

EJONS

INTERNATIONAL JOURNAL ON MATHEMATICS, ENGINEERING & NATURAL SCIENCES

15th. INTERNATIONAL CONFERENCE ON

MATHEMATICS, ENGINEERING, NATURAL AND MEDICAL SCIENCES

March 16-18, 2023
Buenos Aires, Argentina

ABSTRACT BOOK

Edited by

Prof. Dr. Hasan EKİM

Dr. Nurlan AKHMETOV

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ABSTRACT BOOK



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TITLE OF CONFERENCE

15th. INTERNATIONAL CONFERENCE ON MATHEMATICS,
ENGINEERING, NATURAL AND MEDICAL SCIENCES

PARTICIPATION

Keynote & Invited

DATE - PLACE

March 16-18, 2023
Buenos Aires, Argentina

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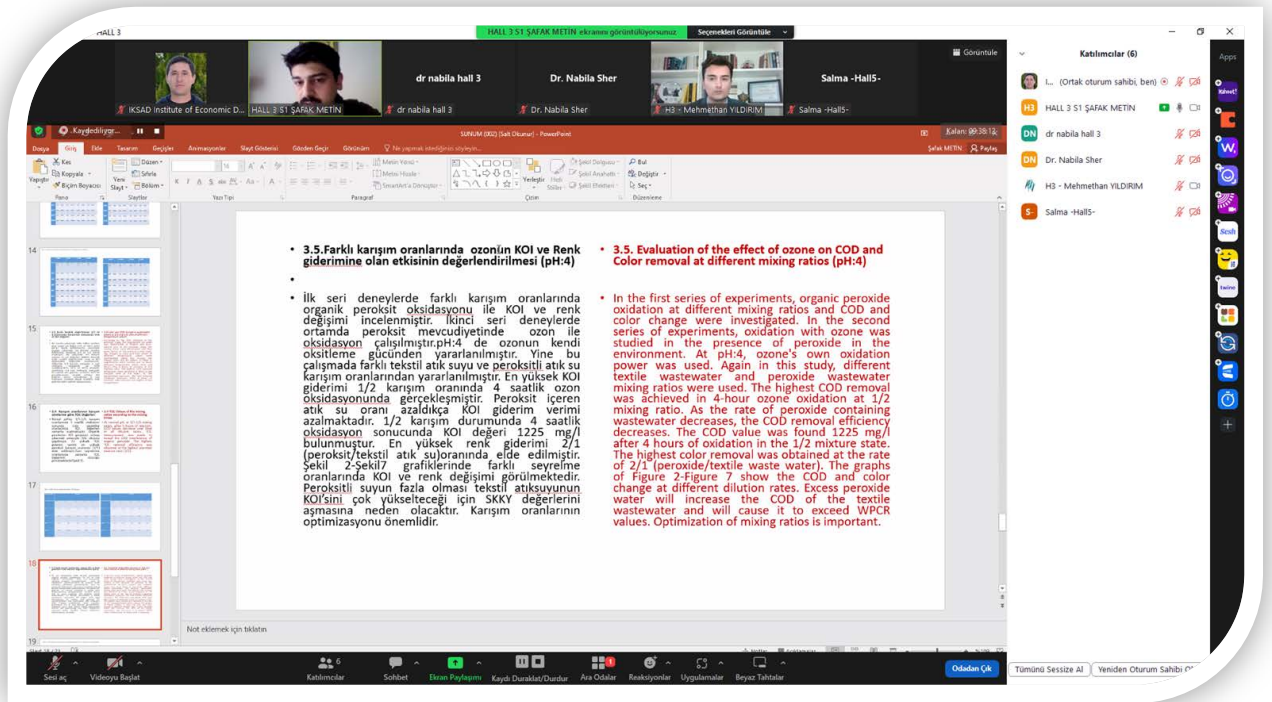
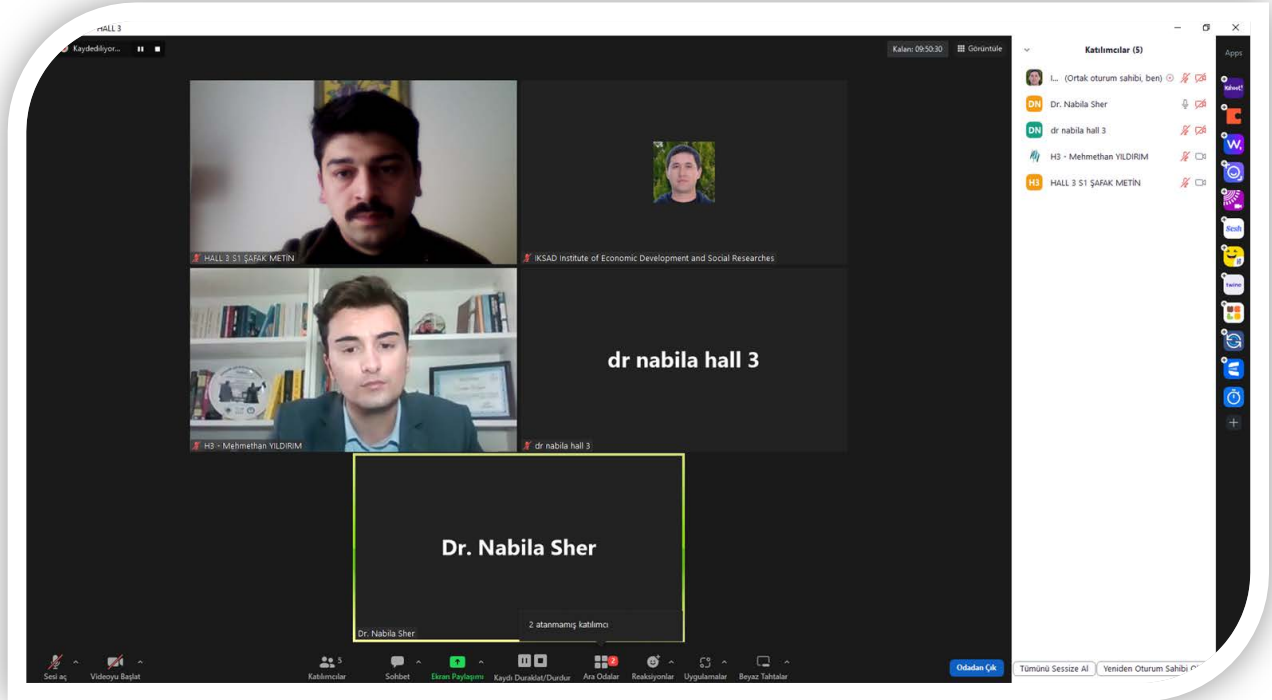
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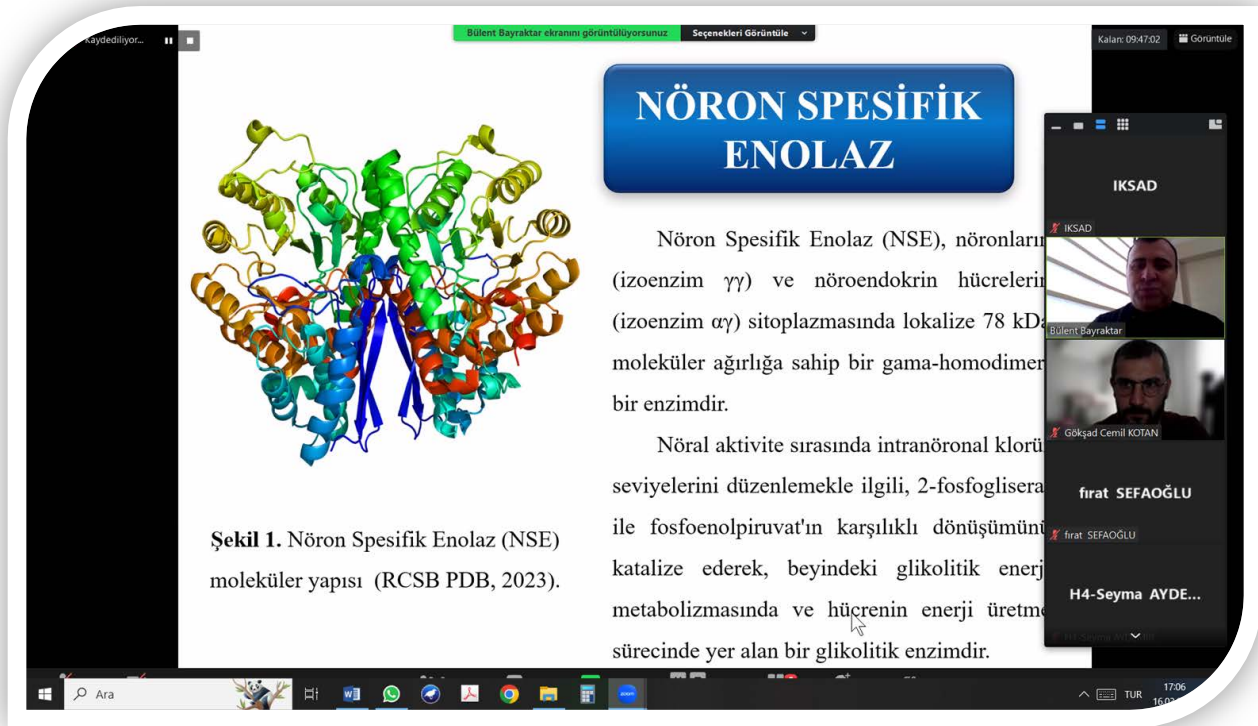
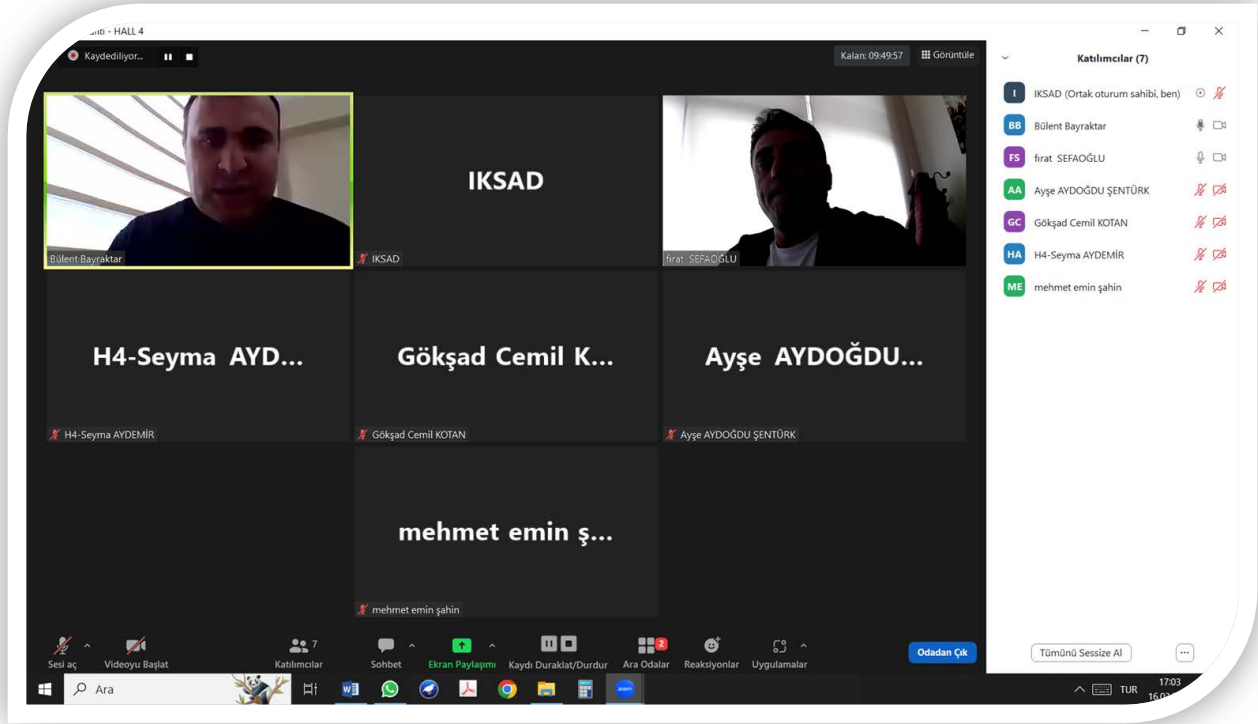
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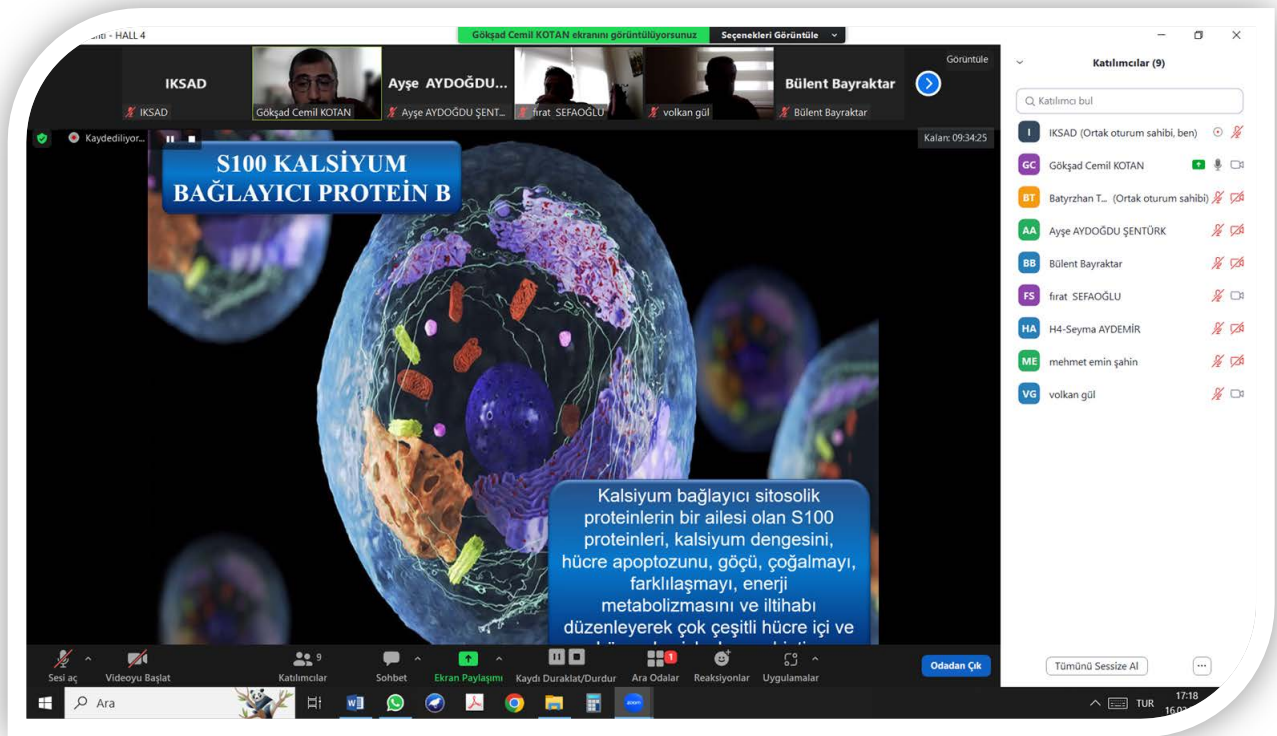
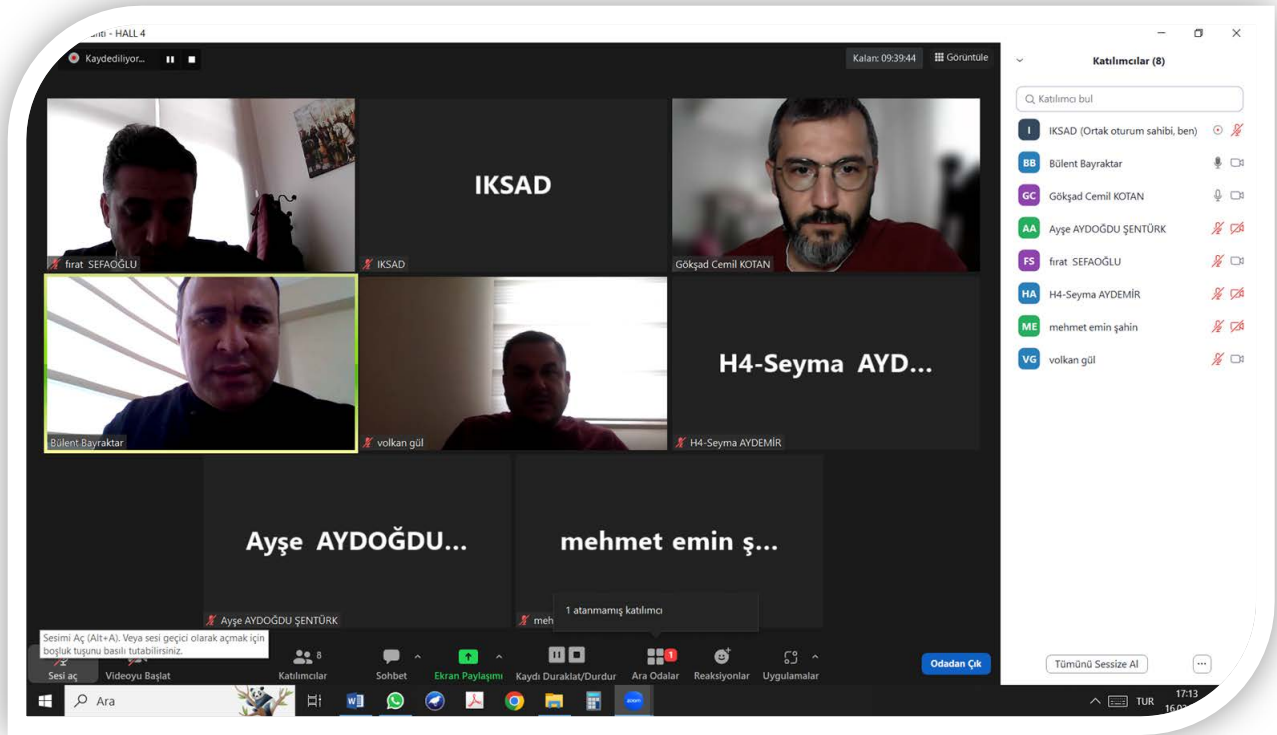


