed that the use of graphene metamaterial in resonator structures is 6.5 times more efficient than silver. With the changes in the material of the unit cell structure, relative gain ratio (dBi) values were obtained. When the values obtained were compared, it was observed that the dBi performance of the graphene-based design was 1.7 times better than that of silver. When the simulation data obtained are analyzed, it is seen that the use of graphene metamaterial in energy harvesting applications is appropriate.

Keywords: Metamaterial, Graphene metamaterial, Silver metamaterial, Energy harvesting, 5G technology

FORMATION OF AN URBAN HEAT ISLAND AND THE EFFECTS OF PLANTS ON URBAN CLIMATE

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Abstract
Cities are areas where the effects of climate change are felt most intensely.This is mostly caused by the high population density, settlements, asphalt and concrete surfaces. The approach to climate change in cities may be possible with the importance of these factors. For this reason, the city-temperature relationship should be evaluated through the climate. The urban heat island is accepted as the most prominent climatic indicator of urbanization. While evaluating both the urban climate and the factors affecting the urban heat island formation, the vegetation in the urban ecosystem has critical significance. This importance is explained with cases from several cities. An approach from local to global dimensions may be possible. In terms of urban climate, it is recommended that planning be made within the framework of remedial measures.

Keywords: Greening, Human, Urban climate, Urban heat island.

EFFECTS OF CLIMATE PARAMETERS ON TREES

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Abstract
It is a well-known and accepted the fact that the climate has an effective role on both existing tree species and the distribution of these tree species in general. Climate parameters vary from year to year and for longer periods (decades) due to natural reasons. Climatic factors affect plant life jointly, not individually. Plants whose growth and health depend on many variables such as soil, light, water, and nutrients are directly affected by climatic factors as well as these variables. Temperature, precipitation, air movements, humidity, and light are the most effective climatic parameters for the growth of plants. Generally, changes in climate parameters make trees fragile and vulnerable and expose them to risk factors. Therefore, its effects on trees should be carefully and closely monitored.

Keywords: Climate, Climate parameters, Impact, Significance, Trees

EFFECTS OF CLIMATE CHANGE ON ARID-SEMI ARID AREAS AND AFFORESTATION TECHNIQUES

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Abstract
Arid and semi-arid areas are known to be sensitive ecosystems. Changes in climate affect the structure and functions of ecosystems. Recently, the effects of climate change on species and ecosystems have started to be felt more. The species are expected to respond to different levels and forms of climate change and deteriorating climatic regimes. In this context, it is necessary to focus on ecological, biological-technical, and socio-economic constraints in arid and semi-arid areas. In addition, afforestation techniques suitable for these conditions should be preferred. Because, under these conditions, the adaptation and tolerance of species against the effects of climate change is important for their vital activities. In particular, long-term strategies should be developed by considering the arid and semi-arid areas and the possible scenarios developed for these areas.

Keywords: Afforestation, Arid areas, Climate change, Semi-arid areas, Species.

BACTERIAL CELLULOSE BASED ARTIFICIAL CARTILADGE TISSUE

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Abstract
During the preparation of a biomaterial, one of the most important features to be considered is to obtain a material inducing cell proliferation with proper mechanical strength. We know that the mechanical strength of the artificial material to be used instead of cartilage tissue must be strong. Also, we know from the literature that the mechanical strength of BS is high among other natural biomaterials.This study includes the evaluation of the usability of bacterial cellulose (BS) as a scaffold for chondrocytes. BS was produced by Acetobacter xylinum and its usability was considered as artificial cartilage in the future, In the study, FTIR spectrophotometer was used for the chemical characterization of BS. Thermal properties of BS were determined by thermogravimetric (TG) / differential thermal analysis (DTA) measurements. A material microscope was used to analyze the surface morphology of the membrane obtained. Chondrocyte attachment on BS membrane was evaluated by MTT assay. 80.2% cell attachment was observed.

Keywords: Bacterial cellulose, chondrocyte, cartilage, biomaterial

OBTAINING FLAME RETARDANT COATINGS FROM PHOSPHOROUS CONTAINING BIO-BASED CHEMICAL AGENTS

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Abstract
Flame retardants, delaying the ignition reducing flammability properties of the materials. Through flame retardancy, it is possible to prevent disaster situations by making fire-resistant material. Nowadays, halogen-based additives are mostly used to increase the non-flammable level of polymer materials. Alternative flame retardants are needed because of the negative effects of halogen-based additives on human health and environmental issues. Studies in recent years has focused on the use of chemicals containing phosphorus, nitrogen and silicon as flame retardants. Flame retardant is one of the major issue discussed in the both academic and industrial field for polymeric materials. Phosphorus-containing flame retardants replace halogenated flame retardants because they form less toxic gases during combustion. In this study, a new itaconic acid bio-based phosphorus-containing reagent was synthesized and characterized. Firstly, 9,10-dihydro-9-oxa-10-phosphaphenanthrene-10-oxide (DOPO) and bio-based itaconic acid was reacted in order to get a flame retardant agent with acid functionalities. Then, the acid reacted with glycidyl methacrylate to form bifunctional phosphorous containing methacrylate monomer. Especially the flame resistance behaviour of films was determined using the LOI (limiting oxygen index). Also, thermal gravimetric analysis (TGA), differential scanning calorimeter (DSC) and Fourier transform infrared (FTIR) were used for characterization. Also, physical tests such as, hardness, adhesion and glossiness were determined.

Keywords: Dopo, Glycidyl methacrylate, Itaconic Acid, LOI

SYNTHESIS OF BIO-BASED CARDANOL ACRYLATE AND ITS COATING APPLICATIONS

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Abstract
In recent years, due to the decrease in petroleum derivatives used in polymer materials, it has become important to present biocompatible, environmentally friendly, solvent-free and vegetable-derived products as alternatives to petroleum derivatives. Cardanol is a bio-based natural chemical containing aromatic and aliphatic structures obtained from cashew nut shell liquid, which is not harmful to the environment and human health. Worldwide production of cardanol is about 1 million tons per year. The phenolic structure on cardanol increases chemical and physical resistance and also acts as a catalyst in reactions with amines. The long aliphatic chain, with its apolar structure, provides water-repellency and also anti-corrosive effect on the surfaces to which it is applied. While cardanol can be modified with different chemicals via phenolic hydroxyl groups, it is also possible to modify the double bonds on straight aliphatic chains. In this study, cardanol acrylate will be obtained by acrylating phenolic hydroxyl group on cardanol. Cardanol will be reacted with glycidyl acrylate to give cardanol acrylate. The cardanol-containing acrylate polymers will then be obtained by copolymerizing cardanol acrylate with other chemicals such as, acrylic acid, methyl methacrylate and / or similar monomers. These biocompatible polymers will be used for road marking paints. Two methods will be applied when preparing the paints. Road marking formulations will be prepared with or without paint driers. The resulting road marking paints will be applied on metal surfaces and the physical properties of the paints will be compared. In all studies, characterization of all monomers and polymers will be carried out by using Fourier-transform infrared spectroscopy (FTIR) and Gel Permeation Chromatography (GPC).

Keywords: Acrylate, bio-based materials, cardanol, road marking paints

COMPARISON OF BIO-BASED AND BISPHENOL A EPOXY COATINGS

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Abstract
Nowadays, polymeric materials are mostly produced from petroleum-derived sources. However, the production of polymer materials from renewable natural resources has increased in recent years due to the lack of renewable petroleum and petroleum-derived resources, environmental damage and its limited nature. Cardanol and cardanol derivatives extracted from cashew nut shell (CNSL), a new by-product in the industry, are being used in the coating industry especially because they are produced in abundance and are harmless to the environment and human health. The phenolic hydroxyl group on the cardanol structure will be reacted with epichlorohydrin to obtain a single functional epoxy-cardanol. The double bonds present on the epoxy-cardanol will then be epoxidized in the presence of formic acid and hydrogen peroxide. The same process will be used in the epoxidation of soybean oil. The amine hardener is then reacted with BADGE to provide cross-linked coating materials on metal surfaces. By reducing the BADGE ratio, bio-based cardanol epoxy and epoxidized cardanol will be added and the effects of epoxidized cardanol structures and epoxidized soybean oil on crosslinked polymer structures will be examined. The physical and chemical properties of the polymeric networks obtained will be determined. The physical and chemical properties of polymeric thin coatings to be prepared by reaction of certain proportions of epoxidized polyhedral oligomeric silsesquioxane (POSS) structures with cardanol epoxies with different amines will be determined. In this context, chemical structure properties are determined by using differential scanning calorimetry (DSC), thermal gravimetric analysis (TGA), Fourier transformed infrared (FTIR) and physical properties such as anti-corrosion, limit oxygen value (LOI), glossiness and adhesion will be determined.

Keywords: bio-based, cardanol, epoxy-amine coatings, POSS

LEGAL MEASURES TAKEN IN TURKEY AND THE IMPACT OF LEGISLATIVE REGULATIONS ON ACCIDENT AND DEATH RATES

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Abstract
Traffic accidents should have a priority in the agenda of countries in terms of their frequency, health and economic consequences. Traffic accidents often lead to human deaths and significant economic losses. To accurately predict the factors that cause traffic accidents and to prevent them; It is the most fundamental goal to protect public security and reduce human and economic losses. However, spatial correlations in heterogeneous data related to traffic, due to the complex causality of traffic accidents involving multiple factors, including temporal dynamic interactions and external effects, it is quite difficult to make forward estimates. Accurate detection and status analysis of traffic accidents is crucial to effectively restore traffic flow and reduce serious injuries and deaths. This goal can be achieved using an advanced data classification model with a rich source of traffic information. A retrospective cross-sectional analysis study was carried out using traffic accident data obtained from TUIK between 2009 and 2019. The purpose of this study is to reveal that despite the increase in vehicle ownership in Turkey, the number of accidents and death rates may decrease in the presence of existing and predictable measures. Secondly, when we elaborate our study, it is to determine that the displacement by private and public transportation vehicles is not much in cold weather, especially in rainy and windy dark days (January and February) in winter, and the accident rates decrease accordingly. In our study, parametric tests were applied by examining the normal distribution of data. Excel and R programs were used in the analysis of the data. By performing a T-test, the relationship between accident rates within months was interpreted. Based on the data obtained, the accident and death rates that may be experienced in the following years were estimated by multiple linear regression method. Analysis results; showed that the rules applied in traffic reduce the accident and fatality rates predictably.