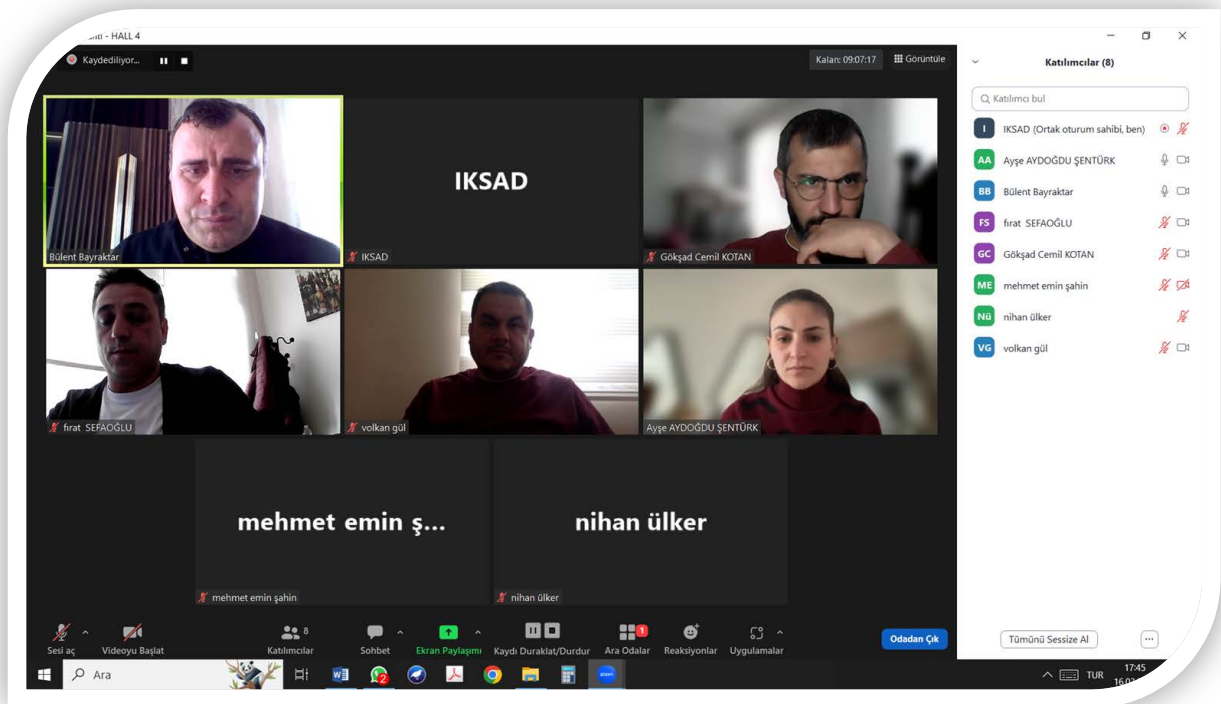
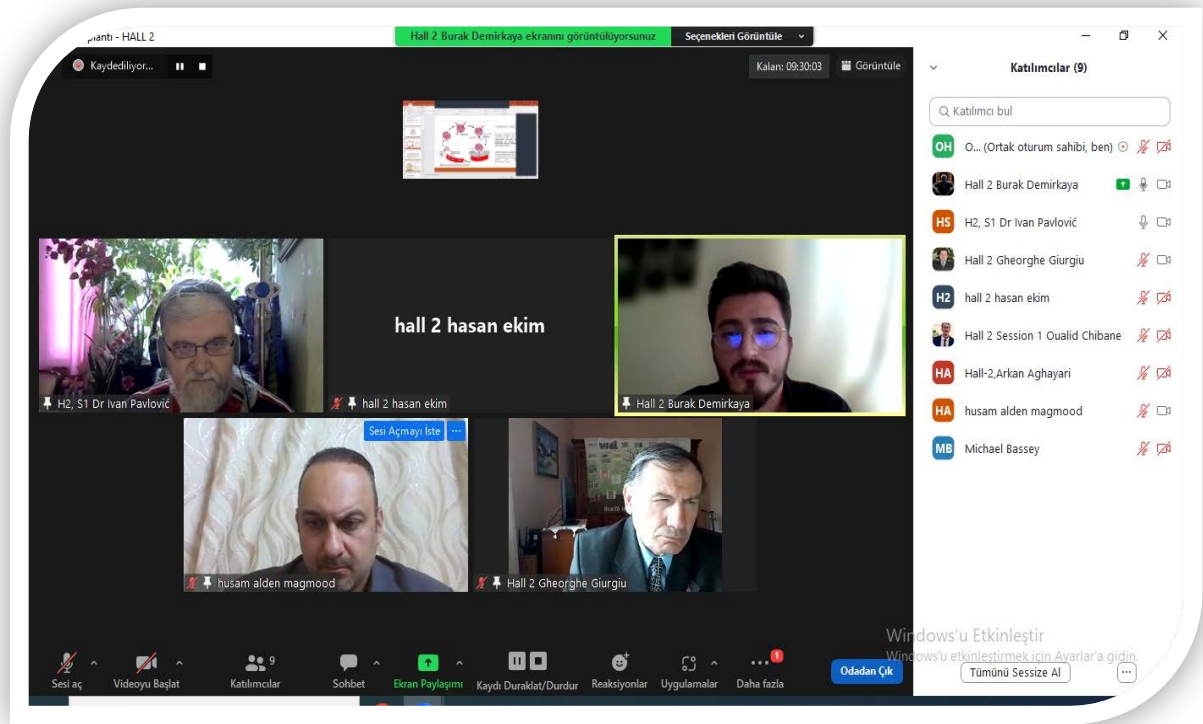
Sonuç ve Tartışma
Conclusion and Discussion

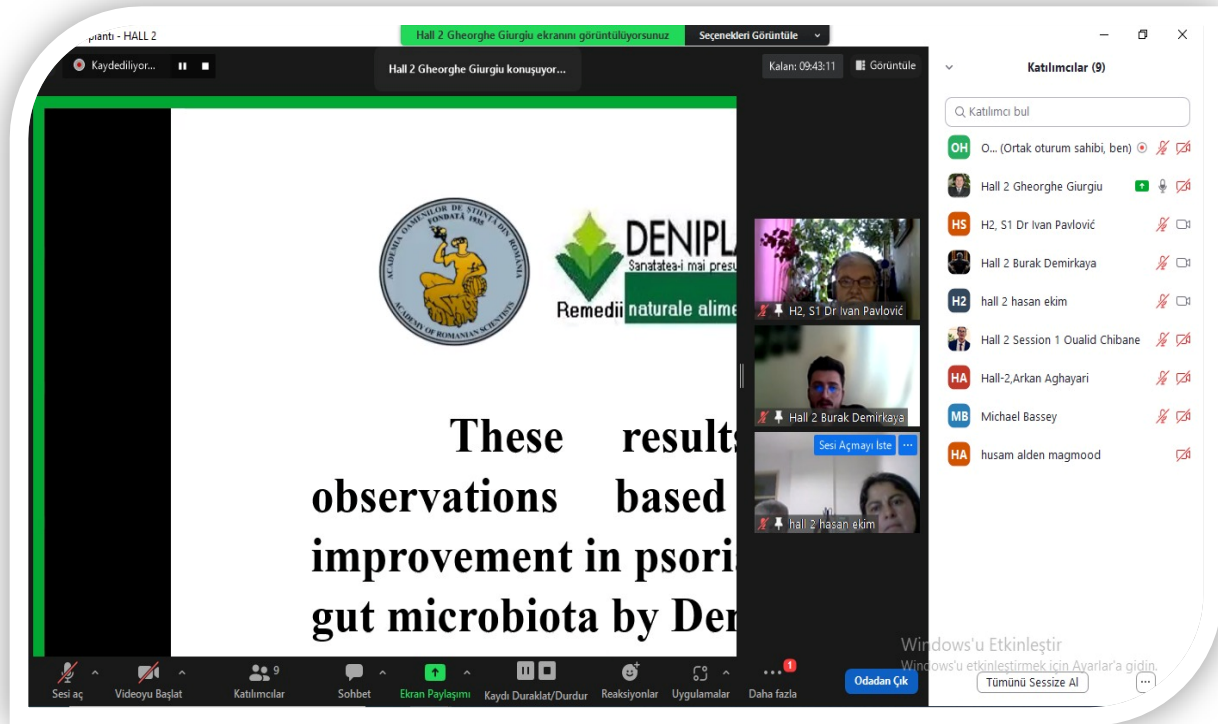
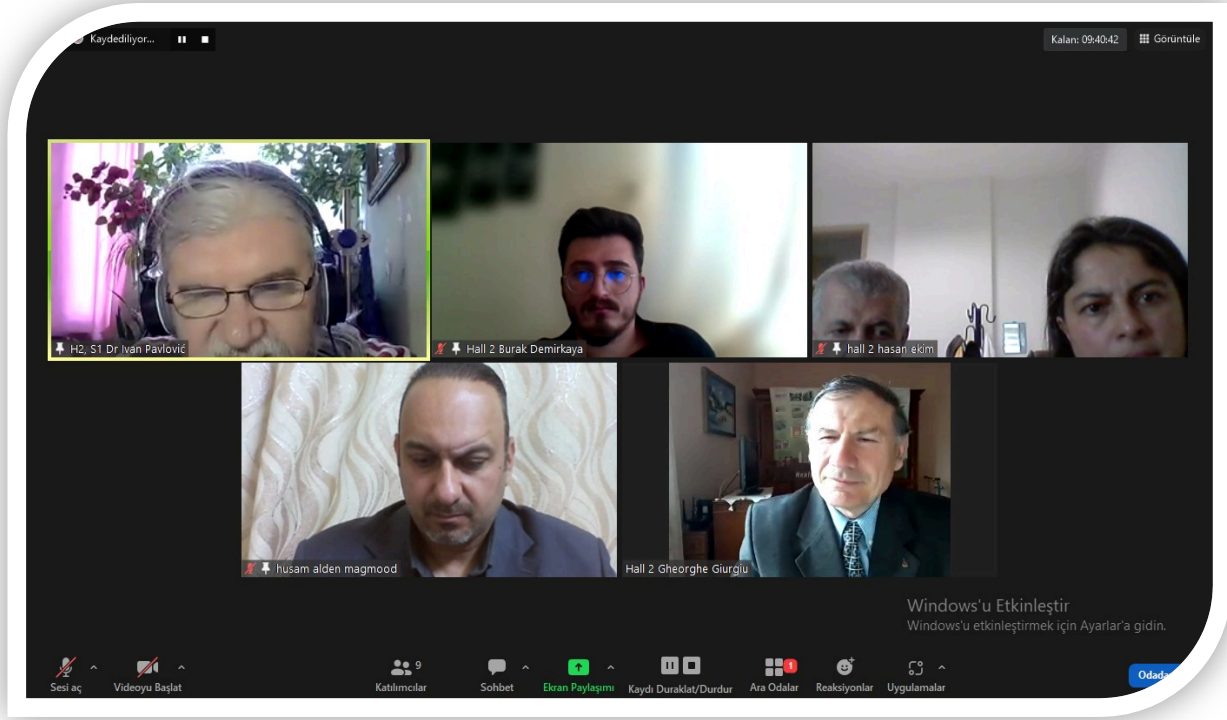
- 24.Saat fotoğraflarında görüldüğü üzere $10 \mu\text{M E} + 50 \mu\text{M V}$ kombinasyonundan itibaren ilaç kombinasyonunun etkili bir şekilde hücrelerin metastazını etkilediği ve öldürdüğü gözlemlenmiştir.
- 48.Saat fotoğraflarına bakıldığında ise en yüksek doz kombinasyonu olan $10 \mu\text{M E} + 100 \mu\text{M V}$ ilaç kombinasyonunun da hücrelerin büyümesini engellediği ve 24.saate nazaran etkisinin güçlü bir şekilde tesir ettiği gözlemlenmiştir.
- 72.Saat fotoğraflarına bakıldığında $10 \mu\text{M E} + 100 \mu\text{M V}$ kombinasyonunun hücre ölümünde diğer dozlara göre hücreleri daha iyi öldürdüğü söylenebilir.
- As seen in the 24th hour photographs, it has been observed that the drug combination effectively affects and kills the metastasis of cells starting from the combination of $10 \mu\text{M E} + 50 \mu\text{M V}$.
- Looking at the 48th hour photographs, it was observed that the highest dose combination, $10 \mu\text{M E} + 100 \mu\text{M V}$ drug combination, also inhibited the growth of cells and had a stronger effect compared to the 24th hour.
- Looking at the 72nd hour photographs, it can be said that the combination of $10 \mu\text{M E} + 100 \mu\text{M V}$ kills cells better than other doses in cell death.