Keywords: Traffic, Accident, Death, Injury

INVESTIGATION OF PROBLEMS AND EFFECTS ENCOUNTERED IN THE BOLT TENSILE TESTING

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Abstract
Bolts are generally made of metallic material. When a tensile test of a bolt material is requested, you may find that tests are carried out in accordance with the commonly used ISO 6892-1 metallic tensile test standard. However, tensile testing of bolt materials should be carried out in accordance with ISO 898-1 standard describing the mechanical construction of elements made of carbon steel and alloy steel. The tensile test has been applied to bolts made of this metallic material. The results obtained from the tensile test according to the ISO 6892-1 standard were compared with the results obtained according to the ISO 898-1 standard. The differences between them are given graphically. As a result, informatics how the standard difference changes the results.

Keywords: Tensile test, Bolt, ISO 898-1, ISO 6892-1

OPTIMIZATION OF WELDING CURRENT IN HARDFACING APPLIED TO LOW CARBON STEELS

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Abstract
In this study, It was aimed to compare the microstructure, hardness and abrasion resistance after hardfacing with different current values, and accordingly to determine the optimum welding current. The interpretation of the hardness changes on the surface after hardfacing with 120, 160 and 200 amperes, respectively, by associating them with the microstructure, and the relation of the contribution of the obtained hard surface to the wear resistance with the change in the welding current parameter were examined. The hardness made by taking into account the microstructure and phase-carbide morphologies obtained for each current value applied was compared with the wear test results. The penetration of the weld seam, which occurs in proportion to the applied welding current, was calculated using the Image J program in addition to visual inspection. The hardness and abrasion resistance data obtained, were examined over the application areas of the Fe-C-Cr-hardfacing electrode. Within the framework of these results, the optimum welding current value to be applied for the Fe-C-Cr hardfacing electrode, which is made to extend the current service life of workpieces operating under severe operating conditions, has been determined. As a result, various advantages and disadvantages were determined for each of the three ampere values, it was determined that the hardfacing with 160 ampere current was prominent, the HRC hardness values were the best and the carbide ratio provided on the surface was the highest.

Keywords: Wear Resistance, Fe-C-Cr, Electric Arc Welding, Hardfacing

AN OVERVIEW OF THE MECHANICAL AND DURABILITY PROPERTIES OF RUBBER AGGREGATE CONCRETES

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Abstract
This study aims to recycle these materials to use rubber wastes, which have become the most important environmental problem of today, in the building sector. For this purpose, mechanical and durability properties of rubber aggregated concrete were investigated and the results were analyzed. The concretes obtained by replacing the rubber particles with coarse aggregates and fine aggregates have been considered in the study. The addition of 30% rubber results in an approximately 50% reduction in the compressive strength of the concrete and an average of 21% reduction in flexural strength of concrete. The static elasticity module of rubber aggregate concretes decreases with the increased percentage of rubber added and this decrease reaches up to 50% in the case of using rubber aggregate at 30%. While the addition of rubber particles increased the toughness of concrete up to 187%, it had a generally positive effect on the properties of concrete such as freeze-thaw resistance and wear resistance. In the light of the results found; it has been revealed that it isn't appropriate to use more than 10% of rubber particles in structural applications where strength is important. In addition, rubber aggregate concrete is recommended to be used as lightweight concrete due to its low unit weight, to be used as a concrete barrier due to its high energy absorption capacity and to be used on asphalt or concrete roads due to its resistance to external effects such as freezing-thawing and abrasion.

Keywords: rubber, rubber aggregate concrete, compressive strength, durability, toughness, unit weight

CURRENT CONTROL OF SINGLE PHASE FULL BRIDGE INVERTER WITH SLIDING MODE CONTROL AND PI CONTROL METHODS

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Abstract
In this study, the control of output current of a single-phase full bridge inverter was achieved by using sliding mode control and PI control methods. A constant reference signal is applied to the system input and the system output (current) is aimed to follow the reference value in both control methods. First, mathematical models of system to be controlled and the controllers to be applied were obtained. Then simulated model of single-phase full bridge inverter and algorithms for control methods were implemented on Matlab-Simulink. Pulse width modulation (PWM) technique was used for switching signals. The results obtained from the simulation studies on the created models were presented comparatively for both of control methods and the results were evaluated in terms of performance criteria. The result of this study, it was observed that sliding mode control method performed better than PI controller method.

Keywords: Sliding Mode Control, PID, Inverter, Power Electronics, Current Control

ROTARY TYPE PHOTOTHERAPY DEVICE DESIGN WITH MOBILE CONTROLLED AND HELIX ARRANGEMENT

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Abstract
The treatment of jaundice, which develops as a result of the concentration of bilirubin molecules in the blood exceeding the limit value, varies according to the underlying cause. As a treatment method, in the treatment of neonatal jaundice, it can be shown that the bilirubin molecule whose density increases in the blood is broken down and removed from the body. The device that provides this is called phototherapy device. Phototherapy devices used in the treatment of neonatal jaundice generally consist of two types. These are divided into incubator type and tunnel type. In this study, in addition to the existing types, a new phototherapy study was carried out and a prototype was created. As an innovation, the light source is arranged in the form of a helix on the inner surface of a rotating tube. In this design, the rotating tube rotates 360° around the patient. Control and monitoring of the system is provided by establishing a Bluetooth connection with the mobile device. The system has been made more useful with features such as motor speed and direction control, light brightness adjustment, temperature and humidity values tracking, light measurement, and ventilation system. In addition to the mobile application, system parameters are monitored instantly from a screen placed on the device. One of the most negative effects of the phototherapy device is its effect on eye health. In order to prevent this situation, sensor-assisted eye patch is also an important part of the system. When the eye patch is not worn, the system that gives an audible warning also stops its operation. In addition, thanks to the sensor support, it is aimed to be installed correctly and to provide full protection.

Keywords: Phototherapy, Helix Rotating Type Phototherapy, Mobile Control, Jaundice

EXPERIMENTAL INVESTIGATION OF POLLUTION IN HYDRAULIC FILTERS

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Abstract
Hydraulic oils are of great importance for the efficient operation of hydraulic systems. The first circuit element to be examined in cases such as inefficiencies, noise, and temperature increase is hydraulic oil. Determining foreign particles in hydraulic fluid is an important method to get information about the status of a system component. Hydraulic oil that is not cleaned sufficiently can damage circuit components with low particle permeability such as directional control valves, servo valves, piston pumps. In this case, high maintenance and component replacement costs may occur. In hydraulic systems, oil is usually cleaned with oil filters mounted on the line. It is of great importance for hydraulic systems that the filters are selected in accordance with the requirements of the system, positioned in the right place on the circuit, and regularly maintained. In this study, oil analysis of a hydraulic system was made and the data were recorded. Later, an extra filter was connected to the system and the system continues its operation for 250 hours without an oil change and oil analysis was analyzed again. This results in a reduction in particle levels of about 80%.

Keywords: Hydraulics, Pollution, Filtration

SOME PREDICTIONS ABOUT THE YESTERDAY, TODAY AND FUTURE OF LAKE IZNIK (BURSA)

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Abstract
In this study, have been examined the water features, pollution sources and fisheries status of Lake Iznik over the years, and the measures to be taken against the detected negativities have been tried to be put forward. When the scientific studies and reports prepared in Iznik Lake are examined, it is seen that the lake water gets polluted every year and the water budget is decreasing due to climate and human factors. Especially crayfish (Astacus leptodactylus) fishing, which was the most important source of income for fishermen in the past, has not been commercially carried out in recent years and it was replaced by silverfish (Atherina boyeri). It has been determined that silvery crucian fish (Carassius gibelio), which is an invasive species, multiplies excessively in the lake and causes a negative effect on other fish species in the lake. It has been observed that reducing the number of invasive fish species and preventing sources that cause pollution are the most important factors for the future of Lake Iznik.

Keywords: Iznik Lake, silvery crucian fish (Carassius gibelio), silverfish (Atherina boyeri), pollution.

NASOCOMIAL INFECTIONS AT THE PCR POSITIVE COVID-19 PATIENTS AND ANTIBIOTIC SUSCEPTIBILITY

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Abstract
Studies on nasocomial pathogens and antibiotic profiles observed in patients diagnosed with Covid19 have been presented to the literature worldwide. With the awareness of this current issue, we aimed to determine the nosocomial isolates and antibiotic susceptibility in patients with a diagnosis of covid 19 pcr positive in the pandemia hospital. Material Methods: Various samples were taken from covid-19 positive patients hospitalized in intensive care units , anesthesia and reanimation and surgery care units between 1.1.2020-12.12.2020. These samples were identified in routine microbiology laboratories. Conventional methods were used to determine the species of pathogens. Antibiotic susceptibilty test were made in accordance with CLC standards. Results: The patients of intensive care units are 180. 112 of these (62.2%) male and 68(%37.8) female. 84(%46.7) patients were hospitalised anestesia and reanimation, 66 (%36.7) internation intensive care and 30 (%16.7) surgery units. In anestesia units were detected 14 pathogenes associated nasocomial pathogens, 12 isolate were detected from intensive and 5 bacteria from surgery. In our study, the most isolated pathogen was A.baumannii / calcoaceticus complex 99 (55%). When their sensitivity was examined, Colistin resistance was seen in 3 samples. These belonged to 2 tracheal aspirates and 1 urine sample. Imipenem and meropenene resistance was found (91.2%). There was no significant difference P <0.05 in gender groups. While no resistance of colicide was found against A.baumannii,91.4% meropenem and 94.1% imimenem. No significant difference could be seen(P <005) according to gender. ESBL positivity was detected in 7 of the E.coli samples. 5/7 (71.4%) of them belonged to the urine sample. Coclusion: Considering the nosocomial factors and rates in Covid 19 patients; patients should pay attention to personal hygiene and healthcare personnel should be aware of both pamdemi and hospital infection risks.In addition, we believe that every intensive care unit should have information about the flora of its own unit in order to determine effective empirical antibiotic treatment procedures against hospital infections.

Keywords: Covid 19, Nasocomial Infection, Antibiotic Susceptibilty.

EFFECTS OF REINFORCING MATERIALS ON PARTICLE EROSION IN TEFLON (PTFE) MATRIX POLYMER COMPOSITES

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Abstract
In this study, particle erosion behavior of Teflon (PTFE) material and reinforced composites, which are widely used in tribological applications but lacking sufficient literature on particle erosion behavior, will be investigated. PTFE composites, randomly distributed short glass and carbon fiber reinforced, bronze particle reinforced composite material with 3 PTFE matrices and pure PTFE samples were used. Studying the effects of additives on particle erosion resistance, determining the interactions that occur during particle erosion, and revealing the cause-and-effect relationships are the subjects of the thesis. In order to be used in the experimental study, 24 samples were prepared in plates of 6x6 cm in size with Pure PTFE (Teflon), Glass, Carbon and Bronze. The etching process was carried out by spraying Garnet particles from a 5 mm diameter nozzle to the surface of the samples at different angles (15 °, 30 °, 45 °, 60 °, 75 °, 90 °) at a distance of 20 mm for 30 seconds under 3 bar pressure. The weight loss of each sample was determined by measuring the weights before and after abrasion for the same angles. In the study, etching process was carried out using 60 mesh (180-600 micron) garnet under 3 bar pressure, 23.46 gr / sec flow rate and 71 m/s speed. According to the results obtained from the study, the highest abrasion occurred in carbon fiber reinforced PTFE samples that were eroded with an impact angle of 30 °, and the lowest was in glass fiber reinforced PTFE samples that were etched at 90 °. If the angle of impact is vertical, the abrasion process is less than the horizontal. It has been observed that if the angle of impact is vertical, the wear remains at a lower level compared to the horizontal.

Keywords: Tribology, Polymer, PTFE, Teflon, Solid Particle Erosion, Erosive Wear

PRODUCTION OF COMMERCIAL LEAVENED BAZLAMA BREAD IN KARAMAN AND PROPERTIES OF FLOURS

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Abstract
Bread has an important place in human nutrition. Turkey is among the countries with the uppermost per capita bread consumption in the world. The most widely produced and consumed bread in Turkey is Francala-type hearth bread, though such traditional breads as leavened/unleavened bazlama and yufka also have important production and consumption levels. In this study, bazlama processing parameters were collected by visiting 7 different enterprises in Karaman, the properties of the flours used in those enterprises were examined. In this respect, moisture, protein, ash, wet gluten, sedimentation, color and dough kneading properties of the flours were analyzed. İt was determined that the process parameters and flour properties used in leavened bazlama production differed considerably from business to business. It was observed that flour, water, salt (2%) and compressed yeast (1-2%) were used in the production of leavened bazlama bread, and the kneaded dough was subjected to a mass fermentation for up to 60 minutes in ambient conditions and an intermediate/pass fermentation for up to 30 minutes. In the production of leavened bazlama bread, a standard amount of dough (125 g) was used. The dough was first manually sheeted in a circular fashion with a rolling pin to a thickness of 1.8-2.5 mm and a diameter of 18-21 cm, and finally baked on natural gas heated metal sheet at surface temperatures ranging from 250 to 350ºC for 1.5-3.0 minutes. The baked bazlama breads were measured to be 8-10 mm in thickness and 17-20 cm in diameter. Moisture, protein, ash, wet gluten, sedimentation and color (L*) values of the flours ranged respectively from 11.3-13.2%, 12.0-15.1% (dm), 0.68-1.28% (dm), 31.6-40.4%, 23.8-34.9 ml and 84.7-89.0. The dough kneading properties of the flours were characterized by the Mixolab device. The optimum water absorption level, optimum kneading time and kneading stability for the flours were 57.1-64.2%, 1.20-4.70 minutes and 3.27-8.78 minutes, respectively. Bazlama bread production is no more limited to the households and its industrial production has become widespread in recent years. For this reason, flour properties and processing parameters of bazlama bread production should be optimized to make possible standardization, widespread recognition and value addition.

Keywords: Bazlama, Traditional breads, Flour, Processing, Quality

PREPARATION AND CHARACTERIZATION OF ENZYME-BASED NEW AMPEROMETRIC BIOSENSORS

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Abstract
Biosensors, which are formed as a result of integration with electronic components, convert physiological changes, toxic, carcinogenic substances or bioagendas into data. Existing biosensors are widely used in many fields such as food, biotechnology, pharmaceutical analysis, mining, biowar, bioprocessing and agriculture. Although nearly 200 biosensors have been developed today, only about 25 are commercially available, the first of which is the glucose oxidase biosensor, which is essential for diabetes diagnosis, blood and urine glucose determination. When the biosensor technology is examined, it seen to influence the nanotechnology. Thanks to nanotechnology, it is obtained in a way that it is smaller, sensitive, long-lasting and inexpensive. In this study, it is aimed to develop an amperometric glucose biosensor that uses thin film polymer and screen-printed electrodes (SPE) modified with carbon nano materials to determine glucose. The effect of pH on conductive polymer thin film, measured current values, ambient temperature and buffer solution concentration will be investigated. Next, the stability of the biosensor and the effect of particles that can interfere with the required electrode response will be determined.

Keywords: Enzyme, Carbon nanotube, Screen-printed electrode

DETERMINATION OF CYTOTOXIC AND GENOTOXIC EFFECTS OF KARABAS HERB (LAVANDULA STOECHAS L.) EXTRACT ON HT-29 HUMAN COLON CANCER CELL LINE

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Abstract
Colorectal cancer is one of the most common types of cancer in men and women. Most colorectal cancer cases are sporadic, both genetic and environmental factors are important in the cases. In addition to traditional treatments such as chemotherapy and radiotherapy, complementary and supportive therapies are widely used in cancer patients. One of the leading complementary therapies is phytotherapy, and medical herbs are widely used in the treatment of cancer as well as in the treatment of many diseases. In this study, we aimed to determine the cytotoxic and genotoxic effect of Karabas herb (Lavandula stoechas L.) on the human colon cancer cell line (HT-29). HT-29 cell line was used in the study and cells were cultured in RPMI-1640 medium. Ethanolic extract of Karabas herb was prepared and applied to the cells at different concentrations. After the application, the level of cytotoxicity in the cells was determined by MTT analysis and the level of genotoxicity was determined by Comet analysis. After MTT analysis, doses of 300 µg/ mL and above of Karabas herb significantly decreased the cell viability ($p<0.05$). In the comet analysis, it was determined that the dose of 300 µg/mL of Karabas herb extract applied to HT-29 cells exhibited a genotoxic effect ($p<0.05$). These results showed that Karabas herb has cytotoxic and genotoxic effects on HT-29 cells.

Keywords: Lavandula stoechas, Colon cancer, HT-29, Cytotoxicity, Genotoxicity

ANALYZING DEALER MOVEMENTS IN THE LPG SECTOR USING ADVANCED DATA ANALYTICS METHODS AND MAKING MEANING OF THIS BIG DATA

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Abstract
A data set containing 125-million-cylinder movements in total has been created, with the number of cylinders with barcodes increasing day by day and cylinder movement records. This big data grows with over 2.1 million movement information per month. In this study, the analysis and interpretation of this big data consisting of movement information between cylinder filling facilities and cylinder dealers was made, and artificial intelligence models were created on estimation scenarios by revealing the bottled gas usage habits on the basis of regions and dealers. Also, the day difference between the exits of the cylinders from the facilities and the re-entry to the facilities was calculated, the annual frequencies realized on both regional and dealer basis were made sense of the data and the dealer demands and demand forecasting model was analyzed with time series algorithm and machine learning methods by making exploratory data analysis. The results obtained have concluded the sales forecasts of the cylinders on the basis of region and dealer with parameters such as seasonality. In this way, new project studies will be started on bringing the cylinders to the market by focusing on the points where they are kept useless.

Keywords: Advanced Data Analytics, Statistical Data Analysis, Big Data, Machine Learning, Artificial Intelligence Methods,

PYRROLIDINE/PIPERIDINE SUBSTITUTED 3-AMIDO-9-ETHYLCARBAZOLE DERIVATIVES: SYNTHESIS, STRUCTURAL ANALYSIS AND BIOLOGICAL EVALUATION

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Abstract
Cancer is one of the leading causes of morbidity and death in millions of people around the world, and because of its occurrence, there is an unmet demand for new anticancer treatments. The carbazole derivatives have been the primary structural motive of many biologically active compounds, both natural and synthetic ones, produced in the last few decades, among the available anticancer drugs. FT-IR, 1H-NMR, 13C-NMR spectroscopic, and HRMS techniques were used to synthesize and characterize pyrrolidine/piperidine substituted 3-amido-9-ethylcarbazole derivatives in this study. The compounds were tested for their ability to inhibit acetylcholinesterase. The antioxidant effects of the compounds were also assessed using total antioxidant capacity, DPPH radical scavenging, and metal chelating activity methods. The antiproliferative activity of the compounds was also tested using the MTT assay on HT-29 human colon cancer cells and SHSY-5Y human neuroblastoma cells. To conduct ADMET predictions, toxicity, and carcinogenicity of the compounds, QikProp and admetSAR were used. The biological activity of the compounds included acetylcholinesterase inhibition, antioxidant activity, and antiproliferative activity on HT-29 human colon cancer and SHSY-5Y human neuroblastoma cells. Both parameters were found to coincide in the appropriate range for use in humans, indicating their ability for use as a drug-like molecule, according to the ADMET and admetSAR predictions. As a result, the compounds may be offered as a potential anti-cancer drug candidate for cancer therapy.

Keywords: 3-Amido-9-ethylcarbazole, acetylcholinesterase inhibition, antioxidant activity, antiproliferative effect, ADMET predictions, admetSAR predictions.