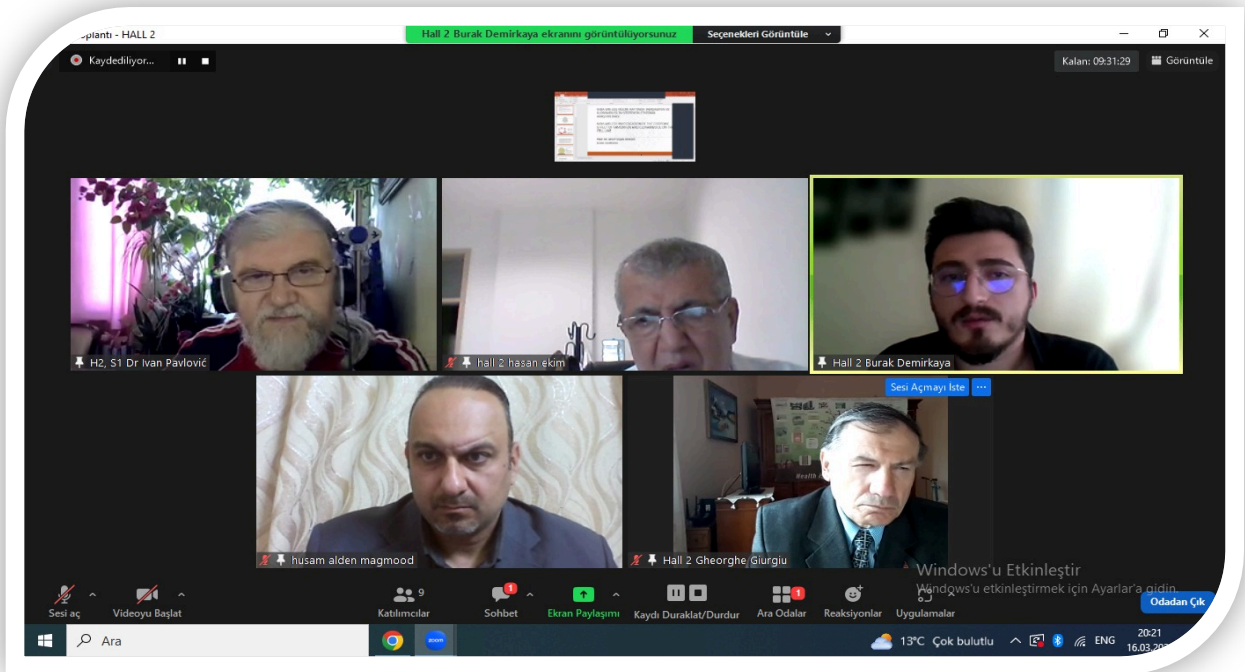
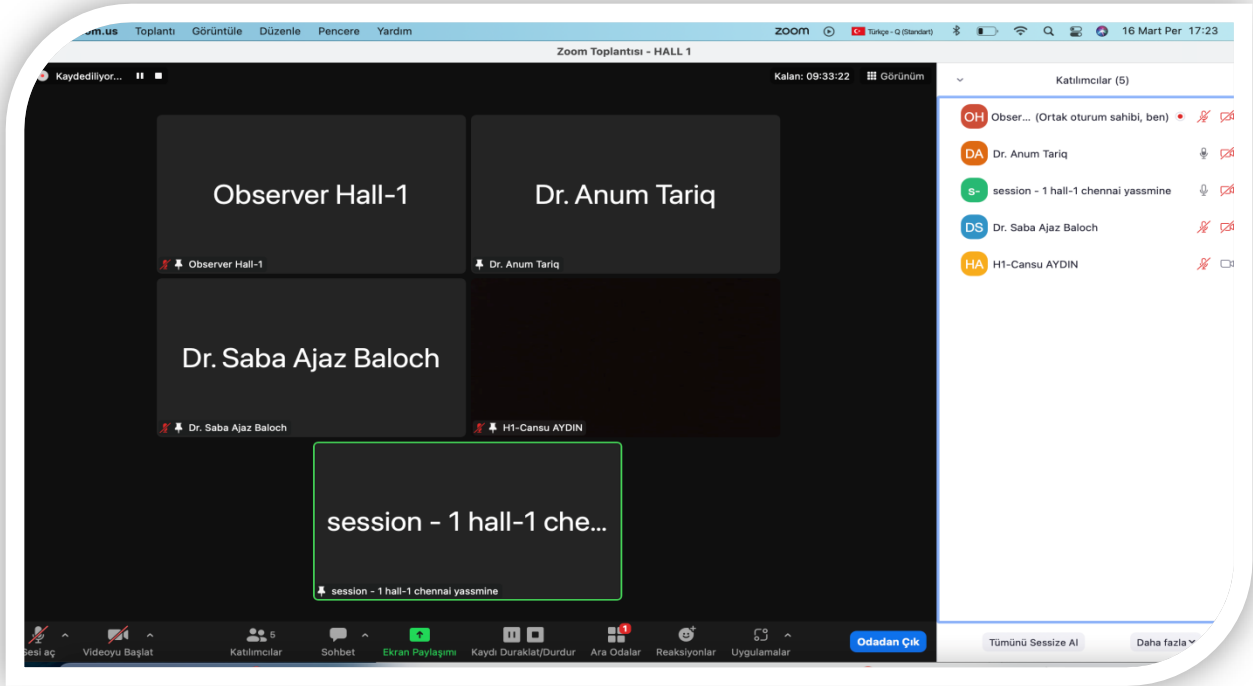
Dr. Nabila Sher











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E J O N S
**15th INTERNATIONAL CONFERENCE ON
MATHEMATIC, ENGINEERING AND
NATURAL SCIENCES**
March 16-18, 2023
Buenos Aires, Argentina

**CONFERENCE
PROGRAM**

Online (with Video Conference) Presentation

Participating Countries:

Turkiye, Pakistan, Algeria, Romania, Iran, Serbia, Nigeria, Morocco,
India, Bulgaria, Slovenia, France,
Azerbaijan

Date / 16.03.2023

Buenos Aires Local Time / 11:00-13:30

Ankara Local Time / 17:00-19:30

Head of Session: **Prof. Dr. Huma Ali & Dr. Anum Tariq**

Hall-1 / Session-1

Zoom Meeting ID: 839 9319 6566

Zoom Password: 491844

AUTHORS	PRESENTATION TITLE	AFFILIATION
Prof. Dr. Huma Ali Dr. Saba Ajaz Baloch Dr. Yousra Shafiq	Faculty Development Initiatives: Need Mentorship and Strategies to Improve Effective Communication	<i>Institute of Pharmaceutical Sciences Jinnah Sindh Medical University Karachi Pakistan.</i>
Dr. Anum Tariq Prof. Dr. Huma Ali	Capacity Building Strategies Towards Better Understanding and Quality Education: Faculty and Students Engagement	<i>Institute of Pharmaceutical Sciences Jinnah Sindh Medical University Karachi Pakistan.</i>
Faryal Gohar Humaira Muzaffar Usman Haider Wania Nasir Nabeel Ahmad Wafa Majeed Najeeb Ullah Khan Muhammad Naeem Faisal	Effect of Ocimum Tenuiflorum and Lepidium Meyenii Herbal Extract in the Management of Polycystic Ovarian Syndrome in Rat Model	<i>Department of Physiology, Government College University, Faisalabad, Pakistan. Institute of Physiology and Pharmacology, University of Agriculture Faisalabad, Pakistan.</i>
Chennai Yassmine Ouassaf Mebarka	Contribution to drug discovery through computational analysis of several series of heterocyclic molecules	<i>Group of Computational and Pharmaceutical Chemistry, LMCE Laboratory, University of Biskra, Algeria.</i>
Chennai Yassmine Ouassaf Mebarka	Qualitative Structure-Activity Relationships and 2D-QSAR Modeling of CK2 inhibitors	<i>Group of Computational and Pharmaceutical Chemistry, LMCE Laboratory, University of Biskra, Algeria.</i>
Chennai Yassmine Belaidi Salah	Antibacterial and anti-oxidant activities of extracts from medicinal	<i>University of Biskra, Chimie Prmaceutique, Biskra, Algeria.</i>
Chennai Yassmine Belaidi Salah	QSAR modeling using Gaussian process applied for a series of flavonoids as potential antioxidants	<i>Group of Computational and Pharmaceutical Chemistry, LMCE Laboratory, University of Biskra, Algeria.</i>
Chennai Yassmine Belaidi Salah	Simulation and 2D QSAR studies of several series of heterocyclic molecules	<i>Group of Computational and Pharmaceutical Chemistry, LMCE Laboratory, University of Biskra, Algeria.</i>
Cansu AYDIN Assist. Prof. Dr. Selin ÖZKAN KOTİLOĞLU Prof. Dr. Serap YALÇIN AZARKAN	Investigation of the Cytotoxic Effect of Deltamethrin and Acetamiprid in thle 2 Cell Line	<i>Kırşehir Ahi Evran University, Türkiye.</i>

Date / **16.03.2023**
Buenos Aires Local Time / **11:00-13:30**
Ankara Local Time / **17:00-19:30**
Head of Session: **Dr. Ivan Pavlovic**

Hall-2 / Session-1
Zoom Meeting ID: **839 9319 6566**
Zoom Password: **491844**

AUTHORS	PRESENTATION TITLE	AFFILIATION
Major Gheorghe GIURGIU Prof. Dr. Manole COJOCARU	The Therapeutic Effects of Deniplant Nutraceuticals on the Gut Microbiome in Patients with Psoriasis	<i>Deniplant-Aide Sante Medical Center, Biomedicine, Bucharest, Romania. Academy of Romanian Scientists Titu Maiorescu University, Faculty of Medicine, Bucharest, Romania.</i>
Arkan Aghayari	An Overview of Different Treatment Protocols for Acne and its Response to Treatment	<i>Urmia University of Medical Sciences, Faculty of medicine, Urmia, Iran.</i>
HUSAM ALDAIN MHMOOD SABRY SABRY Durmuş Burak DEMİRKAYA Serap Yalçın AZARKAN	Investigation of the Cytotoxic Effect of Atorvastatin on Breast Cancer	<i>Kırşehir Ahi Evran University, Türkiye.</i>
Durmuş Burak DEMİRKAYA Serap Yalçın AZARKAN	MDA-MB-231 Investigation of the Citotoxic Effect of Tamoxifen and Clorambucil on the Cell Line	<i>Kırşehir Ahi Evran University, Türkiye.</i>
Ivan Pavlovic Violeta Caro Patrovic Nemanja Zdravkovic Aleksandra Tasic Jovan Bojkovski Marija Pavlovic	Gastrointestinal Helminths of Small Ruminants in Hilly and Mountainous Part of Serbia	<i>Scientific Institute of Veterinary Medicine of Serbia, Belgrade, Serbia. Institute for Animal Husbandry, Belgrade, Serbia. Faculty of Veterinary Medicine, Belgrade, Serbia.</i>
Assoc. Prof. Dr. Meral EKİM Prof. Dr. Hasan EKİM	The Importance of Healthy Nutrition in Earthquake Victims	<i>Yozgat Bozok University, Türkiye.</i>
Assoc. Prof. Dr. Meral EKİM Prof. Dr. Hasan EKİM	Benefits of the Mediterranean Diet for our Health	<i>Yozgat Bozok University, Türkiye.</i>
Michael Okon Bassey Aniekan Essienubong Ikpe Victor Okon David	Failure Analysis of Vehicular Camshaft Component with Variable Materials Subjected to Multi-translated Non-proportional Loading Conditions in its Duty Cycle	<i>Department of Mechatronics Engineering, Akwa Ibom State Polytechnic, Ikot Osurua, PMB 1200, Nigeria.</i>
Oualid CHIBANE Karima SMILI Allaoua RAHMANI Ouarda CHIBANE Lazhar HEROUZ	Experimental Study on Insulating Material Charging	<i>Laboratory of electromechanics university Badji Mokhtar, Annaba, Algeria. Laboratory of technologies energetics systems, ENSTI-Annaba, Algeria. Laboratory of Electrical engineering, University of Béjaïa, Algérie.</i>

Date / 16.03.2023

Buenos Aires Local Time / 11:00-13:30

Ankara Local Time / 17:00-19:30

Head of Session: **Assoc. Prof. Dr. Nabila Sher &
Dr. Gulnaz Begum**

Hall-3 / Session-1

Zoom Meeting ID: **839 9319 6566**

Zoom Password: **491844**

AUTHORS	PRESENTATION TITLE	AFFILIATION
Salma ELAMIRI Soumia ABOUL-HROUZ Achraf CHAKIR Mohamed ZAHOUILY	Synthesis and Characterization of Novel Hydrogel Based on Alginate Grafted with Polyacrylamide for Slow-Controlled Release Fertilizer	<i>Laboratory of Materials, Catalysis and Valorization of natural resources, Hassan II University - Casablanca, Morocco. VARENA Center, MAScIR Foundation, Rabat Design, Rabat, Morocco.</i>
Dr. Abubakar Sani Umar Rabiou Belo	Phytochemical Screening and Antimicrobial Activities of Leaves Extracts of Dodonaea Viscosa Linn.	<i>Umaru Musa Yar'adua University Katsina State Nigeria Faculty of Natural and Applied Sciences Department of Pure and Industrial Chemistry, Nigeria.</i>
Demet Darcan Şafak METİN Ali Rıza DİNÇER	Investigation of the Change of Pollution Parameters as a Result of Mixing and Reaction of Textile Waste Water with Organic Peroxide Containing Waste Water	<i>Akpa Kimya, İstikbal Kurtpınar OSB Mah. Atatürk Cad:23/1 Muratlı, Tekirdağ, Türkiye. Namık Kemal Üniversitesi Çevre Mühendisliği Bölümü, Çorlu, Tekirdağ, Türkiye.</i>
Assoc. Prof. Dr. Nabila Sher Dr. Kalsoom Tariq Dr. Gulnaz Begum	Effect of Lipid-Based Multiple Micronutrients Supplementation in Underweight Primigravida Pre-Eclamptic Women on Maternal and Pregnancy Outcomes: Randomized Clinical Trial	<i>Biochemistry Department, Khyber Girls Medical College, Peshawar 25000, Pakistan.</i>
Mehmethan YILDIRIM Serap YALÇIN AZARKAN	Investigation of Vincristine and Etoposide Cytotoxic Effect on MDA-MB-231 Cell Line	<i>Kırşehir Ahi Evran University, Faculty of Arts and Sciences, Department of Molecular Biology and Genetics, Kırşehir, Türkiye. Kırşehir Ahi Evran University, Faculty of Medicine, Department of Medical Pharmacology, Kırşehir, Türkiye.</i>
K.R.Padma K.R.Don	Artificial Photosynthesis with Gold Nanostructures Incorporation in Non-Photosynthetic Bacteria	<i>Assistant Professor, Department of Biotechnology, Sri Padmavati Mahila Visvavidyalayam (Women's) University, Tirupati. Reader, Department of Oral Pathology and Microbiology, Sree Balaji Dental College and Hospital, Bharath Institute of Higher Education and Research (BIHER) Bharath University, Chennai, Tamil Nadu, India.</i>
Abbasova Nahidə Şavaat qızı	Prophylactic Control Measures Against Field Mice in Irrigated and Dry Grain Crops	<i>Scientific Research Institute of Plant Protection and Technical Plants, Azerbaijan.</i>
Assist. Prof. Dr. Tarık Güneş Res. Assist. Sıla Kale	An Investigation to Determine the Role and Effect of Maintenance Factors in Aircraft Accidents	<i>İstanbul Nişantaşı University, School of Civil Aviation, Department of Aviation Electric and Electronics, Istanbul, Türkiye.</i>