PREPARATION STUDIES OF CLASSROOM ACTIVITIES ENRICHED WITH WEB 2.0 TOOLS WITH USING THE PROBLEM-BASED LEARNING APPROACH IN THE ONLINE EDUCATION PROCESS

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Abstract
Abstract While the effects of the Coronavirus (Covid-19) epidemic on education throughout the world continue, distance education has been entered into a rapid transition in our country. Continuing of learning with distance education has made it compulsory to use alternative methods and techniques in the classroom environment. In this direction, activities to be carried out online with the Problem Based Learning (PBL) approach enriched with web 2.0 tools for the 6th Grade "Force and Motion" Unit have been planned. Scenarios covering the acquisitions of the 6th grade "Force and Motion" unit in the Science Education Program (MEB, 2018) were prepared by the researcher to be used in PBL. In order to adapt the scenarios to the online education process, the scenarios were animated with Pawtoon and Canva web 2.0 tools, and 5 scenarios about the Force and Motion unit were prepared. Online PBL handbooks were sent to the students, expressing how the activities and the process would be, and an information study was made about the process. For each scenario, questions were created to encourage students to research, to create a sense of curiosity and to solve the problem situation and the problem situation. The questions at the end of the scenarios were uploaded to Padlet, which is an online cork board application, before the lesson, and students were expected to write their knowledge and ideas to Padlet as a result of their research. The sessions were ended after the student from each group made a presentation of the Padlet board about problem solving. In this study, effective use of internet resources in the online education process for our teachers; ensuring student participation in this process and follow-up Only the preparatory studies in the research are presented, considering that it will provide a source for what will be done.

Keywords: Problem Based Learning (PBL), online education, Padlet, Pawtoon, Canva, Force and Motion

OPTICAL AND STRUCTURAL PROPERTIES OF ZNO THIN FILMS PRODUCED BY THERMAL EVAPORATION

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Abstract
In this study, zinc oxide (ZnO) powder with a size of less than 100 nm and 99.9% purity was grown on both microscope glass and p-Si semiconductor crystal using thermal evaporation method. Optical transmittance measurements of ZnO thin films were made with UV-Vis spectrophotometer. It was determined that the optical energy band gap of ZnO thin films was 3.27 eV and showed semiconductor properties. Structural properties of ZnO thin films were investigated by X-ray diffraction (XRD) and energy dispersive X-ray spectroscopy (EDX) measurements. From XRD measurements, it was understood that ZnO thin films had weak orientation and had amorphous structure. In addition, the n-ZnO/p-Si heterojunction structure was created and its electrical properties were investigated. It was determined that the n-ZnO/p-Si diode had a rectifying feature from the current/voltage (I/V) measurements.

Keywords: Thermal evaporation, ZnO thin film, rectifier contact.

THE EFFECT OF TEMPERATURE AND DROUGHT ON PLANT REPRODUCTIVE ORGANS

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Abstract
Abiotic and biotic stresses are difficulties faced by plants in their life cycle. Plants try to extend their lifetimes with morphological, physiological and biochemical reactions to these difficulties. Although plant stress responses are very complex, interactions between plant structure and stress need to be studied at various stages of the environment. The data obtained so far in this field show that various plant organs play a role in determining the growth and yield under stress, in a certain order and in interaction with each other. Knowing the stages of response to various stress conditions for high and regular production in crop plants helps to develop effective growing strategies, to create plants with better grain productivity under stress, and to develop tools with breeding techniques. Heat and drought are the two most important stress factors for plants, which have a major impact on the growth and productivity of plants due to global warming. Deformations in the growth of the plant reproductive organs as a result of heat and drought stress cause the fruit not to produce healthy products. This leads to catastrophic loss of crop productivity and widespread famine. To protect food production and ensure crop safety, it is important to know the physical damages, morphological deterioration and biochemical changes against heat. In this presentation, effects of heat and drought stress on anther, pollen development in the male organ, ovary, stylus and stigma development in the female organ are given. In addition, the mechanisms that reacts against stress in plant reproductive organs have been specified physiologically, biochemically and genetically. Identifying the processes that determine the development of plant reproductive organs under drought and heat stress will give insights into potential strategies to increase plant reproduction and yield, and to develop effective breeding strategies for stable production.

Keywords: Anther, Drought, Heat stress, Plant stress management,

A NEW WEB PAGE RANKING ALGORITHM APPROACH FOR SEARCH ENGINES

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Abstract
Search engines are one of the most important internet services used to find information and to Access information in the fastest and easiest way. Search engines work on crawling, indexing and ranking functions. Ranking becomes important when searching for information. Link-based algorithms are used to rank web pages on the Internet. In this study, the functioning of the search engine and ranking techniques are discussed. A prototype search engine application has been created in this context. With the prototype application, approximately nine hundred thousand web pages with the "edu.tr" domain name were downloaded. Approximately three million unique words have been identified on the downloaded "edu.tr" web pages. The ranking of the search results was made with Pagerank, which is one of the link-based ranking algorithms also used by Google. A new ranking algorithm was proposed in the study and the results were compared. It is concluded that the proposed approach significantly reduces the page rank accumulation problem compared to the Pagerank algorithm.

Keywords: Search Engine, Web, Search for information, Ranking

EDIBLE PLANT ŞEVKETİ BOSTAN (SCOLYMUS HİSPANİCUS L.): NUTRITIONAL AND HEALTH PROPERTIES AND FIELDS OF USAGE

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Abstract
The significance of edible wild plants consumed as vegetables has gradually increased in the face of nutritional problems arising with malnutrition, population growth, urbanization and epidemic diseases. Edible plants, which are widely used in the food industry and medicine, constitute an important source of adequate intake of micro and macronutrients in terms of balanced nutrition, and support public health with their rich phytochemical content. The homeland of Scolymus hispanicus L. (şevketi bostan), which is a member of the Asteraceae family, is Southern Europe and Western Asia. It grows wild in the fields, gardens and countryside in the Marmara, Aegean and Mediterranean regions of Turkey. Scolymus hispanicus L., which is used as a raw material in different industrial sectors today, is consumed as a vegetable, especially in the Aegean region. Although the leaves, flowers, stems and especially the roots of the plant have traditionally been used as a potentiating and cancer-preventing herbal remedy which enhances taste and digestion, a limited number of studies are found in the literature on this subject. Changing living conditions in recent years have led people to consume healthy foods. Turkey is a gene center which includes different endemic plants and therefore has a very rich flora. It is consequently necessary to give due importance to the plants grown in our country, and to breed wild plants, which are one of the less known food and pharmaceutical industry raw materials. In this context, şevketi bostan (Scolymus hispanicus L.) is a plant which has started to be bred. The objective of our study is, thus, to introduce the edible sevketi bostan plant that is more commonly consumed in the Aegean region in our country, which is rich in biodiversity, and to encourage its use in daily diet by providing information about its nutritional properties, chemical composition and health effects.

Keywords: S. hispanicus L., nutrition, edible plant

ISOLATION OF BACTERIOCIN PRODUCER LACTIC ACID BACTERIA FROM SHEEP AND GOAT COLOSTRUMS AND THEIR MOLECULAR CHARACTERIZATION

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Abstract
In this study, isolation of bacteriocin producing lactic acid bacteria (LAB) from sheep and goat colostrum and molecular characterization of the isolates were made. A total of 189 different animals, 81 sheep and 108 goats, who gave birth from Isparta and Antalya provinces, were milked. As a result of screening tests using six different indicator bacteria, it was determined that 54 isolates gave zones with diameters varying between 2 and 18 mm against indicator bacteria. All 54 isolates were determined to be Gram positive and catalase negative by Gram staining and catalase test and they were identified as presumptive LAB isolates. Antibacterial activity spectrum of 54 isolates was tested against 31 indicator bacteria, including Gram positive and Gram negative food pathogens, using the sterile toothpick method according to van Belkum et al (1989). As a result of the activity spectrum test, 19 isolates with a zone larger than 4 mm and with a broad activity spectrum were identified as presumptive bacteriocin producers. It was determined that 13 out of 19 isolates lost their activity as a result of proteolytic enzyme application, but they were not affected by catalase enzyme. In light of these findings, 13 isolates were identified as bacteriocin producers. As a result of 16S rRNA gene sequence analysis and species-specific polymerase chain reaction (PCR) analysis, 11 of the isolates were identified as Enterococcus mundtii and two as E. faecium. Phylogenetic analysis of 16S rRNA gene sequences of the isolates was analyzed using the MEGA-X program. Random Amplified Polymorphic-DNA (RAPD-PCR) method was used for the genotyping of the isolates. As a result of phylogenetic analysis of 16S rRNA gene sequences and RAPD-PCR profiles, 13 different patterns were determined and isolates were found to be genotypically different from each other.

Keywords: Goat, Sheep, Colostrum, Bacteriocin, Lactic acid bacteria, Polymerase chain reaction (PCR)

APPLICATION OF SENSOR FUSION TECHNIQUES FOR VEHICLE CONDITION AND POSITION ANALYSIS

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Abstract
Sensor fusion is the process of multi-level data merging, setting up, automating and linking variables. Used as a solution to the information integration problem. Sensor fusion is a method used in many fields such as military, civil, industrial. It aims to integrate data, including industrial machines, military vehicles, and create a decision-making mechanism. In this thesis, using fusion algorithms, the determination of the axis for the vehicle, has been studied.The data processed using the sensor fusion algorithm are classified by various artificial intelligence algorithms. Sensors required for axis determination have been introduced. Accelerometer, gyroscope and magnetometer are used. Since it is risky to use the sensors alone, the outputs obtained by sensor fusion were evaluated. MEMS (Micro Electro-Mechanical System) sensors, which are electronic sensors sold in the market, are used. Another purpose of this thesis is to increase the usability of gyro, accelerometer and magnetometer sensors to be used in electronic projects by explaining platform independent. Each sensor's own coordinate system has been extracted by making trigonometric calculations of the received data. Explained the cause and solution of exceptions and restrictions such as gimbal locking. In this thesis, X-NUCLEO-IKS01A2 sensor kit and NUCLEO-L073RZ processor kit belonging to ST company were used. The received data are buffered by calibrating and merging. A packet protocol is created with the raw data from these data and sensors. Transmitted to the PC program written within the scope of the thesis. All data were converted to the appropriate table format after being taken. For classification, real-time data was recorded by imitating the motion system of the vehicles. These movements are selected as: acceleration, deceleration, stationary stop on a straight road, acceleration, deceleration and stationary stop on an incline. Each motion table that is about to be processed and all unprocessed data were evaluated with Decision Tree, Perceptron, Gradien Boost Regressor, Multi Layer Perceptron, which are artificial intelligence algorithms.