Date / 16.03.2023

Buenos Aires Local Time / 11:00-13:30

Ankara Local Time / 17:00-19:30

Head of Session: **Assoc. Prof. Bülent BAYRAKTAR**

Hall-4 / Session-1

Zoom Meeting ID: **839 9319 6566**

Zoom Password: **491844**

AUTHORS	PRESENTATION TITLE	AFFILIATION
Assoc. Prof. Bülent BAYRAKTAR Lect. Gökşad Cemil KOTAN	PHYSIOLOGY OF NEURONAL DAMAGE MARKER NEURON-SPECIFIC ENOLASE	<i>Bayburt University, Faculty of Health Sciences, Department of Physiotherapy and Rehabilitation. Hitit University, Alaca Avni Çelik Vocational School, Laboratory and Veterinary Program.</i>
Assoc. Prof. Bülent BAYRAKTAR Lect. Gökşad Cemil KOTAN	ASTROCYTIC AND BRAIN DAMAGE MARKER S100 CALCIUM BINDING PROTEIN B (S100B) PHYSIOLOGY	<i>Bayburt University, Faculty of Health Sciences, Department of Physiotherapy and Rehabilitation. Hitit University, Alaca Avni Çelik Vocational School, Laboratory and Veterinary Program.</i>
Assoc. Prof. Bülent BAYRAKTAR Lect. Gökşad Cemil KOTAN	PHYSIOLOGY OF ESSENTIAL INTERMEDIATE FILAMENT PROTEIN OF ASTROCYTES AND ASTROCYTIC ACTIVITY MARKER GLIAL FIBRILAR ACIDIC PROTEIN (GFAP)	<i>Bayburt University, Faculty of Health Sciences, Department of Physiotherapy and Rehabilitation. Hitit University, Alaca Avni Çelik Vocational School, Laboratory and Veterinary Program.</i>
Asst. Prof. Şeyma AYDEMİR Assoc. Prof. Bülent BAYRAKTAR	THE PHYSIOLOGICAL ROLE OF THE KISSPEPTIN/GPR54 SYSTEM IN THE REPRODUCTIVE SYSTEM	<i>Hitit University, Alaca Avni Çelik Vocational School, Laboratory and Veterinary Program. Bayburt University, Faculty of Health Sciences, Department of Physiotherapy and Rehabilitation.</i>
Asst. Prof. Şeyma AYDEMİR Assoc. Prof. Bülent BAYRAKTAR	INVESTIGATION OF THE PHYSIOLOGY OF THE FUNCTIONAL SPERMA MARKER A-KINASE BINDING PROTEIN-4 PRECURSOR PROTEIN (ProAKAP4)	<i>Hitit University, Alaca Avni Çelik Vocational School, Laboratory and Veterinary Program. Bayburt University, Faculty of Health Sciences, Department of Physiotherapy and Rehabilitation.</i>
Asst. Prof. Şeyma AYDEMİR Assoc. Prof. Bülent BAYRAKTAR Lect. Gökşad Cemil KOTAN	INVESTIGATION OF METABOLIC, ADIPOKINE (IRISIN, SPEXIN, VISFATIN) AND ENDOPLASMIC RETICULUM STRESS (GRP78) RESPONSE IN MONTOPHONE CATTLE WITH DIFFERENT CONDITION SCORE IN PREGNANCY AND LACTATION PERIOD	<i>Hitit University, Alaca Avni Çelik Vocational School, Laboratory and Veterinary Program. Bayburt University, Faculty of Health Sciences, Department of Physiotherapy and Rehabilitation. Hitit University, Alaca Avni Çelik Vocational School, Laboratory and Veterinary Program.</i>
Assoc. Prof. Bülent BAYRAKTAR Postgraduate Student Ayşe AYDOĞDU ŞENTÜRK	RELATIONSHIP OF GM2 GANGLIOSIDE ACTIVATOR (GM2A) PROTEIN AND ALZHEIMER'S DISEASE	<i>Bayburt University, Faculty of Health Sciences, Department of Physiotherapy and Rehabilitation. Bayburt University, Faculty of Applied Sciences, Department of Organic Agricultural Management.</i>

AUTHORS	PRESENTATION TITLE	AFFILIATION
Assoc. Prof. Bülent BAYRAKTAR Food Technologist Mehmet Emin ŞAHİN	RELATIONSHIP WITH FABKIN HORMONE PHYSIOLOGY AND DIABETES	<i>Bayburt University, Faculty of Health Sciences, Department of Physiotherapy and Rehabilitation. Bayburt University, Faculty of Applied Sciences, Department of Organic Agricultural Management.</i>
Assoc. Prof. Bülent BAYRAKTAR Veterinarian Şeref Hakan AKTÜRK	TYPE B NATRIURETIC PEPTIDE PHYSIOLOGY AND ITS RELATIONSHIP WITH CARDIOVASCULAR DISEASES	<i>Bayburt University, Faculty of Health Sciences, Department of Physiotherapy and Rehabilitation. Bayburt University, Faculty of Applied Sciences, Department of Organic Agriculture and Management.</i>
Assoc. Prof. Bülent BAYRAKTAR Postgraduate Student Zeynep Nihan ÜLKER	THE PHYSIOLOGY OF NEUROFILIN-1 AND ITS ROLE IN SARS-CoV-2 (COVID-19) INFECTION	<i>Bayburt University, Faculty of Health Sciences, Department of Physiotherapy and Rehabilitation. Bayburt University, Faculty of Applied Sciences, Department of Organic Agricultural Management.</i>
Assoc. Prof. Volkan GÜL Asst. Prof. Fırat SEFAOĞLU	INVESTIGATION OF SALEP PLANT, WHICH HAS A MIRACLE EFFECT ON IMMUNE SYSTEM STRENGTHENING AND RESPIRATORY SYSTEM DISEASES	<i>Bayburt University, Aydıntepe Vocational School, Department of Food Processing Kastamonu University Faculty of Engineering and Architecture Department of Genetics and Bioengineering</i>
Assoc. Prof. Volkan GÜL Asst. Prof. Fırat SEFAOĞLU	INVESTIGATION OF EUCALYPTUS PLANT WITH ANTIBACTERIAL EFFECT	<i>Bayburt University, Aydıntepe Vocational School, Department of Food Processing Kastamonu University Faculty of Engineering and Architecture Department of Genetics and Bioengineering</i>
Assoc. Prof. Volkan GÜL Asst. Prof. Fırat SEFAOĞLU	INVESTIGATION OF A NATURAL BIOTATTENANT PLANT STEVIA	<i>Bayburt University, Aydıntepe Vocational School, Department of Food Processing Kastamonu University Faculty of Engineering and Architecture Department of Genetics and Bioengineering</i>
Asst. Prof. Fırat SEFAOĞLU Assoc. Prof. Volkan GÜL	INVESTIGATION OF NETTLE PLANT WITH IMMUNE SYSTEM STRENGTHENING EFFECT	<i>Kastamonu University Faculty of Engineering and Architecture Department of Genetics and Bioengineering Bayburt University, Aydıntepe Vocational School, Department of Food Processing</i>
Asst. Prof. Fırat SEFAOĞLU Assoc. Prof. Volkan GÜL	INVESTIGATION OF ROSE HAND PLANT WITH ANTI-CANCEROGENIC EFFECT	<i>Kastamonu University Faculty of Engineering and Architecture Department of Genetics and Bioengineering Bayburt University, Aydıntepe Vocational School, Department of Food Processing</i>
Asst. Prof. Fırat SEFAOĞLU Assoc. Prof. Volkan GÜL	INVESTIGATION OF ASPIR PLANT WITH	<i>Kastamonu University Faculty of Engineering and Architecture</i>

AUTHORS	PRESENTATION TITLE	AFFILIATION
	ANTIDIABETIC EFFECT	<i>Department of Genetics and Bioengineering Bayburt University, Aydıntepe Vocational School, Department of Food Processing</i>

Date / **16.03.2023**
Buenos Aires Local Time / **11:00-13:30**
Ankara Local Time / **17:00-19:30**
Head of Session: **Dr. Hasbi Ibrahim**

Hall-5 / Session-1
Zoom Meeting ID: **839 9319 6566**
Zoom Password: **491844**

AUTHORS	PRESENTATION TITLE	AFFILIATION
Fattouche Maroua Belaidi Salah Hochlaf Majdi Chtita Samir Abchir Oussama	EVALUATION IN SILICO DE L'ACTIVITE INHIBITRICE DE CERTAINS DERIVES D'ISOTHIAZOLE D'INTERET PHARMACEUTIQUE	<i>Groupe de Chimie Computationnelle et Pharmaceutique, Laboratoire LMCE, département de Chimie, Faculté des sciences, Université de Biskra, 07000, Biskra, Algérie. Groupe de chimie théorique du Laboratoire de modélisation et simulation multi-échelles, professeur à l'Université Paris-Est Marne-la-Vallée, France. Laboratoire de Physico-Chimie des Matériaux, Faculté des Sciences Ben M'Sik, Université Hassan II de Casablanca, BP7955, Sidi Othmane, Casablanca, Marocco</i>
Ikhlass Benamara Sofiane Amara	MODELLING AND SIMULATION OF COFFEE HUSK PYROLYSIS FOR BIO-OIL PRODUCTION	<i>Materials and Renewable Energy Research Unit (URMER) Abou bekr belkaid University Tlemcen (Algeria).</i>
Hichem BELAID Mohammed HIMEUR Hassina ZIOU	Validation of finite element membrane for bending behavior with shear	<i>University May 8, 1945, Faculty technology, Department of Civil and Hydraulic Engineering, Guelma, 24000, Algeria. National Centre for Studies and Integrated Research on Building (CNERIB), Algiers, 16000, Algeria</i>
Yusma Indah Jayadi S. Gz. M. Kes Yudi Adnan S. Kep. M. Kes Dr. Hasbi Ibrahim SKM.M.Kes Futri Alifia Rezkiyanti Nirvana Putri Awaliah	EDUCATION OF LOCAL FOOD SOURCES AND IODIZED SALT IN MACCINI BAJI VILLAGE, TAKALAR DISTRICT	<i>Alauddin State Islamic University Makassar</i>
Abderrahmane RAHOU Mostafa LAYACHI Mustapha AKODAD Najib EL OUAMARI Ali SKALLI Brahim OUDRA Asmae AKNAF Mitja KOLAR Jernej IMPERL Petranka PETROVA Mourad BAGHOUR	Quality and safety of the edible seaweed <i>Ulva lactuca</i> (Chlorophyta) from the Marchica lagoon (NE Morocco, Mediterranean)	<i>Mohammed the first University, multidisciplinary faculty, departement of biology, Nador, Morocco. Regional Center of INRH-Nador, Morocco. Cadi Ayyad University, Faculty of Sciences Semlalia, departement of biology, Marrakech, Morocco. University of Ljubljana, Faculty of Chemistry and Chemical Technology, Ljubljana, Slovenia. South West University, Faculty of Mathematics and Natural Sciences, Department of Chemistry, Blagoevgrad, Bulgaria.</i>

AUTHORS	PRESENTATION TITLE	AFFILIATION
Rehab K. Al-Shemary	Microwave synthesis of Schiff base from medication and 8-hydroxyquinoline / 1,10-phenanthroline as a co-ligand with complexes: cytotoxic, antibacterial, and DNA interaction efficacy	<i>University of Baghdad, College of Education for pure science Ibn Al-Haitham</i>
Rehab K. Al-Shemary	Synthesis of some Schiff base metal complexes involving trimethoprim and 2'-amino-4-chlorobenzophenone: Spectral, thermal, DNA Cleavage antimicrobial, antifungal and Cytotoxic activity studies	<i>University of Baghdad, College of Education for pure science Ibn Al-Haitham</i>

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NEUROPİLİN-1 FİZYOLOJİSİ ve SARS-CoV-2 (COVID-19) ENFEKSİYONUNDAKİ ROLÜ

THE PHYSIOLOGY OF NEUROPILIN-1 AND ITS ROLE IN SARS-CoV-2 (COVID-19) INFECTION

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ÖZET

Yeni Koronavirüs (Şiddetli Akut Solunum Sendromu Koronavirüs 2, SARS-CoV-2; COVID-19), Aralık 2019'da Çin'in Wuhan kentinde ortaya çıkan ve zaman içerisinde pandemiye dönüşerek dünya üzerinde birçok insanın hayatını kaybetmesine yol açmış ve etkisini sürdürmeye devam eden bir enfeksiyondur. Bir sinyal proteinleri ailesinin bir üyesi olan Neuropilin-1'in (NRP-1), SARS-CoV-2 enfektivitesini güçlendirdiği bildirilen gelişimsel aksonal büyümeyi ve anjiyogenez etkileyen ligandlar için çok işlevli bir transmembran reseptörüdür. NRP1, hem vasküler endotelial büyüme faktörü (VEGF; 192240) hem de semaforin ailesi üyeleri için bir tirozin kinaz reseptörüne karşı zara bağlı bir koreseptördür. NRP1, anjiyogenez, akson rehberliği, hücre sağkalımı, göç ve istilada çok yönlü önemli fizyolojik rolü bulunmaktadır.

SARS-CoV-2 enfeksiyonunda virus konakçı hücreye bağlanması ve girişi için spike (S1) proteinini kullanır. Yakın zamanda SARS-CoV-2 enfeksiyonu için Anjiyotensin dönüştürücü enzim 2 dışında, NRP1'in başka bir konakçı faktör olarak hizmet ettiği belirlenmesi nedeniyle NRP1'in S1-NRP1 etkileşimini bloke edilmesi ve COVID-19 enfeksiyonunda için terapötik etkiye sahip olabileceği bildirilmektedir.

Bu kapsamda, Neuropilin-1 fizyolojisi ve SARS-CoV-2 (COVID-19) enfeksiyonundaki rolünün incelenmesi hedeflenmiştir. Ayrıca, özellikle SARS-CoV-2 (COVID-19) enfeksiyonu ve NRP1'in hücre girişinde rol aldığı hastalıklara yönelik tedavilerin geliştirilmesi çalışmaları, bu alanda gerçekleştirilecek sonraki araştırmalara katkı sağlayacağı düşünülmektedir.

Anahtar Kelimeler: SARS-CoV-2 (COVID-19), Neuropilin-1, Sinyal Proteinleri

ABSTRACT

The New Coronavirus (Severe Acute Respiratory Syndrome Coronavirus 2, SARS-CoV-2; COVID-19) emerged in Wuhan, China in December 2019 and turned into a pandemic over time, causing many people to die around the world and continuing its impact. is an infection. Neuropilin-1 (NRP-1), a member of a family of signaling proteins, is a multifunctional transmembrane receptor for ligands affecting developmental axonal growth and angiogenesis reported to potentiate SARS-CoV-2 infectivity. NRP1 is both vascular endothelial growth factor (VEGF; 192240) is a membrane-bound coreceptor to a tyrosine kinase receptor for both

semaphorin family members. NRP1 has a versatile physiological role in angiogenesis, axon guidance, cell survival, migration and invasion.

In SARS-CoV-2 infection, the virus uses the spike (S1) protein to attach and enter the host cell. It has been reported that NRP1 may have a therapeutic effect for S1-NRP1 interaction and for COVID-19 infection, since it has recently been determined that NRP1 serves as another host factor for SARS-CoV-2 infection, apart from Angiotensin-converting enzyme 2.

In this context, it is aimed to examine the physiology of Neuropilin-1 and its role in SARS-CoV-2 (COVID-19) infection. In addition, studies on the development of treatments for diseases in which NRP1 plays a role in cell entry, especially SARS-CoV-2 (COVID-19) infection, are thought to contribute to future research in this area.

Keywords: SARS-CoV-2 (COVID-19), Neuropilin-1, Signaling Proteins

ASTROSİTİK VE BEYİN HASARI BELİRTECİ S100 KALSİYUM BAĞLAYICI PROTEİN B (S100B) FİZYOLOJİSİ

ASTROCYTIC AND BRAIN DAMAGE MARKER S100 CALCIUM BINDING PROTEIN
B (S100B) PHYSIOLOGY

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ÖZET

S100 Kalsiyum Bağlayıcı Protein B (S100B), homodimerik bir yapıya sahip ve her bir beta monomerinin ağırlığı yaklaşık 10.5 kDa moleküler ağırlığa sahip, astrositler, küçük bir oligodendrosit alt kümesi ve belirli nöronal alt popülasyonlar tarafından eksprese edilen S100 ailesinin küçük bir Ca²⁺ + bağlayıcı protein üyesidir. S100B, S100 ailesinin diğer üyeleriyle birlikte astrositlerin sitoplazmasında ve çekirdeğinde yer alır ve hücre iskeleti yapısını ve hücre çoğalmasını düzenlemektedir. S100B'nin esas olarak astroglial ve Schwann hücrelerinde bulunduğu gösterilmiş olmakla birlikte adipositlerde, kondrositlerde, lenfositlerde, kemik iliği hücrelerinde ve melanositlerde de bulunmakta ve böbrek tarafından elimine edilmektedir. S100B, astrosit ve mikroglia göçünü kolaylaştırırken nöronal proliferasyonu, oligodendrosit farklılaşmasını ve astrosit morfolojisini korumak için önemli olan hücre iskeleti bileşenlerinin birleşmesini destekleyen bir sinyal molekülü olarak görev yapmaktadır.

S100B, merkezi sinir sistemi rahatsızlıkları, glial aktivasyon ve/veya ölümün bir parametresi, dolaşım durması, inme ve travmatik beyin hasarı gibi beyin hasarının yararlı bir nörobiyokimyasal belirteci olarak kullanılmaktadır. S100B, Alzheimer hastalığı veya diğer kronik nörolojik hastalıklar gibi nörodejeneratif hastalıklarla da ilişkili ve terapötik etkiye sahip bir protein olması nedeniyle stratejik olarak kritik bir öneme sahiptir.

Bu kapsamda, astrositik ve beyin hasarı belirteci S100 Kalsiyum Bağlayıcı Protein B (S100B) fizyolojisinin incelenmesi hedeflenmiştir. Ayrıca, özellikle S100B'nin Alzheimer, down sendromu, amyotrofik lateral skleroz, multipl skleroz, şizofreni ve depresyon gibi nörodejeneratif hastalıklara yönelik tedavilerin geliştirilmesi çalışmaları, bu alanda gerçekleştirilecek sonraki araştırmalara katkı sağlayacağı düşünülmektedir.

Anahtar Kelimeler: S100 Kalsiyum Bağlayıcı Protein B, Travmatik Beyin Hasarı, Astrosit, Alzheimer, Nörodejeneratif hastalıklar

ABSTRACT

S100 Calcium-Binding Protein B (S100B) is a small Ca²⁺-binding protein member of the S100 family, with a homodimeric structure and molecular weight of each beta monomer of approximately 10.5 kDa, expressed by astrocytes, a small subset of oligodendrocytes, and certain neuronal subpopulations. S100B, along with other members of the S100 family, is located in the cytoplasm and nucleus of astrocytes and regulates cytoskeletal structure and cell proliferation. Although S100B has been shown to be mainly found in astroglial and

Schwann cells, it is also found in adipocytes, chondrocytes, lymphocytes, bone marrow cells and melanocytes and is eliminated by the kidney. 100B facilitates astrocyte and microglia migration while acting as a signaling molecule that promotes neuronal proliferation, oligodendrocyte differentiation, and assembly of cytoskeletal components important for maintaining astrocyte morphology.

S100B is used as a useful neurobiochemical marker of brain injury such as central nervous system disorders, a parameter of glial activation and/or death, circulatory arrest, stroke, and traumatic brain injury. S100B is strategically critical as it is a protein associated with neurodegenerative diseases such as Alzheimer's disease or other chronic neurological diseases and has a therapeutic effect.

In this context, it is aimed to examine the physiology of astrocytic and brain damage marker S100 Calcium Binding Protein B (S100B). In addition, studies on the development of treatments for neurodegenerative diseases such as Alzheimer's, Down's syndrome, amyotrophic lateral sclerosis, multiple sclerosis, schizophrenia and depression, especially by S100B, are thought to contribute to further research in this area.

Keywords: S100 Calcium Binding Protein B (S100B), Traumatic Brain Injury, Astrocyte, Alzheimer's, Neurodegenerative Diseases

**FACULTY DEVELOPMENT INITIATIVES: NEED MENTORSHIP AND
STRATEGIES TO IMPROVE EFFECTIVE COMMUNICATION**

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Abstract

Faculty developmental activities are integral part of quality Enhancement matrix in higher education. It is important to establish a need assessment parameters including various sets of skills and competencies to improve quality teaching cycle. In developing countries where various challenges are being followed by individual, such transactions tracks can lead towards better communication and articulate information flow across the community. It is important that a formal and rigorous training program should in place especially for young minds that are at early and mid career professionals in teaching and administration to augment learning and professionalism. These training parts are limited in our region with respect to general provision of opportunities to teachers. Institutions are encourage to adopt such systems to uplift the practice standards and also provide motivation for others. Current study incorporated significant aspect of effective communication and need of Mentorship and also signifies strategic plan to implement such projects for quality education outcomes.

Keywords: Faculty development, education, Quality, needs assessment, training, strategic planning, Mentorship, effective communication

**CAPACITY BUILDING STRATEGIES TOWARDS BETTER UNDERSTANDING
AND QUALITY EDUCATION: FACULTY AND STUDENTS ENGAGEMENT**

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Abstract

Capacity building empowers organizations and their figurehead to develop skills and competencies that can help them to make more effective and workable thus enhancing the potential to improve lives and assist in solving most intractable problems of society. Capacity building projects usually focus on one of three major activities: curriculum development, strengthening of relations between higher education and the wider social and economic environment, modernization of governance and managing Higher Education Institute (HEIs) and systems. This presentation mainly covers the Capacity building aim to improve skills for carrying out vital functions, defining and achieving objectives and solving problems.

Keywords: Capacity building, Problem solving, Higher education

SUVARILAN VƏ DƏMYƏ TAXIL ƏKİNLƏRİNDƏ ÇÖL SIÇANLARINA QARŞI PROFLAKTİKİ MÜBARİZƏ TƏDBİRLƏRİ

PROPHYLACTIC CONTROL MEASURES AGAINST FIELD MICE IN IRRIGATED AND DRY GRAIN CROPS

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Xülasə

Ümumdünya Səhiyyə Təşkilatının (ÜST) və Ərzaq və Kənd Təsərrüfatının Təşkilatı (FAO) məlumatına görə dünya səviyyəsində istehsal edilən qidaların təxminən 5%-i gəmiricilər tərəfindən məhv edilir. Gəmiricilərin mənfi təsiri əkin sahələrində və məhsul istehsalından sonrada özünə biruzə verir. Ona görə də dənli-taxıl bitkiləri əkinlərində çöl siçanlarına qarşı profilaktiki mübarizə tədbirlərinin təşkili məqsədəuyğundur.

Təqdim olunmuş məqalədə Mil-Qarabağ bölgəsinin suvarılan və dəmyə taxıl əkinlərində çöl siçanlarına qarşı profilaktiki mübarizə tədbirləri təşkili şərh olunmuşdur.

Bitkilərin zərərvericilərdən və xəstəliklərdən qorunması bioloji üsula zərərli orqanizmlərin sayını azaltmağa və ya bioloji preparatlardan istifadəyə əsaslanır. Bu üsul zərərvericilərə və xəstəliklərə qarşı mübarizədə tamamilə təhlükəsiz ətraf mühit və insanlar üçün bir sıra üstünlüklərə malik olması ilə və həm də kimyəvi maddələrin istifadəsi ilə müqayisə baxımından fərqlənir.

Tədqiqat nəticəsində məlum oldu ki, profilaktiki mübarizə tədbirləri yabanı bitki örtüyünün təmizlənməsinə yönəldilməlidir. Alaq bitkilərinin mövcudluğu gəmiricilərin inkişafı üçün optimal sığınacaq yeri hesab olunur. Gəmiricilərin həddən artıq çoxalması həm də ərazidəki mikroiklim şəraitindən asılıdır. Bura daxildir yaşayış yeri, alaq otlarının olması, mövcud işıq intensivliyi, onların fəaliyyəti, müddəti daşqınlar və qrunut sularının səviyyəsinin dəyişməsi. Bu baxımdan dənli-taxıl bitkilərinin becərildiyi sahədə və tarlanın kənarlarında olan alaq bitkilərinin məhv edilməsi vacib tədbirlərdən hesab olunmalıdır.

Taxıl əkinlərində dərin şumun aparıldığı sahədə çöl siçanlarının yayılma intensivliyi aşağı olmuşdur.

Açar sözlər: Əkin sahələri, gəmiricilər, çöl siçanları, yuvaların quruluşu, profilaktiki mübarizə tədbiri, taxıl əkinləri

Abstract

According to the World Health Organization (WHO) and the Food and Agriculture Organization (FAO), about 5% of the food produced worldwide is destroyed by rodents. The negative impact of rodents manifests itself in agricultural fields and after crop production. Therefore, it is appropriate to organize preventive measures against field mice in cereal crops.

In the presented article, the organization of prophylactic control measures against field mice in irrigated and dummy grain crops of the Mil-Karabakh region was explained.

Protection of plants from pests and diseases is based on the biological method of reducing the number of harmful organisms or the use of biological preparations. This method is completely safe in the fight against pests and diseases and has a number of advantages for the environment and people, as well as in comparison with the use of chemicals.

As a result of the research, it became clear that preventive control measures should be focused on the clearing of wild vegetation. The presence of weeds is considered an optimal shelter for the development of rodents. Overpopulation of rodents also depends on the microclimate conditions in the area. This includes habitat, presence of weeds, intensity of available light, their activity, duration of floods and changes in groundwater levels. From this point of view, the destruction of weeds in the area where cereal plants are cultivated and on the edges of the field should be considered as one of the important measures.

In the field where deep plowing was carried out in the grain crops, the intensity of spread of field mice was low.

Keywords: Fields, rodents, field mice, structure of nests, preventive control measures, grain crops

**FONKSİYONEL SPERMA BELİRTECİ A-KİNAZ BAĞLAYICI PROTEİN-4
PREKÜRSÖR PROTEİNİ (ProAKAP4) FİZYOLOJİSİNİN İNCELENMESİ**

INVESTIGATION OF THE PHYSIOLOGY OF THE FUNCTIONAL SPERMA MARKER
A-KINASE BINDING PROTEIN-4 PRECURSOR PROTEIN (ProAKAP4)

Şeyma AYDEMİR

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ÖZET

ProAKAP4, spermin fibröz kılıfının ana yapısal proteini olan AKAP4'ün (A-kinaz Anchor protein 4) öncüsü, sperm işlevselliğini, yani motiliteyi, kapasiteyi ve doğurganlığı düzenleyen ve spermatozoanın fonksiyonel bir belirteci polipeptiddir. ProAKAP4, sperm kamçısının yapısal ve işlevsel bir proteindir. AKAP4 ve öncüsü ProAKAP4'ün her ikisi de hücre içi proteinlerdir ve yalnızca mayoz sonrası sperm hücrelerinin (spermatidler ve spermatozoa) sitoplazmasında bulunmaktadır. ProAKAP4 miktarı, spermatozoanın flagellum aktivitesini ve fonksiyonelliğini döllenme yerine kadar sürdürme yeteneğini yansıtmaktadır.

ProAKAP4, sperma özgü bir protein olması ve spermatogenezin belirteci olması nedeniyle infertilite ile ilişkili hastalıkların tedavilerinde terapötik etkisi bildirilen bir moleküldür.

Bu kapsamda, Fonksiyonel Sperma Belirteci A-Kinaz Bağlayıcı Protein-4 Prekürsör Proteini (ProAKAP4) Fizyolojisinin İncelenmesi hedeflenmiştir. Ayrıca, özellikle infertilite rahatsızlıkları ve hastalıklarını hedefleyen terapötik müdahalelerin geliştirilmesi ve bu alanda yapılanları bir araya getirerek elde edilecek verilerin sonraki çalışmalara değerli bir kaynak olacağı düşünülmektedir.

Anahtar Kelimeler: A-Kinaz Bağlayıcı Protein-4 Prekürsör Proteini (ProAKAP4), AKAP4'ün (A-kinaz Anchor protein 4), Sperma Belirteçleri, Üreme

ABSTRACT

ProAKAP4 is a precursor of AKAP4 (A-kinase Anchor protein 4), the main structural protein of the fibrous sheath of sperm, a polypeptide that regulates sperm functionality, namely motility, capacity and fertility, and is a functional marker of spermatozoa. ProAKAP4 is a structural and functional protein of sperm flagella. AKAP4 and its precursor ProAKAP4 are both intracellular proteins and are only found in the cytoplasm of post-meiotic sperm cells (spermatids and spermatozoa). The amount of ProAKAP4 reflects the ability of spermatozoa to maintain flagellum activity and functionality up to the site of fertilization.

Since ProAKAP4 is a sperm-specific protein and a marker of spermatogenesis, it is a molecule with reported therapeutic effects in the treatment of infertility-related diseases.

In this context, it is aimed to Investigate the Physiology of the Functional Sperm Marker A-Kinase Binding Protein-4 Precursor Protein (ProAKAP4). In addition, it is thought that the development of therapeutic interventions specifically targeting infertility disorders and

diseases and the data to be obtained by combining what has been done in this field will be a valuable resource for future studies.

Keywords: A-Kinase Binding Protein-4 Precursor Protein (ProAKAP4), AKAP4 (A-kinase Anchor protein 4), Sperm Markers, Reproduction

FABKİN HORMONU FİZYOLOJİSİ VE DİYABET HASTALIĞI İLİŞKİSİ
RELATIONSHIP WITH FABKIN HORMONE PHYSIOLOGY AND DIABETES

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ÖZET

Diabetes mellitus (DM), pankreastan insülin sekresyonundaki yetersizlik ve defekt nedeniyle insülin yanıtı neticesinde insülin etkisinin bozukluk nedeniyle hiperglisemiyle karakterize ilerleyici ve nöropati, nefropati, retinopati gibi komplikasyonlara yol açarak çeşitli organ ve fizyolojik sistemlerde önemli hasar oluşturan metabolik bir hastalıktır. DM. tüm dünyada yüksek morbidite ve mortalite oranı ile birlikte prevalansı giderek artış gösteren ve global düzeyde endişe duyulan önemli hastalıklardan birisidir.

Diyabet hastalığı tedavisinde yeni bir umut olarak adlandırılan Fabkin (Yağ Asidi Bağlayıcı Protein 4 (FABP4), ADK (Adenozin Kinaz) ve NDPK (Nükleosid Difosfataz Kinaz), pankreatik β -hücrelerinin işlevini düzenleyerek insülin salınımı üzerinde etkili ve enerji regülasyonu süreçlerinde adipoz dokudan salgılanan diyabet hastalığı üzerinde terapötik etkisi bildirilen yakın zamanda keşfedilmiş bir hormondur.