Keywords: Sensör Fusion, Accelerometer, Gyroscope, Magnetometer, ArtficalIntelligent, Classification

A FUZZY BASED MULTICRITIA DECISION MAKING MODEL FOR PRIORITIZING ENTREPRENEURSHIP PROJECTS: AN APPLICATION IN FINANCIAL SECTOR

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Abstract
Today, many companies desire to invest in entrepreneurship projects in order to adapt to the conditions required by the age, to be sustainable, to expand their existing market share and / or gain competitive advantage, to reach new technologies with the least cost, to have an innovative vision, to seize opportunities that others cannot see. So, they can be evaluated by a methodology based on multicriteria decision making (MCDM). While investing in the entrepreneurship projects, it is very difficult for businesses to make an efficient and effective choice between among alternatives by considering internal and external factors based on uncertainties. MCDM techniques enable the evaluation of many measurable and non-measurable factors at the same time and can include many decision makers in this evaluation. At the same time, the existence of many criteria such as business idea, level of competition, compliance with technological trends, scalability, exit potential and the conflict of these criteria are among the issues that businesses should consider when making investments. In order to overcome all these difficulties, a MCDM methodology based on the fuzzy set theory (FST) has been suggested to obtain results. For this aim, one of the fuzzy sets extensions named Pythagorean Fuzzy Sets (PFSs) and has been widely used recently is integrated into the proposed MCDM model better modeling of uncertainty and better management of the process will be provided. In this study, it has been tried to prioritize the entrepreneurship projects to be invested in the finance company by using a MCDM methodology based on PFSs. First of all, the criteria for the company's entrepreneurship project selection have been determined by experts' idea and a literature analysis. Then, the relationship between these criteria has been analyzed with the DEMATEL approach and their weights are also calculated using the AHP method or ANP method based on PFSs. In the application stage, five alternative projects have been selected from the entrepreneurship projects to be evaluated in the company and these alternatives have been ranked by using the fuzzy TOPSIS method based on PFSs.

Keywords: Entrepreneurship Projects, Pythagorean Fuzzy Sets, Multi Criteria Decision Making, Fuzzy Logic, Pythagorean Fuzzy DEMATEL, Pythagorean Fuzzy AHP, Pythagorean Fuzzy ANP, Pythagorean Fuzzy TOPSIS

DETERMINATION OF ANTI-PROMASTIGOTE EFFECT OF EXTRACELLULAR VESICLES OBTAINED FROM WHARTON JELLY-DERIVED MESENCHYMAL STEM CELLS FOR THE TREATMENT OF CUTANEOUS LEISHMANISIS

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Abstract
Leishmaniasis is a tropical disease caused by intracellular parasites and important public health problems of the World and Turkey. Cutaneous Leishmaniasis (CL) has the ability to form lesions on the skin. Wharton Jelly (WJ) is a gelatinous tissue containing myofibroblast-like stromal cells within the umbilical cord. Easy isolation, lack of ethical problems, high proliferation and immunomodulatory properties of mesenchymal stem cells (MSC) measured by umbilical cord make them a valuable tool in stem cell research. It has been shown in various studies that MSC have the capacity to reverse acute and chronic diseases with paracrine mechanisms in different experimental models. This paracrine action is thought to occur through the extracellular vesicles (EV) responsible for the communication of mRNA, microRNA and proteins. One of the EVs released from stem cells are exosomes. However, to date, a study has been conducted to examine the effectiveness of WJ-derived exosomes in the treatment of Leishmaniasis. The purpose of this study is; determination of in vitro antileishmanial activity of exosomes isolated from WJ on L.major parasites. The isolated MSC-based exosomes were characterized, their cytotoxic effects were determined in cell lines, and the anti-promastigote effect of non-toxic concentrations on L.major parasites was analyzed. Concentrations of exosomes varying between 25-100 µg/ml were used and it was determined that these concentrations did not cause any toxic effects in the Vero cell. A significant decrease was found in exosome doses compared to the control group ($p < 0.001$). Exosomes showed the highest antileishmanial activity at a concentration of 50 µg/ml. These results show that exosomes obtained from WJ-derived mesenchymal stem cells are a powerful antileishmanial agent. It is thought that promising results may occur in the treatment of CL in the future as a result of using exosomes alone or with conventional agents.

Keywords: Cutaneous Leishmaniasis, Extracellular Vesicles, Exosome, Mesenchymal Stem Cell, Wharton Jelly

INVESTIGATION OF THE EFFECTS OF DIFFERENT BINDERS ON THE PERFORMANCE CHARACTERISTICS OF WATER-BASED PAINTS

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Paint is a chemical coating material that protects the surface from environmental effects by forming a thin film layer on the applied surface and gives the surface a decorative feature. Binders, pigments, additives, and solvents are the main components of the paint [1]. The polymer or binder component holds the coating together and provides many of the performance properties required for significant coating applications. A high molecular weight polymeric material is often used as the binder to provide the hardness and resistance properties required to protect the substrate and provide a durable coating. In practical systems, the minimum molecular weight of thermoplastic polymers targeted for coating applications is around 50 000 g/mol [2-3]. Binders ensure that the pigments remain in the paint and adhere to the surface where the paint is applied, and they give the scrub resistance feature to the paint. Painted surfaces should be tested for resistance to abrasion/scrubbing that can occur due to brush, sponge, or other reasons, and the cleanability of the paint is checked with the wet scrub resistance test [4]. In this study, the effects of the type of binder used in water-based paints on the performance properties of the paint were investigated. For this, firstly, coatings with styrene acrylate (STR/AC), vinyl acrylate-butyl acrylate (VA/BA) binders were produced. Then, four different coating recipes were created by using the blends of these binders in different proportions. Paint tests were applied such as opacity, gloss, viscosity, and wet scrubbing resistance to all coatings produced. As a result of the study, it was observed that the styrene acrylate-based coating showed better scrub resistance than the coatings containing both VA / BA and binder blends. In the covering tests, the VA/BA-based coating gave the highest value, while the coatings containing the binder blend gave results between the opacity values of the pure binders.

Keywords: Styrene acrylate, binder, abrasion resistance, opacity

PERFORMANCE ANALYSIS OF PHOTOVOLTAIC SYSTEMS IN SOUTH EAST REGION CITIES OF TURKEY BASED ON METEOROLOGICAL DATA

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Abstract
Increase in energy consumption has triggered people to find cleaner and low-cost energy resources. Such energy resources are nothing but renewable energy resources. They do not waste the environment like petroleum-based resources. Also, their establishment is rather low-cost compared to other energy types. Solar energy is one of the fundamental member of renewable energy resources. Nowadays, photovoltaic systems are rather common at high sunshine duration countries. Turkey is one of such countries. It is located between 36°N and 42°N latitudes. South East region is the most sunshine region per year and hottest region in Turkey. Although irradiance increases output power, temperature rise decreases output power. In this paper, performance analysis of photovoltaic systems in 9 cities of Turkey's South East region, Şırnak, Batman, Siirt, Mardin, Diyarbakır, Şanlıurfa, Adıyaman, Gaziantep and Kilis based on meteorological data including temperature, irradiance are carried out. All in all, combined parameter analysis will give the overall performance of photovoltaic systems in Turkey's South East Region and this analysis will ease investors and energy producers to decide to establish photovoltaic systems in 9 cities of Turkey's South East Region.

Keywords: Performance, Analysis, Photovoltaic, Solar cell, Renewable Energy, Temperature

THE RELATIONSHIP BETWEEN THE ANTICANCER ROLE OF GENISTEIN AS A POLYPHENOLIC COMPOUND AND ANDROGEN RECEPTOR STATUS IN PROSTATE CANCER

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Abstract
Androgens and the androgen receptor (AR) have an important role in prostate cancer development. Therefore, androgen deprivation therapy (ADT) emerges as the primary treatment option for prostate cancer patients. However, most patients develop castration-resistant prostate cancer (CRPC), which ultimately results in the death of the patient. Recent studies have been investigating new therapeutic approaches in CRPC treatment, including dietary changes, and soy isoflavones have become the focus of attention due to their positive effects on many diseases, particularly in hormone-related cancers such as prostate and breast cancer. Genistein, as a natural isoflavone, is a phytoestrogen with a broad pharmacological action also plays a role in cell proliferation, regulation of the cell cycle, apoptosis, angiogenesis, and tumor cell metastasis. Studies have shown that genistein exerts a pleiotropic effect on prostate cancer cell proliferation and AR activity, depending on the AR status of the cells. Thus, investigating the effect of genistein on the AR signaling pathway in the prevention and/or treatment of prostate cancer appears to be a potential therapeutic target. In this study, it was aimed to reveal the current information about the anticancer potential of genistein mediated by its effects on the AR signaling pathway, with a particular focus on molecular action mechanisms. Thus, by summarizing the current knowledge and hypotheses regarding the action mechanisms of genistein on the AR signaling pathway in the development of prostate cancer, the future direction of its use as a potential treatment strategy in patients will be enlightened and the literature will be contributed to this issue.

Keywords: Androgen receptor, genistein, isoflavone, prostate cancer

COMPARISON OF THE USE OF PLATE AND INTRAMEDULLARY NAIL WITH FINITE ELEMENT ANALYSIS IN STABILIZING FEMUR SHAFT FRACTURES

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Abstract
Bone is a living tissue and ıts able to repair fractures by itself with its various mechanisms. It is critical that the fracture line remains constant in order for bone fractures to heal. One of the challenge to keeping the fracture line stable is the stress shield effect. Metal implants, which are very rigid compared to bone, are used to heal fractures. Rigid implants disrupt the physiological load flow in the bone, which can cause a stress shield effect. Fixation with plate and intramedullary nails are two commonly used methods for fixation of femoral fractures. The positioning site in fixation with an intramedullary nail is thought to have less effect on load flow in intact femoral bone than with plate fixation. To observe this situation, axial load was applied to the intact femur, plate-femur, and intramedullary nail-femur models, and the resulting equivalent stresses and stress distributions in the bone models were examined. Equivalent stress values in implants were obtained with a similar result, but the stresses in the intramedullary nail showed a more homogeneous distribution. In the strain distributions formed as a result of the study, the strain distribution formed in the intramedullary nail applied model is more similar to the strain distribution formed in the healthy femur. As a result of this study, the method of fixation with intramedullary nails was found to be more successful.