Bu kapsamda, nöronal hasar belirteci Fabkin Hormonu Fizyolojisi ve Diyabet Hastalığı İlişkisinin incelenmesi hedeflenmiştir. Ayrıca, özellikle diyabet hastalığı ve ilgili komplikasyonlarını hedefleyen terapötik müdahalelerin geliştirilmesi ve bu alanda yapılanları bir araya getirerek elde edilecek verilerin sonraki çalışmalara değerli bir kaynak olacağı düşünülmektedir.

Anahtar Kelimeler: Fabkin (Yağ Asidi Bağlayıcı Protein 4 (FABP4), ADK (Adenozin Kinaz) ve NDPK (Nükleosid Difosfataz Kinaz), Diyabet

ABSTRACT

Diabetes mellitus (DM) is a metabolic disease that causes significant damage to various organs and physiological systems by leading to complications such as neuropathy, nephropathy, and retinopathy, which is characterized by hyperglycemia due to impaired insulin response as a result of insulin response due to insufficiency and defect in insulin secretion from the pancreas. DM is one of the most important diseases of global concern, with an increasing prevalence with high morbidity and mortality rates all over the world.

Fabkin (Fatty Acid Binding Protein 4 (FABP4), ADK (Adenosine Kinase) and NDPK (Nucleoside Diphosphatase Kinase), which is called a new hope in the treatment of diabetes mellitus), has an effect on insulin secretion by regulating the function of pancreatic β -cells and is secreted from adipose tissue in energy regulation processes. It is a recently discovered hormone that has been reported to have a therapeutic effect on the disease.

In this context, it is aimed to examine the relationship between the neuronal damage marker Fabkin Hormone Physiology and Diabetes Disease. In addition, it is thought that the development of therapeutic interventions targeting diabetes and its related complications and the data to be obtained by bringing together what has been done in this field will be a valuable resource for future studies.

Keywords: Fabkin (Fatty Acid Binding Protein 4 (FABP4), ADK (Adenosine Kinase) and NDPK (Nucleoside Diphosphatase Kinase), Diabetes

**EFFECT OF OCIMUM TENUIFLORUM AND LEPIDIUM MEYENII HERBAL
EXTRACT IN THE MANAGEMENT OF POLYCYSTIC OVARIAN SYNDROME IN
RAT MODEL**

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Abstract

The ovarian polycystic syndrome is an extremely prevalent endocrine reproductive condition in women nowadays. It is a heterogeneous disorder and shows a wide spectrum of hormonal disturbances such as follicular hyperplasia, chronic anovulation, infertility, and menstrual disturbances. Around the world, many people utilize alternative and complementary drugs while there is a high propensity for the utilization of herbal medicines for the treatment of PCOS. *Lepidium meyenii* (Maca) and *Ocimum tenuiflorum* (Holy Basil) are medicinal plants that have anti-inflammatory and fertility-boosting properties. The aim of this investigation is to access the ameliorative effect of *Lepidium meyenii* and *Ocimum tenuiflorum* against Estradiol-induced PCOS in rat models. The induction in rats was performed by Estradiol (4mg/kg body weight) mixed in sesame oil through the oral pathway. Four groups of rats were created. namely negative control, positive control, standard treatment, and herbal treatment groups. Estradiol was given to the positive control, standard, and herbal treatment groups. The standard group was treated with metformin (300mg/kg body weight) and the herbal treatment group was treated with aqueous extract of *Lepidium meyenii* (60mg/kg BW) and *Ocimum tenuiflorum* (80mg/kg BW). The very first decapitation was done on the 14th day after administration to check the onset of PCOS. The final decapitation was done on the 29th day of the trial. Blood biochemical parameters like CBC, hormone levels such as FSH and estrogen, histopathological analysis of ovaries, and gene expression analysis of genes IL-6, IL-1, IGF-1, and CYP-19 were done. RNA extraction was done by preserved tissue samples. Statistical analysis was done by using Analysis of Variance and post hoc DMR test.

Keywords: Polycystic Ovarian Syndrome, Ovaries, Women, Fertility, Herbal Treatment.

**SYNTHESIS AND CHARACTERIZATION OF NOVEL HYDROGEL BASED ON
ALGINATE GRAFTED WITH POLYACRYLAMIDE FOR SLOW-CONTROLLED
RELEASE FERTILIZER**

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Abstract

In order to reduce the cost of fertilizers as well as their influence on the environment, scientists are paying more and more attention to slow-release or controlled-release fertilizers, which are prepared from abundantly available biodegradable natural materials such as biopolymers.

Based on this context, A novel matrix-based fertilizer was prepared by encapsulation of a fertilizer containing nitrogen, phosphorus and potassium (NPK) in presence of biopolymers as the matrix and cross-linked by calcium chloride. The prepared materials were characterized by Fourier-transform infrared spectroscopy (FT-IR), X-ray diffraction (XRD), thermogravimetric analysis (TGA), scanning electron microscopy (SEM), water retention capability was also evaluated.

The fertilizers release profile in water of the synthesized fertilizers was in good agreement with the European standard EN 13266 indicating its excellent controlled release property with a maximum release rate of 65% (nitrogen) ; 52% (phosphorus) ; and 43% (potassium) for 56 days.

We also followed the release profile in the soil, and the results show a maximum release rate of 33% (nitrogen), 26% (phosphorus); 22% (potassium) for 35 days.

These good characteristics revealed that the prepared S-CRF beads can be practically used in agricultural applications.

Keywords: Slow-Controlled Release Fertilizer (SCRF), Encapsulation, NPK.

ANTİBAKTERİYEL ETKİYE SAHİP OKALİPTÜS BİTKİSİNİN İNCELENMESİ
INVESTIGATION OF EUCALYPTUS PLANT WITH ANTIBACTERIAL EFFECT

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ÖZET

Türkiye doğal zenginliği ile dünyanın en fazla endemik ve bitki çeşitliliği olan ülkelerden bir tanesidir. Bu özelliği sağlayan en önemli faktör ülkemizin dünya üzerinde bulunduğu coğrafik konumu ve buna bağlı olarak oluşan iklim tiplerinden kaynaklanmaktadır. Özellikle ormanlarımız diğer ekosistemlere nazaran daha az müdahale edilmiş ve doğal yapısını halen koruyan doğal bölgelerimizdir. Bu özelliği ile ülkemiz ve dünya genelinde büyük öneme sahip biyolojik çeşitliliği de bünyesinde barındırmaktadır. Ormanlarımız genellikle sahil şeridinde veya yakınlarında yayılış gösteren ve ülkemiz yüzölçümünün ortalama %27 sini oluşturmaktadır. Ormanlar dünya genelinde önemli su, toprak, enerji, biyoçeşitlilik gibi kaynakları bünyesinde bulunduran önemli yaşam alanlarından bir tanesidir. Bitki örtüsü kadar ormanlarda yetişen ağaç türlerinin de yaşam döngüsü içerisinde birçok yararlı yönleri bulunmaktadır. Ağaçlar kereste, yakacak, kâğıt, boya, kozmetik, gıda, tıbbi, sosyal ve kültürel gibi çok geniş alanlarda yaygın olarak kullanılmaktadır. Önemli ağaçlardan bir tanesi olan ve ülkemizin Ege ve Akdeniz kıyı bölgelerinde yoğun olarak yetişen okaliptüs Myrataceae familyasına ait her dem yeşil boylu ağaç olan odunsu bitkilerden bir tanesidir. Ülkemize ilk olarak 1885 yılında Mersin Adana demir yolu yapımında çevre yolu süsü olarak Fransızlar tarafından getirilmiştir. Okaliptüs ağacı parfümeri, eczacılık, bataklik kurutma, inşaat, tıbbi boyacılık gibi çok geniş alanlarda kullanımı mevcuttur. Okaliptüs ağacının yapraklarından su buharı distilasyonu yöntemiyle elde edilen uçucu yağlar antiviral, antibakteriyel ve antifungal gibi tedavi edici etkilerinden dolayı önemli tıbbi bitkilerden bir tanesidir. Okaliptüsten elde edilen uçucu yağ genellikle aromatik, kafura benzer kokuya sahip, açık sarı renkte ferahlatıcı ve yakıcı bir özelliği bulunmaktadır. Ayrıca okaliptüs yapraklarından elde edilen uçucu yağların bileşiminde bulunan fellandren ve aldehit içerikleri en yaygın uçucu yağlar olup, tıbbi kullanıma uygun yağlardır. Bir diğer yaygın bulunan citronellal içeriği ise parfümeri sanayisinin önemli maddelerinden birisidir. Son olarak α -felandren'ce ve piperiton içerikleri endüstriyel uçucu yağ olarak kullanılmaktadır.

Önemli bir ağaç olan okaliptüs ağacının genellikle orman endüstrisi kullanımının yanında tıbbi amaçlı değerlendirilmesi göz ardı edilmemelidir. Özellikle ağacın yapraklarından elde edilen uçucu yağının şifa kaynağı olduğu unutulmayıp, bu konuda geniş bilimsel çalışmalara ihtiyaç olduğu bilinmelidir. Bizim bu derlemedeki amacımız; bu ve buna benzer değerli tıbbi bitkilerin daha iyi anlaşılır olabilmesi için bitkiler hakkında genel bilgiler vermek ve bilimsel çalışmalara ışık tutmaktır.

Anahtar kelimeler: Antibakteriyel, antifungal, okaliptüs, uçucu yağ, 1,8-sineol

ABSTRACT

Turkey is one of the world's most endemic and plant diversity countries with its natural richness. The most important factor that provides this feature is the geographical location of our country in the world and the climate types formed accordingly. In particular, our forests are natural regions that have been less intervened than other ecosystems and still preserve their natural structure. With this feature, it also contains biological diversity, which is important in our country and worldwide. Our forests generally spread on or near the coastline, constituting 27% of our country's surface area. Forests are important habitats that contain important resources such as water, soil, energy, and biodiversity worldwide. Tree species that grow in forests and vegetation have many valuable aspects in their life cycle. Trees are widely used in many areas, such as timber, fuel, paper, paint, cosmetics, food, medical, social and cultural. Eucalyptus, one of the important trees that grow intensively in our country's Aegean and Mediterranean coastal regions, is one of the woody plants, is one of the woody evergreen trees belonging to the Myrtaceae family. The French first brought it to our country in 1885 as a ring road ornament in the Mersin-Adana railway construction. Eucalyptus wood is used in various areas, such as perfumery, pharmacy, swamp drying, construction, and medical dyeing. Essential oils obtained from the leaves of the eucalyptus tree by steam distillation are important medicinal plants due to their therapeutic effects such as antiviral, antibacterial and antifungal. The essential oil obtained from eucalyptus is generally aromatic, has a camphor-like odor, has a light yellow color, and has refreshing and burning properties. In addition, the most common essential oils in the composition of essential oils obtained from eucalyptus leaves, phellandrene and aldehyde are oils suitable for medical use. Another widely found citronellal content is one of the important substances in the perfumery industry. Finally, α -phellandrene and piperitone contents are used as an industrial essential oil.

The eucalyptus tree, an important tree, is generally used for medicinal purposes and forest industry use. It should not be forgotten that the essential oil obtained from the leaves of the tree is a source of healing, and it should be known that extensive scientific studies are needed on this subject. Our aim in this review; To give general information about plants and to shed light on scientific studies so that these and similar valuable medicinal plants can be better understood.

Keywords: Antibacterial, antifungal, eucalyptus, essential oil, 1,8-cineol

ARTIFICIAL PHOTOSYNTHESIS WITH GOLD NANOSTRUCTURES INCORPORATION IN NON-PHOTOSYNTHETIC BACTERIA

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Abstract

The most extensive, necessary, and abundant solar energy conversion mechanism on our planet, natural photosynthesis is a time-consuming process. The majority of species inhabiting the biosphere obtain their energy from bacteria and photosynthetic plants. The existence of photosynthetic pigments, which in turn produce assimilative power for converting atmospheric carbon into carbohydrates, is a characteristic that distinguishes plants from other living things. Several scientists intend to add gold nanoclusters of different sizes to the non-photosynthetic bacteria *M. thermoacetica* in order to increase energy production. The light from the sun causes photogenerated electrons to leave the bacterium, interact with a number of enzymes, and then start a series of reactions that convert CO₂ into acetic acid, a useful byproduct for the production of solar energy. Artificial photosynthesis, which imitates the natural phenomenon of photosynthesis, is the technique of creating solar energy through a natural process with the assistance of biological organisms and nanotechnology. The information in our article, however, focuses on how gold nanoparticle clusters prevent reactive oxygen species (ROS) while maintaining bacterial viability. Through our research, we have also demonstrated the development of photosynthetic biohybrid systems (PBS) and electron transfer systems. This review's goal is to offer suggestions for improving artificial photosynthesis system design and optimization in order to meet upcoming energy and environmental issues on a worldwide scale.

Keywords: Photosynthetic biohybrid system (PBS), *M. thermoacetica*, nanotechnology, global energy, Natural photosynthesis, Artificial photosynthesis.

THE THERAPEUTIC EFFECTS OF DENIPLANT NUTRACEUTICALS ON THE GUT MICROBIOME IN PATIENTS WITH PSORIASIS

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Abstract

Background A growing body of evidence highlights that intestinal dysbiosis is associated with the development of psoriasis. The gut–skin axis is the novel concept of the interaction between skin diseases and microbiome through inflammatory mediators, metabolites and the intestinal barrier. The gut microbiome affects skin homeostasis through its influence on the signaling pathways that coordinate epidermal differentiation.

The objective of this study was to synthesize current data on the Deniplant natural modulator of the gut microbiome in patients with psoriasis.

Materials and methods All studies confirmed the association of psoriasis and gut microbiota dysbiosis. We describe the recent advances regarding the interplay between gut microbiota and the skin. Thus, the microbiome can be considered an effective therapeutical target for treating this disorder.

Results This presentation provides a detailed and comprehensive systematic study regarding gut microbiome in patients with psoriasis. These results are supported by clinical observations based on a case serie showing improvement in psoriatic skin lesions after Deniplant natural modulator. It is still not clear whether psoriasis is an effect or a cause of the observed disbalance between beneficial and pathogenic microbes. In this context, the study provides very interesting results, showing significantly greater changes in the gut microbiome of patients with psoriasis treated Deniplant natural modulator

Conclusion There is a significant association between alterations in gut microbial composition and psoriasis. Intestinal dysbiosis is a state of imbalanced gut microbiome that eventually has a negative impact on skin function and integrity. Deniplant natural modulator is a potential therapeutic strategy in patients with psoriasis

Keywords: dysbiosis, microbiome, psoriasis, gut-skin axis, gut barrier, Deniplant nutraceuticals

AN OVERVIEW OF DIFFERENT TREATMENT PROTOCOLS FOR ACNE AND ITS RESPONSE TO TREATMENT

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Abstract

Acne is a chronic inflammatory disease of the skin, affecting the pilosebaceous unit. Recent studies underlined the importance of early diagnosis and prompt treatment for this disease. The characteristics of the lesions are closely related to the various stages of the disease. Typical lesions are comedones, small papules centered by a white point (close comedones) or by a black point (opened comedones), indicative of a dilatation of the follicular opening such as to allow the oxidation of the lipid content that clinically will appear black (mild acne). These lesions occur in areas with higher density of sebaceous glands such as frontal region, nose-genien, chin, and upper back. In the papulopustular forms the treatment of choice is the combination of topical therapy, based on retinoids, benzoyl peroxide (BPO), and antibiotic therapy followed, in second line, by a topical and systemic antibiotic combination. In case of moderate nodular acne first-line treatment is oral retinoids. Retinoids are derivatives of vitamin A, used as treatment in various skin conditions. Retinoids are classified into three generations, according to molecular structure; first generation retinoids are nonaromatic including isotretinoin, tretinoin, and alitretinoin. Those of second generation are monoaromatic compounds, such as etretinate and its metabolite acitretin. They are more lipophilic than those of first generation. The third-generation group includes polyaromatic compounds, such as adapalene, tazarotene, and bexarotene. Their role in the treatment of acne is due to the presence on the sebocyte of nuclear receptors for retinoids type A, X (RAR, RXR). Moreover, benzoyl peroxide is a topical agent used in the treatment of mild and moderate acne. It has a bactericidal activity against P acnes, thanks to its ability, once penetrated into the skin, to produce free radicals that oxidize bacterial proteins. It also possesses some keratolytic and sebum-regulating. The use of antibiotics is intended to act against the bacterium and, consequently, to reduce the inflammatory process. In the guidelines of mild-to-moderate acne, topical antibiotic treatments, predominantly based on 1% clindamycin, are considered at the forefront. Several clinical studies have shown that combined therapy (with retinoid or BPO) is more effective than monotherapy with the antibiotic. Nevertheless, another topical option is the use of 2% erythromycin but is less effective than clindamycin due to resistant strains. Lasers are often used in the treatment of scar outcomes of acne lesions. However, recent studies have also highlighted the effectiveness in the active stages of the disease. Depending on the wavelength, lasers act at different levels. In conclusion, the choice of the best treatment option should consider the clinical extent of the disease, skin phototype, eventual skin reactivity, and also patient compliance.