Keywords: Finite element analysis, plate, intramedullary nail

COATING OF HYDROXYAPATITE NANOPARTICLES, SYNTHESIZED BY MICROEMULSION TECHNIQUE, ON TI6AL4V ALLOY WITH ELECTROPHORETIC DEPOSITION METHOD

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Abstract
Hydroxyapatite (HAp) nanoparticles synthesized by microemulsion technique were coated on Ti6Al4V substrates by electrophoretic deposition (EPD) method in this study. Sodium Dodecyl Sulfate (SDS) surfactant, calcium hydroxide water based solution, benzene organic medium and diluted orthophosphoric acid were used in synthesis of hydroxyapatite nanoparticles. HAp nanoparticles were synthesized in the water microemulsion formed by a rapid mixing process. Synthesized HAp nanoparticles were coated on Ti6Al4V substrates for 5, 10, 15, 20, and 30 minutes by an electrophoretic deposition method, dried slowly in the air environment and sintered 1000 ° C under 10-4 mbar vacuum for 20 minutes. Crystal structure formation of the synthesized hydroxyapatite nanoparticles and coatings were investigated using X-Ray diffraction (XRD). Microstructures of the coatings before and after sintering were examined with a light microscope. In addition, Scanning Electron Microscopy (SEM) investigations showed that the size of the synthesized Hap nanoparticles was in the range of 20-200 nm.

Keywords: Hydroxyapatite, Microemulsion, Electrophoretic Deposition, Ti6Al4V, Sintering

THE EFFECT OF COOLING DESIGN ON THE PARTS QUALITY OF INJECTION MOLDING THE THICK WALL HDPE MATERIALS

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Abstract
Today, plastic molding technology is developing rapidly. With development of plastics industry and increase in researches, plastics have become more preferred than metals depending on cost and functionality. The fact that the plastic injection molding is fast, cheap and competitive manufacturing method, designers and manufacturers are choosed to produce even higher wall thickness parts with this method. The quality of these parts depends on process parameters, mold design and polymer properties. Especially in the production of thicker-walled parts, design of the cooling system which is the most important stage of mold design, has a very important role. After the injection process, either immediately after exiting the mold or after being cooled to ambient temperature, shrinkage and warpage problems may occur on the parts. A proper cooling design positively affects the quality of product in terms of shrinkage, warpage and collapse. In experimental study, HDPE thick-walled fittings is examined. The classical and advanced cooling designs were tested comparatively on the same mold, with the same process parameters. In the development of cooling system, "Moldex3D" flow analysis program is used to determine the locations of the cooling channels and possible shrinkage and warpages on the parts. The shrinkage and warpage results were examined after the dimensional checks on the finished parts. Advanced cooling design (GST) was observed to be 12% lower in longitudinally shrinkage and 48% lower in warpage when compared to the classical cooling design. Additionally, improvement in quality of the parts were investigated by increasing the packing times in advanced cooling design. With the same cycle time and holding pressure, four different packing times (110-160-200-250s) were applied and average reductions of 37% in longitudinal shrinkage and 57.64% in warpage were determined. Also, it was determined that increasement on mass with higher packing time, improves the mechanical strength by 7.72%.

Keywords: Injection molding, Mold cooling system, Shrinkage and Warpage, Moldex3D analysis program

ACCURACY OF RESTING METABOLIC RATE EQUATIONS

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Abstract
Objective: Resting metabolic rate (RMR) is recommended to be measured using indirect calorimetry. Since an indirect calorimeter may not be available in all settings, there are predictive equations used worldwide. As the predictive equations' accuracy may depend on ethnicity, we aimed to evaluate the most accurate prediction equation in Turkish adults. Methods: We included 57 voluntary participants (68.4% women) who were at normal body weight, and overweight or obese (64%). Harris-Benedict; Owen; WHO/FAO/UNU weight; and WHO/FAO/UNU weight and height equations; and Mifflin-St. Jeor equations were used to compare the predicted RMRs and the indirect calorimeter measurements. The root mean square error, mean percentage differences, and the concordance correlation coefficient was calculated, and Bland-Altman plots were used to indicate the predictivity of the equations and to show the deviation of the differences between predicted and measured RMRs. Results: Although it was not within the agreement of ±10% of the measured RMR which is accepted as accuracy, the Harris-Benedict equation provided the highest accuracy (61.9%), while Owen had the lowest (19%) for normal body weight. WHO/FAO/UNU weight equation had the highest accuracy with 58.3%, while Owen and WHO/FAO/UNU weight and height equation predicted with 25% accuracy for overweight and obese. Conclusion: Even none of the five widely used equations did show good accuracy regarding our RMR measurements via indirect calorimeter; Harris-Benedict equation is recommended for normal body weight and WHO/FAO/UNU weight equation for overweight and obese individuals until a new, population-based formula is developed.

Keywords: Resting metabolic rate, Indirect calorimeter, Prediction equation

ALKALOID EXTRACTS FROM GLAUCIUM CORNICULATUM ATTENUATES OXIDATIVE STRESS-INDUCED TAU HYPERPHOSPHORYLATION VIA REGULATING AKT/GSK-3B SIGNALING PATHWAY IN DIFFERENTIATED PC12 CELLS

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Abstract
Tau proteins that can stabilize the neuronal cytoskeleton are microtubule-associated proteins. Tau phosphorylation abnormalities increases the loss of tau's microtubule stabilizing capacity and neurite degeneration, and has been accepted as a pathological finding in Alzheimer's disease (AD) and other neurodegenerative diseases (NDs). Hence, tau-centered approach is on the agenda in the treatment of related diseases and in this context, natural phytochemicals with antioxidant properties can be an effective alternative in reducing the hyperphosphorylation of tau. In a previous study, we determined the alkaloid profile of alkaloid extracts from Glaucium corniculatum, and the anti-oxidative, anti-apoptotic, and cell cycle regulating effects of these extracts. In this study, it was aimed to investigate the reducing effects via regulating Akt/GSK-3β signaling pathway of allocryptopine-rich alkaloid extracts (chloroform and methanol) from G. corniculatum on oxidative stress-induced tau hyperphosphorylation in differentiated rat pheochromocytoma cells. For this purpose, the protein levels of phosphorylated (p)-Akt (Ser473), p-GSK-3β (Ser9), and p-Tau (Ser396 and Thr212), and total (t)-Akt, t-GSK-3β, and t-Tau (Tau5) were measured by Western Blot analysis. According to the results, H2O2, an oxidative stress inducer, decreased the levels of p-Akt and p-GSK-3β, while increasing the levels of p-Tau proteins. However, pre-treatment of both alkaloid extracts increased the levels of p-Akt (~4.5-fold) and p-GSK-3β (~3.2-fold) while decreasing the levels of p-Tau proteins (at Ser396 ~3.7-fold at Thr212 ~2.0-fold) (compared to H2O2-treated group) (**p<0.01), and the best results were obtained from the chloroform alkaloid extract (CAE). These results suggested that allocryptopine-rich alkaloid extracts, especially CAE, remarkably suppressed oxidative stress-induced the hyperphosphorylation of tau via regulating Akt/GSK-3β signaling pathway. Hence, our study showed the neuroprotective effects of allocryptopine-rich alkaloid extracts via suppression of tau hyperphosphorylation, so allocryptopine can be used as a tau aggregation inhibitor agent in drug development for AD and other NDs. This work is supported by 116S299/TUBITAK project.

Keywords: Alkaloids, allocryptopine, Akt/GSK-3β signaling pathway, neurodegenerative diseases, tau hyperphosphorylation.

NEUROCHEMICAL EFFECTS OF METHYLPREDNISOLONE AND METYRAPONE THERAPY IN POST-TRAUMATIC STRESS DISORDER

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Abstract
Post-traumatic stress disorder (PTSD) is an anxiety disorder characterized by a reminder that reminds a trauma experienced and re-creates the trauma in the person. During periods of stress, the paraventricular nucleus of the hypothalamus releases the stress peptide CRF, which increases the catabolism of energy stores and activates signal transduction pathways. Increases in the amount or effect of noradrenergic transmission have been included in the pathophysiology of PTSD. This ascending message; It may be caused by increased noradrenaline release, altered brain responses, or a combination of both factors. In our previous study, the effects of methylprednisolone and metyrapone on noradrenaline levels in the rostral pons were examined in PTSD, and the anxiety index of rats exposed to trauma was found to be significantly higher than the anxiety index of control rats. A significant reduction in freezing time was observed following methylprednisolone treatment in both stressed and non-stressed rats. The NA content in rostral pons of stressed rats was significantly higher than that of non-stressed rats. Methylprednisolone or metyrapone treatments have been found to reduce NA content compared to saline treatment in non-stressed rats. In this study, to demonstrate the role of steroids, their effects on the NA level in the hypothalamus region were investigated using prednisolone and metyrapone in a rat model of PTSD. Female rats of the Sprague-Dawley strain were divided into groups treated with physiological saline, methylprednisolone, or metyrapone. Following the injections, rats were exposed to the necessary clean or dirty cat litter consisting of two sessions to create stress. NA levels were analyzed using the ELISA kit. NA concentration of metyrapone-treated rats was found to be less in stressed rats than non-stressed rats ($p<0.05$). We concluded that the NA levels in the hypothalamus increased with the traumatic event. The findings suggest that methylprednisolone treatment may suppress anxiety.

Keywords: Noradrenaline, hypothalamus, methylprednisolone, metyrapone

REMOTE MONITORED INCUBATOR DESIGN

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Abstract
This study is an application designed for the babies in the neonatal intensive care unit and their families. In neonatal intensive care unit, families can see their babies in a very limited period. As a result, both families worry about their babies and babies long for their mothers. The aim of this study is to enable families to see their babies, even from a distance and babies feel themselves in the womb, by listening to their mother's heart sounds. In this study, the video image was obtained by placing the ESP32-CAM module in the incubator. The DHT11 sensor was used to measure the temperature and humidity inside the incubator. This information is displayed in mobile environment using Blynk interface developer via wifi. In this way, families can find the opportunity to watch their babies whenever they want. In addition, the neonatal nurse can use this app to control the temperature and humidity of the incubator. Due to the heart sound recorded in the ISD1820 sound recording module placed in the incubator, babies calm down by hearing the heart sound of their mothers.