Keywords: Acne, Retinoids, Benzoyl peroxide, Clindamycin.

TEKSTİL ATIK SUYU'NUN ORGANİK PEROKSİT İÇEREN ATIK SU İLE KARIŞIMI VE REAKSİYONU SONUCUNDA KİRLİLİK PARAMETRELERİNİN DEĞİŞİMİNİN İNCELENMESİ

INVESTIGATION OF THE CHANGE OF POLLUTION PARAMETERS AS A RESULT
OF MIXING AND REACTION OF TEXTILE WASTE WATER WITH ORGANIC
PEROXIDE CONTAINING WASTE WATER

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Özet

Bu çalışmada organik peroksit içeren bir atık suyun farklı karışım oranlarında renkli bir tekstil atık suyu ile karıştırılması sonucunda KOI ve renk giderimi çalışılmıştır. İkinci seri deneylerde benzer seyrelme oranlarında ozon oksidasyonunun etkisinde çalışılmıştır.

Peroksit/Tekstil atık suyu karışımında, karışım oranları 1/1-1/5 arasında değiştirildiğinde tekstil atık suyunun KOI'nin düşük olması nedeniyle karışımın KOI'si azalmaktadır. Altı saatlik karışım ve reaksiyon sonunda peroksit oksidasyonu nedeniyle KOI'de azalma gerçekleşmiştir. Farklı pH'da yapılan çalışmada(1/2-1/1 karışım oranında) en yüksek KOI giderim verimi pH:2'de gerçekleşmiştir. KOI'nin aksine renk giderimi yüksek pH'da gerçekleşmektedir. 1/5 karışım oranında TOC değeri 816 mg/l'ye kadar azalmıştır.

30°C, 50°C ve 60 °C sıcaklıklarda yapılan çalışmada sıcaklık arttıkça KOI gideriminin arttığı tespit edilmiştir. Düşük sıcaklıkta renk giderimi daha fazla gerçekleşmektedir. Sıcaklığın artması ile reaksiyonun artması beklenen bir sonuçtur. Ozon ile yapılan oksidasyon çalışmasında, sadece karıştırma ile yapılan çalışmaya kıyasla daha yüksek verim bulunmuştur. Doğal olarak organik peroksidin oksidasyon etkisine katkı olarak ozon oksidasyonunda devreye girmiştir. Düşük pH'da(pH:4) KOI giderimi daha fazla bulunmuştur.

Anahtar Kelimeler: Atık su, Organik peroksit, Ozon

Abstract

In this study, COD and color removal were studied as a result of mixing a wastewater containing organic peroxide with a colored textile wastewater at different mixing ratios. In the second series of experiments, the effect of ozone oxidation was studied at similar dilution rates.

In the peroxide/textile wastewater mixture, when the mixing ratios are changed between 1/1-1/5, the COD of the mixture decreases due to the low COD of the textile wastewater. After six hours of mixing and reaction, there was a decrease in COD due to peroxide oxidation. In the study performed at different pH (1/2-1/1 mixture ratio), the highest COD removal efficiency was realized at pH:2. Unlike COD, color removal occurs at high pH. TOC value decreased up to 816 mg/l at 1/5 mixing ratio.

In the study carried out at 30°C, 50°C and 60°C temperatures, it was determined that the COD removal increased as the temperature increased. Color removal occurs more at low temperatures. It is an expected result that the reaction increases with increasing temperature. In the oxidation study with ozone, higher efficiency was found compared to the study with

mixing only. Naturally, ozone oxidation has also come into play as a contribution to the oxidation effect of organic peroxide. COD removal was found to be higher at low pH (pH:4).

Keywords: Waste water, Organic peroxide, Ozone

**FAILURE ANALYSIS OF VEHICULAR CAMSHAFT COMPONENT WITH
VARIABLE MATERIALS SUBJECTED TO MULTI-TRANSLATED NON-
PROPORTIONAL LOADING CONDITIONS IN ITS DUTY CYCLE**

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Abstract

In this study, it was essential to analyze a vehicle camshaft, considering the in-service failure it undergoes due to multi-translated non-proportional loading conditions. The auto camshaft component was modelled and simulated using SOLIDWORKS software, 2020 version. Three materials were considered in the modelling and simulation process viz AISI 1020 Steel (Cold Rolled), AISI 4130 Steel (annealed at 865°C) and Ti-5Al-2.5Sn Annealed (SS), and the results indicated maximum Von-mises stresses of 576, 268 and 176.3 MPa as well as yield strength values of 356, 463 and 744.6 MPa. Maximum static displacement of 0.07924, 0.03725 and 0.003495 mm were obtained for AISI 1020 Steel (Cold Rolled), AISI 4130 Steel (Annealed at 865°C) and Ti-5Al-2.5Sn Annealed (SS). In the same vein, maximum static strain obtained from the same set of materials were 0.0005628, 0.00005238 and 0.00005387 respectively. From the aforementioned results, AISI 1020 Steel (Cold Rolled) had not satisfy the failure distortion-energy theory, and may not be feasible for camshaft application in actual scenario because the Von-mises stress obtained had exceeded the material yield strength due to multiple translated non-proportional loading conditions which outweighed the load bearing capacity of the material. However, AISI 4130 Steel (annealed at 865°C) despite the weight constrain (but still less heavier than AISI 1020 Steel Cold Rolled), was observed to produce optimum Von-mises stress, strain and displacement which indicated that it still had relevance in auto camshaft applications. Of all the materials examined in this study, it is evidently clear that Ti-5Al-2.5Sn Annealed (SS), the material with highest yield strength, also had the lowest Von-mises stress, static displacement and strain as well as the lowest density which makes it a better material for camshaft applications. For maintenance cost savings and improved fuel economy, lightweight materials are highly recommended. These factors could ultimately improve the overall vehicle performance and fuel efficiency.

Keywords: Failure, Vehicle, Camshaft, Materials, Lightweight, Loading conditions.

**PHYTOCHEMICAL SCREENING AND ANTIMICROBIAL ACTIVITIES OF
LEAVES EXTRACTS OF DODONAEA VISCOSA LINN.**

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Abstract

The use of plants and plant products as medicines could be dated to as far back as the beginning of human civilization. Nature has been a source of medicinal agents in drugs and various aspects of science of life and the acts of healing. Nigeria was not left behind the rest of the world in this endeavor of utilizing plant derived medicines. *Dodonaea viscosa* Linn is often used traditionally in many countries to treat many diseases and ailments like fever, cold, malaria, rheumatism, indigestion, ulcer, diarrhea, constipation, irregular menstruation and headaches.²³The present study investigated the in-vitro antimicrobial activity of *Dodonaea* Nowadays, multiple drug resistance has developed due to the indiscriminate use of commercial antimicrobials immobilised in the treatment of infectious disease. Sometimes, antibiotics are associated with adverse effects in the host including immuneon, hypersensitivity and allergic reactions. This situation forced scientists to search for new²³ antimicrobial substances. Given the alarming incidence of antibiotic resistance in bacteria of medical importance, there is constant need of new and effective therapeutic agents.²³*viscosa* Linn against pathogens namely *Salmonella typhi*, *Bacillus S.* and *Candida A.*, using Agar well diffusion method. Another study was performed to identify the phytochemical composition of the leaf extract of *Dodonaea viscosa* Linn. The leaf was found to contain the following phytochemicals; flavonoids, tannins, terpenoids, saponins, resins, and steroids while alkaloids and frothings were absent. Among the leaf extracts of the *Dodonaea viscosa* Linn, the ethanolic extract possesses the highest inhibitory activity with n-hexane extract having the least activity, The result also shows that the leaf extract of *D. viscosa* exhibited some degree of antibacterial activity on some of the test bacteria used. Other solvent should also be used for extraction of other parts of the plant to reveal their potentials.

Keywords: *Dodonaea viscosa*, Solvent extraction, Leaf.

**EFFECT OF LIPID-BASED MULTIPLE MICRONUTRIENTS
SUPPLEMENTATION IN UNDERWEIGHT PRIMIGRAVIDA PRE-ECLAMPTIC
WOMEN ON MATERNAL AND PREGNANCY OUTCOMES: RANDOMIZED
CLINICAL TRIAL**

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Abstract

In pre-eclampsia, restricted blood supply due to the lack of trophoblastic cell invasion and spiral artery remodeling is responsible for adverse pregnancies and maternal outcomes, which is added to by maternal under nutrition. This study was designed to investigate the effects of lipid-based supplements (LNS-PLW) on pregnancy and maternal outcomes in underweight primigravida pre-eclamptic women.

A total of 60 pre-eclamptic, underweight primigravida women from the antenatal units of tertiary care hospitals in the Khyber Pakhtunkhwa Province, Pakistan, were randomly divided into two groups (Group 1 and Group 2). The participants of both groups were receiving routine treatment for pre-eclampsia: iron (60 mgs) and folic acid (400 ug) IFA daily. Group 2 was given an additional sachet of 75 gm LNS-PLW daily till delivery. The pregnancy outcomes of both groups were recorded. The clinical parameters, hemoglobin, platelet count, and proteinuria were measured at recruitment.

The percentage of live births in Group 2 was 93% compared to 92% in Group 1. There were more normal vaginal deliveries (NVDs) in Group 2 compared to Group 1 (Group 2, 78% NVD; group 1, 69% NVD). In Group 1, 4% of the participants developed eclampsia. The frequency of cesarean sections was 8/26 (31%) in Group 1 and 6/28 (22%) in Group 2. The number of intrauterine deaths (IUDs) was only 1/28 (4%) in Group 2, while it was 2/26 (8%) in Group 1. The gestational age at delivery significantly improved with LNS-PLW supplementation (Group 2, 38.64 ± 0.78 weeks; Group 1, 36.88 ± 1.55 weeks, p-value 0.006). The Apgar score (Group 2, 9.3; Group 1, 8.4) and the birth weight of the babies improved with maternal supplementation with LNS-PLW (Group 2, 38.64 ± 0.78 weeks: Group 1, 36.88 ± 1.55 ; p-value 0.003). There was no significant difference in systolic blood pressure, while diastolic blood pressure (Group 2, 89.57 ± 2.08 mmHg; Group 1, 92.17 ± 5.18 mmHg, p-value 0.025) showed significant improvement with LNS-PLW supplementation. The hemoglobin concentration increased with the LNS-PLW supplement consumed in Group 2 (Group 2, 12.15 ± 0.78 g/dL; Group 1, 11.39 ± 0.48 g/dL, p-value < 0.001). However, no significant difference among the platelet counts of the two groups was observed.

The pregnancy and maternal outcomes of underweight pre-eclamptic women can be improved by the prenatal daily supplementation of LNS-PLW during pregnancy, along with IFA and regular antenatal care and follow-up.

Keywords: pre-eclampsia; lipid-based nutritional supplements; pregnancy outcome; maternal outcome; Khyber Pakhtunkhwa Province of Pakistan

ATORVASTATİNİN MEME KANSERİ ÜZERİNDEKİ SİTOTOKSİK ETKİSİNİN ARAŞTIRILMASI

INVESTIGATION OF THE CYTOTOXIC EFFECT OF ATORVASTATIN ON BREAST CANCER

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Özet

Statinler, keşfedilen ilk kolesterol düşürücü ajanlardır. Kolesterol kan düzeylerini önemli ölçüde düşürme yetenekleri nedeniyle, uluslararası kılavuzlar statinleri hiperkolesterolemi için birinci basamak tedavi olarak kabul etmektedir. Statinler, kolesterol ve metabolitlerinin sentezini inhibe ederek çeşitli kanser türlerinde antiproliferatif etkiler göstermiştir. Bir dizi gözlemsel çalışma, statin kullanıcılarında kanser başlangıcında bir risk azalması veya kanser sonuçlarında iyileşme olduğunu bildirmiştir. Farklı statinlerin değişken etkinliği, farklı fizyokimyasal özellikleri ve tedavi süresi ile ilgilidir. Farklı kanser türleri üzerinde gerçekleştirilen birçok in vitro ve in vivo çalışma, statinlerin kanser hücresi proliferasyonunu ve metastazı inhibe ettiği moleküler mekanizmaların altını çizmiştir. Bu mekanizmalar, statinlerin kanser tedavisi ve önlenmesinde kullanılmasının temeli olarak kabul edildi. Statinlerin antiproliferatif etkileri, hem mevalonat yolunun inhibisyonunun hem de pleiotropik etkilerinin, yani antioksidan, antiinflamatuvar ve immün modülatör özelliklerinin bir sonucudur ve hastanın sağkalımı ve kanser nüksü üzerinde büyük bir etkiye sahiptir. Bu çalışmada, Atorvastatin'in MDA-MB-231 meme kanseri hücreleri üzerindeki sitotoksik etkisi araştırılmıştır. Bu amaçla çalışmada Atorvastatin ilacının sitotoksik etkisi XTT assay ile toksik etkisi belirlenmiştir. Çalışma sonuçları bir ön çalışma niteliğinde olup ileriki çalışmalarda moleküler mekanizmaları çalışılacak ve yeni tedavi metodlarının keşfi yapılacaktır.

Anahtar Kelimeler: Atorvastatin, Meme kanseri, Sitotoksisite

Abstract

Statins were the first cholesterol-lowering agents discovered. Because of their ability to significantly lower cholesterol blood levels, international guidelines recognize statins as first-line therapy for hypercholesterolemia. Statins have shown antiproliferative effects in various types of cancer by inhibiting the synthesis of cholesterol and its metabolites. A number of observational studies have reported a reduced risk of cancer onset or improved cancer outcomes in statin users. The variable efficacy of different statins is related to different physicochemical properties and duration of treatment. Many in vitro and in vivo studies on different types of cancer have highlighted the molecular mechanisms by which statins inhibit cancer cell proliferation and metastasis. These mechanisms were recognized as the basis for the use of statins in cancer treatment and prevention. The antiproliferative effects of statins are the result of both inhibition of the mevalonate pathway and their pleiotropic effects, namely their antioxidant, anti-inflammatory and immune modulatory properties, and have a major impact on patient survival and cancer recurrence. In this study, the cytotoxic effect of Atorvastatin on MDA-MB-231 breast cancer cells was investigated. For this purpose, the cytotoxic effect of the drug Atorvastatin was determined by XTT assay. The results of the study are in the nature of a preliminary study and molecular mechanisms will be studied in future studies and new treatment methods will be discovered.