Keywords: Camera, Incubator, Neonatal Intensive Care, Sound Recording Module, Temperature and Humidity Sensor

AN INVESTIGATION INTO THE SERVICE LIFE OF SEAL COATED ROADS IN TURKEY BASED ON THE PERMANENT DEFORMATION ON THE SUBBASE LAYER

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Abstract
Complex effects such as variations in service loads, uncertainties in material characteristics, changing environmental conditions (precipitation and temperature), and geographical differences are largely responsible for pavement design. Using mechanistic-empirical methods is increasing, and many approaches based on experimental methods leave their place to mechanistic approaches with performance criteria. In many countries, project administrations or organizations have started to formulate their specifications based on these methods. These adaptation studies are also continuing in Turkey. Although these methods are generally used in high-volume flexible and rigid pavements, using in low-volume seal coated pavements is limited due to economic reasons. In this study, structural design of seal coats is handled with a mechanistic approach. Seal coated pavement is designed by empirical methods with 10 years as a "project period" in Turkey. Considering the project period, a mechanistic design algorithm has been proposed depending on the compressive strain on the top of the subgrade. Due to the acceptable axle load repetition into the service life, an analysis with KENPAVE has been examined, which is the amount of permanent deformation that is likely to occur at the end of 10 years. As a result of the study, it was observed that there was a significant relationship between the the subgrade Resilient Modulus (MR), Equivalent Single Axle Load (normally designated ESAL's) and subbase thickness. In addition, thanks to Response Surface Methodology (RSM), using a design chart developed that is an alternative solution to the empirical method. In an economic evaluation, it was determined that the mechanistic method offered a relatively more expensive solution in middle class soil's MR.

Keywords: Seal Coat, Subgrade Resilient Modulus, Mechanistic Pavement Design, Optimum Pavement Thickness, Permanent Deformation

INVESTIGATION OF STABILITY OF PLGA/DOXORUBICIN NANOPARTICLES

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Abstract
In current cancer treatments, especially the systemic distribution of antitumor agents, nano-carrier systems have been developed to overcome many of the disadvantages encountered. Among them, polymeric nanoparticles have drawn great attention with their many advantages such as having small sizes, ability to tumor-targeted drug release, easy to fabrication, having high stability, biodegradability, and so on [1, 2]. First of all, the water in the environment must be removed for the nanoparticles (NP), which are generally prepared in the form of liquid suspensions, to be applied clinically and to be stored on shelves for a long time. If the water in the formulation is not removed, some physical and chemical instabilities may occur as a result of the NPs remaining in liquid form [3, 4]. In this study, PLGA/doxorubicin nanoparticles were formulated with changing various parameters such as surfactant concentration and drug/polymer ratio. The size analyses were performed and drug loading efficiency of the NPs were calculated. The stability of these NPs with/without sugar has been examined by the freeze-thaw process in detail.

Keywords: Poly(lactide-co-glycolide), Doxorubicin, Nanoparticle

THERMOSENSITIVE POLY(MENTHIDE)-PEG HYDROGEL SYSTEMS FOR LOCAL TREATMENT

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Abstract
The chemotherapy method is commonly used in the treatment of cancer diseases which result in serious deaths worldwide. In this method, in which drug distribution takes place systemically, delivering sufficient drug concentration to the target tumor tissue and maintaining the drug level here is a big problem. Serious toxic effects occur due to this systemic distribution [1]. Contrary to conventional cancer treatments, applications of localized drug release system both diminish toxicity in healthy tissues and provide continuous release of therapeutic agents in the site of action by preventing the systemic distribution [2]. Injectable polymeric hydrogels, which particularly notable for their use in drug delivery systems, can be applied locally to the tumor region without any surgical operation. Among them, physically crosslinked thermosensitive injectable hydrogels are available in the form of aqueous solution at low temperatures, while at higher temperatures they change to the gel form [3]. Within the scope of this study, biodegradable MePEG-poly(menthide) (AB diblock) and poly(menthide)-PEG-poly(menthide) (ABA triblock) copolymers were synthesized by the method of ring opening polymerization of (-)-menthide as an alternative to PEG-based PLA, PLGA, and PCL copolymers, and their characterizations were carried out using spectroscopic (NMR, ATR-FTIR), chromatographic (GPC), and thermal techniques. Subsequently, thermosensitive properties of the synthesized copolymers were meticulously investigated to produce injectable hydrogels for localized drug delivery systems. As a result, copolymers that can be injected at 42-45 ºC (sol form) and can show gel form by cooling to body temperature were determined.

Keywords: Local Treatment, Thermosensitive Biodegradable Polymers, Poly(Menthide)

SYNTHESIS AND CHARACTERIZATION OF TRANS-DACH BASED SQUARAMIDE ORGANOCATALYST

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Abstract
Squaramide organocatalysts consist of the combination of an H-bond donor (squaramide) and an H-bond acceptor (amine). Squaramide catalysts, which were developed for asymmetric synthesis by Rawal's group for the first time in 2008, are preferred in many reactions due to their bifunctional structure [1]. Squaramides differ significantly from other organocatalysts due to their properties such as H-bond angle, H-bond spacing, and functionality. The most important difference between the other organic catalysts and squaramides is the relative distance and spacing between the two N-H groups. This differences were attributed to the “square structure” of cyclobutendione. The squaramides could form strong H-bonds with the carbonyl group [2,3]. For this reason, there are some studies related to the squaramides being an effective catalysts for lactide polymerization in the literature [4,5]. The reason for using squaramide as an organocatalyst is that while the squaramide part in the catalyst structure forms strong hydrogen bonds with the carbonyl group; the basic side consisting of tertiary amine in the second part activates the alcohol in the reaction medium. This results in obtaining an efficient bifunctional catalyst. In this study, starting from (1R,2R)-1,2-DACH mono -(+)-tartrate salt, 3-(((1R,2R)-2-(piperidin-1-yl)cyclohexyl)amino)-4-((4-)(trifluoromethyl)phenethyl)amino)cyclobut-3-ene-1,2-dione organocatalyst was synthesized. After obtaining (1R,2R)-1,2-DACH in free form starting from the (1R,2R)-1,2-DACH mono-(+)-tartrate salt in basic medium, one of the free amines was protected. In the next steps, the single protected (1R,2R)-1,2-DACH is converted to the piperidine ring by the ring closure reaction of the free amine and the protection on the amine was removed. In the last step, the organocatalyst is obtained from the reaction of the free amine of piperidine functionalized (1R,2R)-1,2-DACH with the squaramide starting material. All the compounds synthesized in this study were characterized by using 1H- and 13C-NMR, FT-IR analysis.

Keywords: Squaramide, organocatalyst, polymer

SENTIMENT ANALYSIS ON COVID-19 VACCINES TWEETS

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Abstract
The recent coronavirus disease (COVID-19) pandemic is straining the world's health-care system as well as humanity's social, economic, and psychological well-being. Individuals, organisations, and governments are using social media to communicate with each other about the COVID-19 vaccines. Twitter is a social media platform with over 500 million users around the world. It has evolved into a tool for disseminating information, debating ideas, and providing commentary on global events. Given the amount of news, views, and knowledge exchanged by both citizens and official sources, Twitter is also a significant source of health-related information. Since nothing is known about how people reacted to the COVID-19 vaccines that were posted on Twitter, analyzing such data will assist policymakers and health care organizations in assessing and responding to the needs of their stakeholders. In this article, we use sentiment analysis to analyze 46,060 of English tweets in the United States, a nation with a high number of COVID-19 spreads and deaths. We noticed that the majority of tweets are neutral, with more positive than negative. It's promising that negative feeling isn't more prevalent!

Keywords: COVID-19, Vaccine, Universal Language Model Fine-Tuning (ULMFiT), Twitter Sentiment Analysis

THE IMPACT OF COVID-19 ON FIRMS INTERNATIONALIZATION

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Abstract
Many firms, due to pandemic situation, had to rethink regarding strategies of location choice. Recent literature investigates on how COVID-19 pandemic has influenced the process of firms' internationalization and its effects on global value chains and management, but still remain some doubts on this topic. For instance, many manufacturing firms due to coronavirus pandemic, have reshored in their home country part of their activities that previously was offshored. Also, the COVID-19 pandemic has intensified the debate related to the reconfiguration of firms' value chains. Moreover, the extent of its actual impact on internationalization process is still uncertain due to the spread of the disease. The purpose of this article is to analyze the impact of COVID-19 pandemic on firms' location choices, in particular on manufacturing firms. Moreover, it will investigate the influence of the pandemic on firms' key business processes and in particular how they conducted the business management during the pandemic. Both qualitative and quantitative methods will be used in order to conduct the study. A literature review will be used in order to individuate the investigated firms following by a cluster analysis. This study offers important insights on strategies of location choices due to pandemic coronavirus. The results of the study show that COVID-19 has a significant impact on internationalization process firstly, constraining firms rethinking on the manufacturing location decision and, secondly on the reconfiguration of the firms' value chains. It contributes on enlarging the literature on international business. Future studies may implement the methodology used in this study in order to extend the understanding of the issue.

Keywords: internationalization, COVID-19, strategies, offshoring, reshoring.

EX-SITU CONSERVATION AND EXHIBITION OF THE PLANTS IN ROCKY HABITATS; NATIONAL BOTANICAL GARDEN OF TURKEY 'ROCK GARDEN' AS AN EXAMPLE

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Abstract
The rocky habitats with little or no human use and interventions are rich in terms of biodiversity. Investigating the natural and also the visually valuable rocky habitats has also a great importance in landscape studies. Displaying live plants in Botanical Gardens is extremely important in terms of both conservation and awareness. The Directorate of National Botanical Garden of Turkey (NBGT) was established in 2018 in Ankara and some concept gardens have been created in it. In this study, supported by the General Directorate of Agricultural Research and Policies (TAGEM) and numbered as TAGEM/BBAD/B/20/A1/P9/1951, it is aimed to collect the plants living in rocky habitats in Ankara from their natural habitats and to exhibit them in the NBGT area. At the same time, some endangered plants were added to the target plants in order to contribute to the conservation activities, which is the main task of Botanical Gardens. The Rock Garden, which will be established on an area of approximately 10.000 square meters, will contribute to the work done about biodiversity in Turkey and to the plant variety of the Botanical Garden. In the first year of the project, herbarium samples were prepared from the taxa that could be accessed through field studies and added to the National Herbarium collection. In addition, tissues belonging to endemic taxa were taken to silica for DNA and Tissue Banks and to 70% Ethyl alcohol solution for Anatomic Slide Collection. During the field studies, plants with high landscape value that can be displayed in the rock garden were collected and added to the collections, and reproduction works started with all the seeds collected.

Keywords: Botanical Garden, Endemic, Rock Garden, Conservation

CLUSTERING ANALYSIS BASED ON K-MEANS ALGORITHM FOR MALL DATA

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Abstract
Data mining is the process of turning raw data which are contained in huge datasets into useful information. It is well-known that data mining has different applications such image processing, data analysis, pattern recognition, market research and many more. Clustering is an important stage in data mining. Clustering analysis is the process of grouping similar objects in clusters based on common attributes among these objects. There are different methods for performing data clustering. Efficient clustering helps in taking critical decisions and also helps in improving the studied system performance. This work presents clustering analysis of real data taken from a Mall based on K- Means algorithm and using Python programming language. The Mall system has been analyzed and data have been collected. The conducted work shows the efficiency of clustering, based on K- Means algorithm, in customer classification in marketing research.

Keywords: data mining , k- Means algorithm , clustering

METHODOLOGICAL INVESTIGATION OF GRADUATE THESES AT THE SECONDARY SCHOOL LEVEL IN THE FIELDS OF DATA PROCESSING AND PROBABILITY LEARNING

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Abstract
The aim of this study is to analyze the distribution of postgraduate theses published on the subject from a methodological perspective. In order to allow the theses to be examined objectively, the researcher created a "Data Processing and Probabilistic Learning Area Theses Examination Form" by obtaining expert opinion over Google Foms. 63 master's and doctoral theses made in Turkey at secondary school level between 2005-2020; It was examined according to the variables of "Purpose", "Design", "Model", "Data Collection Tool" and "Measured Feature" and the distribution of theses by variables was determined by content analysis. The obtained findings are presented in tables and graphics, and percentage and frequency information are included. According to the findings: It was concluded that the researchers preferred scales more as data collection tools, they used the quantitative research model and the quasi-experimental design intensively. It was concluded that the most measured feature in theses is success and theses aim to reveal the effectiveness of a particular method.

Keywords: Content Analysis, Probability, Data Processing

ANTIBACTERIAL EFFECTS OF ZINC NANOPARTICULES SYNTHESIZED BY CHEMICAL AND BIO-SYNTHESIS METHODS

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Abstract
Nanoparticles have distinctly distinctive features in terms of molecular properties and mass. Nanomaterials are a class of materials that are ultra-fine powders with particle sizes of 10-100 nm. Nanoparticles are used in different industrial fields, especially in the biomedical, electrical-electronics, automotive, physics, biology and chemistry sectors due to their rich valence electrons and their properties to their various electronic structures. Zinc is a blue-light gray brittle metal. It is a transition element with a low boiling temperature, found in the lattice structure of most primary and secondary minerals. In our study, it was aimed to examine and compare the antibacterial activity of the zinc nanoparticles that we synthesized. In the study, Zn nanoparticles were synthesized by biosynthesis (ZnNP-B) and chemical synthesis (ZnNp-C) methods and their structures were characterized by SEM, FTIR and XRD techniques. The biosynthesis method was obtained by using Zn(NO3) and laurel extract as reducing agents. In the chemical method, it was obtained by reducing Zn(NO3) with KOH. The ZnNPs obtained were washed in the same way in both methods and dried under the same conditions. Escherichia coli and Staphylacoccus aureus bacteria were used to examine its antimicrobial activity. The obtained ZnNP-B nanoparticle showed very good activity for both bacterial strains.

Keywords: Antibacterial activity, Antioxidant, Gram-negative, Gram-positive, Green Synthesis, Nanoparticles

ISOLATION OF BACTERIOCINOGENIC LACTIC ACID BACTERIA FROM RAW MEAT AND MEAT PRODUCTS AND THEIR IDENTIFICATION BY MOLECULAR METHODS

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Abstract
In this study, isolation of bacteriocinogenic lactic acid bacteria (LAB) from raw meat and meat products and identification of these isolates by molecular methods were aimed. For this purpose, a total of 120 raw meat (20 lamb/sheep, 20 goat and 20 calves) and meat product (40 sausage and 20 pastrami) samples obtained from Afyonkarahisar, Antalya, Isparta, Kayseri and Muğla provinces were used. As a result of the antibacterial activity screening tests using Listeria monocytogenes and Staphylococcus aureus as indicator bacteria, it was determined that 18 isolates gave zones with diameters varying between 3 and 22 mm against the indicator bacteria. All 18 isolates were determined to be Gram positive and catalase negative, and isolates were identified as presumptive LAB. Antibacterial activity spectra of 18 isolates were tested against 28 indicator bacteria. As a result of the tests to determine the activity spectrum, 8 isolates that gave a sharp-edged zone greater than 4 mm and were determined to have a broad spectrum of activity were selected as working materials. It was determined that all antibacterial agents produced by 8 isolates lost their activity with the application of proteolytic enzymes. In line with these results, 8 isolates were identified as bacteriocin producers. As a result of 16S rRNA gene sequence analysis and species-specific polymerase chain reaction (PCR) analyzes, 5 of the isolates were identified as Enterococcus faecium and 3 of them as E. mundtii. Random Amplified Polymorphic-DNA (RAPD-PCR) method was used for the genotyping of Enterococcus strains. Agarose gel electrophoresis profiles of DNA fragments amplified by RAPD-PCR were analyzed with GelJ program. As a result of RAPD-PCR profiles, 8 different patterns were determined and it was determined that the isolates were genotypically different from each other.

Keywords: Raw meat, Meat product, Bacteriocin, Lactic acid bacteria (LAB), Enterococcus, Polymerase chain reaction (PCR)

INVESTIGATION OF FLUORESCENCE QUANTUM YIELD AND LIFETIME OF NEW NICKEL(II) PHTHALOCYANINE DERIVATIVE

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Abstract
Since the discovery of the phthalocyanines, the main focus of the chemists has been on tailoring of their properties to produce molecular materials for previously targeted medical or technological applications. Thus many efforts are geared towards the synthetic strategies in order to increase the range of possible molecules. The intense blue-green color of phthalocyanines is due to the electronic delocalization of their 18 π electrons. This made them to be initially utilized industrially as dyes and pigments in various fields. In recent years, the fabrication and study of electric, electronic and photonic devices employing organic semiconductors have attracted much attention. This is mainly due to their advantages of low cost, simplicity of device fabrication, and interesting electrical and optical properties Nickel Phthalocyanine (NiPc) is insoluble in water so it seems reasonable to investigate NiPc as a humidity sensor (2). In addition to, etals such as Ni, Fe and Pt are well-known catalysts for graphite formation. In this study, the synthesis of a new type A2B2 nickel(II) phthalocyanine compound was reported for the first time. New phthalocyanine was fully characterized by standard spectroscopic methods (FT-IR, ^{1}H-NMR, UV/Vis and mass spectroscopies) and elementel analysis as well. Also, it was Investigated of Fluorescence Quantum Yield and Lifetime

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REMOTE MONITORING OF THE QUALITY OF PURE WATER PRODUCED AT THE REVERS OSMOSIS PLANT

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Abstract
Ro(Reverse osmosis) plants used in industrial water treatment plants are a water treatment process used to remove ions, unwanted molecules and particles larger than drinking water from raw water with high conductivity entering the RO device. The efficiency of the RO plant is of great importance in terms of the purity of the water produced. At this point, remotely monitoring and recording the efficiency of the RO facility is of great importance for the healthy operation of the RO facility. For this purpose, the efficiency information of the RO facility controlled by the programmable controller was calculated by connecting to the programmable controller using the C# software program and calculating the efficiency of the RO facility. Calculated efficiency information is shared in the CloudMqtt environment of the corresponding software written in the C# program. In addition, with a new software, the Windows application written in the C# environment pulls the relevant yield information sent to the CloudMqtt environment and saves it to the Access database. In this way, the efficiency value of the RO facility is monitored remotely and recorded in the past. In this way, instead of using a high-cost device, System data control was provided with a new algorithm and software at a lower cost.

Keywords: Reverse Osmosis Plant, Remote Monitoring, Industry 4.0

DEVELOPMENT OF A BORON NITRIDE BASED BIOSENSOR

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Abstract
Biosensors have a wide range of applications in many areas, including the food processing industry, due to their simple handling, high sensitivity, short analysis time, low cost of analysis and potential for real-time measurements. Routine determination of residual pesticide amounts in foodstuffs in the food industry is extremely important for human health. Some of the methods used for the determination of pesticides are time-consuming, labor-intensive and expensive. The use of biosensors in the determination of pesticides is seen as an important alternative. The phosphorylated and carbamate classes of pesticides bind to the active estearic domain of the enzyme and inhibit the biocatalytic activity of the catalytic triad of AChE ((histidine, serine, and aspartic acid) by phosphorylation and carbomylation. adsorption, crosslinking and arrest into polymer matrix have been used in recent years. Nevertheless, the number of studies was not sufficient. The use of conductive polymers, their derivatives, copolymers and composites as transducers in biosensors based on acetylcholinesterase inhibition should be expanded. The development of ideal pesticide biosensors that are fast, easy to use, economical, stable and have low detection limits are considered important for future promises with the new studies to be made on the subject. In this study, boron nitride biosensors will be designed for pesticide determination. In order to determine the optimum working conditions of acetylcholine esterase enzyme electrode immobilized on boron nitrile thin film, the current values measured for pH effect, ambient temperature and buffer solution concentration will be examined. Next, the stability of the biosensor and the influence of particles that can interfere with the electrode response will be determined.

Keywords: Boron Nitride, Acetylcholine esterase, Pesticide