Keywords: Atorvastatin, Breast cancer, Cytotoxicity

DELTAMETRİN VE ASETAMİPRİDİN THLE 2 HÜCRE HATTINDA SİTOTOKSİK ETKİSİNİN İNCELENMESİ

INVESTIGATION OF THE CYTOXIC EFFECT OF DELTAMETHRIN AND ACETAMIPRID IN THLE 2 CELL LINE

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Özet

Tarım ilacı olarak bilinen pestisitler, tarım ürünlerinin işlenmesi, depolanması ve pazarlanması sırasında böcek, mantar ve yabancı ot gibi zararlıları kontrol edebilmek için onları öldüren biyolojik bir ajandır. Asıl amaçları dışında çevreye yayılarak doğal yaşam standartlarının bozulmasına, yiyecek ve içecekler üzerinde kalıntı bırakarak insan sağlığı üzerinde toksik etkiler göstermektedir. Geri dönüşümü olmayan organ hasarlarına ve çeşitli genotoksik etkilere neden olur. Pestisitler, insektisit, akarasit, fungusit, bakterisit, herbisit, rodentisit, nematosit, molluskisit ve algisit olarak dokuz gruba ayrılır. Bu çalışmada kullanılan iki pestisit çeşidi de insektisit grubuna aittir. İnsektisitlerde formülasyonlarına göre organoklorlu, organofosforlu, karbamat, piretinoidler ve neonikotinoidler olarak beş gruba ayrılırlar. Piretroid grubunda yer alan deltametrin, zararlılara ve parazitlere karşı değerli insektisidal aktiviteye sahiptir. Bu sebeple dünya çapında yaygın kullanılır ve memelilerde düşük toksik etkiler gösterdiği bilinmektedir. Asetamiprid ise insektisitlerin neonikotinoid grubunda yer alır. Yaygın bir şekilde kullanılan asetamipride yüksek oranda maruz kalınması sonucu oksidatif stres, hormonal bozulmalar ve apoptoz görülebilir. Her iki pestisit yaygın kullanımından dolayı yüksek kontaminasyon göstermesi büyük bir sorundur. Kontamine olmuş su ve yiyeceklerin alınması durumunda kolayca emilim sağlandığı için insanlar üzerinde toksik etkiler göstermektedir. Bu açıdan deltametrin ve asetamipridin sitotoksik etkilerinin belirlenmesi büyük önem taşımaktadır.

Bu çalışmanın amacı, birçok metabolitin yüksek konsantrasyonda biriktiği organ olan karaciğerin, Thle 2 hücre hattında deltametrin ve asetamiprid pestisitlerinin sitotoksik etkilerinin araştırılmasıdır. Bu amaçla Thle 2 hücre hattı Dulbecco's Modified Eagle Medium (DMEM) besiyortamının içerisine %1 penicilin/streptomisin, % 10 FBS ve %1 L-Glutamin eklenerek, 37°C'de ve %5 CO₂ ortamı sunan inkubatörde büyütülmüştür. Pestisitlerin sitotoksitesisi XTT temelli sitotoksitesite analiz kiti kullanılarak gerçekleştirilmiştir.

Thle 2 hücre hattında deltametrin maddesinin inhibisyon konsantrasyon (IC50) değeri 100 µM, asetamiprid maddesinin IC50 değeri ise 250 µM olarak belirlenmiştir.

Anahtar Kelimeler : Deltametrin, Asetamiprid, Thle 2, Sitotoksitesite

Abstract

Pesticides, known as pesticides, are biological agents that kill agricultural products in order to control pests such as insects, fungi and weeds during processing, storage and marketing. Apart from its main purposes, it spreads to the environment and causes toxic effects on human health by leaving residues on food and beverages, deteriorating natural living standards. It causes irreversible organ damage and various genotoxic effects. Pesticides are divided into

nine groups as insecticide, acaricide, fungicide, bactericide, herbicide, rodenticide, nematocide, molluscicide and algicide. Both pesticide types used in this study belong to the insecticide group. Insecticides are divided into five groups according to their formulations as organochlorine, organophosphorus, carbamate, pyrethroids and neonicotinoids. Deltamethrin, which is in the pyrethroid group, has valuable insecticidal activity against pests and parasites. For this reason, it is widely used around the world and is known to have low toxic effects in mammals. Acetamiprid is in the neonicotinoid group of insecticides. Oxidative stress, hormonal disruptions and apoptosis may occur as a result of high exposure to the widely used acetamiprid. High contamination is a big problem due to the widespread use of both pesticides. In case of ingestion of contaminated water and food, it has toxic effects on humans as it is easily absorbed. In this respect, it is of great importance to determine the cytotoxic effects of deltamethrin and acetamiprid.

The aim of this study is to investigate the cytotoxic effects of deltamethrin and acetamiprid pesticides on Thle 2 cell line of the liver, which is the organ where many metabolites accumulate in high concentrations. For this purpose, Thle 2 cell line was grown in Dulbecco's Modified Eagle Medium (DMEM) medium by adding 1% penicillin/streptomycin, 10% FBS and 1% L-Glutamine, at 37°C and in an incubator with 5% CO₂ environment. Cytotoxicity of pesticides was performed using MTT-based cytotoxicity analysis kit.

In Thle 2 cell line, the inhibition concentration (IC₅₀) of deltamethrin substance was determined as 100 µM, and the IC₅₀ value of acetamiprid substance was determined as 250 µM.

Keywords: Deltamethrin, Acetamiprid, Thle 2, Cytotoxicity.

EXPERIMENTAL STUDY ON INSULATING MATERIAL CHARGING

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Abstract

Various industrial processes, such as electrostatic painting, dust precipitation, and granular material separation, rely on the phenomenon of static electricity. In this experimental study, different models of two-wire corona electrodes were used to improve the efficiency of insulating material charging. The experimental setup allowed for the measurement of corona current-voltage characteristics and surface potential distributions. The results indicate that increasing the spacing between the two wires leads to an increase in corona discharge intensity. Additionally, the current collected at the grounded electrode was found to increase with the number of wires, at a constant voltage. By measuring the electric potential at the surface of a polyethylene film exposed to the corona discharge generated by the two-wire electrode, the corona charging conditions of granular materials in electrostatic separators could be evaluated.

Keywords: Electrostatic Separation, Corona Discharge, Polyethylene, Polymer.

MDA-MB-231 HÜCRE HATTINDA VİNCRİSTİNE VE ETOPOSİDE SİTOTOKSİK ETKİSİNİN ARAŞTIRILMASI

INVESTIGATION OF VINCRISTINE AND ETOPOSIDE CYTOTOXIC EFFECT ON
MDA-MB-231 CELL LINE

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Özet

Vincristine, vinca alkaloidleri grubuna ait olarak bilinen bir ilaçtır. Bu ilaç, mikrotübül polimerizasyonuna etki etmekte ve mitoz bölünmeyi durdurarak hücre büyümesini bloke etmektedir. Etoposide, bir topoizomerase II inhibitörüdür. Etoposide, geç S fazında ve erken G2 fazında hücre döngüsünün durmasını indükleyebilmekte ve podofillotoksinin yarı sentetik bir türevi olarak literatürde bilinmektedir. Kanser, iyi veya kötü huylu olabilen herhangi bir anormal hücre yapısının oluşturduğu anormal hücre çoğalmasından kaynaklanır. Bu çalışmada, geleneksel ilaçların üçlü negatif meme kanser hücreleri (MDA-MB-231) üzerinde sitotoksik ve mekanistik etkisi belirlenmiştir. Yapılan uygulamalarla, Vincristine ve Etoposide'nin hem ayrı hem birlikte sinerjistik olarak sitotoksikite ve metastatik etkisinin araştırılması, daha sonraki çalışmalar için ön bir çalışma niteliği kazanmıştır.

Anahtar Kelimeler: Kanser, etoposide, vincristine.

Abstract

Vincristine is a drug known as the vinca alkaloid group. This drug affects microtubule polymerization and blocks cell growth by stopping mitosis. Etoposide is a topoizomerase II inhibitor. Etoposide can induce the stopping of the cell cycle in the late phase and early G2 phase and are known in the literature as a semi-synthetic derivative of podofillotoxin. Cancer is caused by abnormal cell proliferation caused by any abnormal cell structure that can be good or malignant. In this study, cytotoxic and mechanistic effect of traditional drugs on triple negative breast cancer cells (MDA-MB-231) were determined. With the applications, the investigation of the cytotoxicity and metastatic effect of Vincristine and Etoposide both as a separate and together synerjistic gained a preliminary study for later studies.

Keywords: Cancer, etoposide, vincristine.

İMMUN SİSTEMİ GÜÇLENDİRİCİ VE SOLUNUM SİSTEMİ HASTALIKLARINDA MUCİZEVİ ETKİYE SAHİP SALEP BİTKİSİNİN İNCELENMESİ

INVESTIGATION OF THE SALEP PLANT, WHICH HAS A MIRACLE EFFECT ON
IMMUNE SYSTEM STRENGTHENING AND RESPIRATORY SYSTEM DISEASES

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ÖZET

İnsanoğlu geçmişten günümüze tarımsal faaliyetleri yürütmesindeki temel nedenlerin başında beslenme, giyinme ve barınma ihtiyaçlarını karşılamak gelmektedir. Bu özelliklerinin dışında hastalıkların tedavisinde öncelikli olarak doğada bulunan bitkiler tedavi amaçlı kullanılmaya başlamış, sonrasında bazı tıbbi ve aromatik bitkileri kültüre alınarak yetiştiriciliği yapılmaya başlanmıştır. Sanayi devrimi ile birlikte sentetik ilaçların kullanımı hızlı bir şekilde artsa da sentetik ilaçların halk sağlığına olan olumsuz etkileri nedeniyle günümüzde dünya genelinde tıbbi ve aromatik bitkilere olan talep giderek artmaya başlamıştır.

Ülkemiz konum itibari ile tıbbi ve aromatik bitkiler yönünden oldukça zengindir. Bu doğal zenginliği diğer bitkilerde olduğu gibi salep bitkisi türlerine de yansımaktadır. Özellikle ülkemiz orkide çeşitliliği bakımından Avrupa ve Ortadoğu'nun en zengin bölgeleri içerisinde yer almaktadır. Özellikle ülkemizde Orchidaceae familyasına ait yumrulu ve yumrusuz 24 cins ve 187 tür bulunmaktadır. Bu yüzden Türkiye'nin her bölgesinde orkide çeşitlerine rastlamak mümkündür. Bu yüzden yıllarca Anadolu topraklarında doğadan toplanan salep yumruları değişik amaçlar için kullanılmıştır. Ormanlık, dağlık, çayı ve meralarda doğal olarak yetişebilen salep türlerinin en değerli kısımlarını yumruları ve içeriğindeki glukoman maddesi oluşturmaktadır. Genellikler salep maddesi yumrularından elde edilmektedir. Salep stabilizeyi ve viskoziteyi artırdığı için yaygın olarak dondurma imalatında kullanılmaktadır. İmmun sistemi güçlendirici etkisi ile soğuk algınlığı, boğaz ağrılarında, öksürük ve balgam söktürücü olarak, solunum sistemi hastalıklarında oldukça etkilidir. Ayrıca iştah açıcı, sindirim sistemi rahatsızlıklarında, karaciğer, safra, pankreas gibi birçok hastalığın tedavisinde kullanılmaktadır.

Bu denli önemli olan salep bitkisinin doğadan bilinçsizce toplanması birçok türünün nesli tükenmeyle karşı karşıya kalmıştır. Salep üzerine birçok araştırma yapılmış olmasına rağmen kültüre alınması ve istenilen verimin elde edilmesi ne yazık ki sağlanamamaktadır. Hem daha geniş bilimsel araştırmalara ışık tutmak hem de daha geniş alanlarda kültürü yapılabilmesi için salep bitkisi hakkında bilgi verilmeye çalışılmıştır.

Anahtar kelimeler: Soğuk algınlığı, glukoman, salep, orchidaceae, alternatif tıp, dondurma

ABSTRACT

One of the main reasons for human beings to carry out agricultural activities from the past to the present is to meet their nutritional, clothing, and shelter needs. Apart from these features, natural plants have started to be used primarily for therapeutic purposes in treating diseases. Then some medicinal and aromatic plants were cultured and grown. Although the use of synthetic drugs has increased rapidly with the industrial revolution, the demand for medicinal and aromatic plants has started to increase worldwide due to the negative effects of synthetic drugs on public health.

Our country is very rich in terms of medicinal and aromatic plants. This natural richness is reflected in the salep plant species and other plants. In particular, our country is among the richest regions of Europe and the Middle East regarding orchid diversity. Especially in our country, 24 genera and 187 species belong to the Orchidaceae family with and without tuber. Therefore, it is possible to come across orchid varieties in every region of Turkey.

For this reason, salep tubers collected from nature in Anatolian lands have been used for different purposes for years. The most valuable parts of salep species that can grow naturally in forests, mountains, streams, and pastures are tubers and glucomannan. It is generally obtained from the tubers of salep material. Salep is widely used in ice cream production as it increases stability and viscosity. Its immune system strengthening effect is very effective in colds, sore throats, cough and expectorant, and respiratory system diseases. It also treats many diseases, such as appetite stimulants, digestive system disorders, liver, bile, and pancreas.

The unconscious collection of the salep plant from nature, which is so important, has faced the extinction of many species. Although many studies have been done on salep, it is unfortunately not possible to cultivate it and obtain the desired yield. It has been tried to give information about the salep plant in order to shed light on wider scientific research and to cultivate it in wider areas.

Keywords: Orchidaceae, common cold, glucoman, salep, alternative medicine, ice cream

MDA-MB-231 HÜCRE HATTINDA TAMOKSİFEN VE KLORAMBUSİL'İN SİTOTOKSİK ETKİSİNİN ARAŞTIRILMASI

MDA-MB-231 INVESTIGATION OF THE CITOTOXIC EFFECT OF TAMOXIFEN AND
CLORAMBUCIL ON THE CELL LINE

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Özet

Kanser, somatik hücrelerde gelişir ve bu sayede somatik bir genetik hastalığın en yaygın aynı zamanda komplike durumu denilebilmektedir. Kanser hücreleri büyüme özelliği bozularak klonal yayılım gösterir. Dünyada en sık görülen kalp hastalıklarından sonra ölüme yol açan ikinci hastalık grubunda yer almaktadır. Globalcan 2012 verilerine göre, 2012 yılında dünyada toplam 14.1 milyon yeni kanser vakası tespit edilerek buna bağlı olarak 8.2 milyon ölümler kansere bağlı gerçekleşmiştir. Bu sebeple, devam eden kanser artış hızına bağlı olarak, 2025 yılında dünya nüfus artışına oranla toplam 193 milyon yeni kanser vakası olacağı belirtilmiştir (Aygün Çevik B. vd., 2017). DNA'da oluşan birtakım anormallikler kansere sebep olmaktadır. Günümüz verilerine göre, kanserlerin %10-15'inin ebeveynlerden gelen genlere aktararak kalıtsal bir süreç olduğu, geriye kalan %85-90'lık kısmın ise DNA'nın çevresel koşullarla mutajenlere maruz kalımı sonucu olduğu belirlenmiştir. (Yokuş B. vd., 2012). Kanser tedavisinde ameliyat, kemoterapi ve radyoterapi gibi çeşitli tedavi yöntemlerinden yararlanılmaktadır, bu yan etkiler göz önüne alındıklarında hali hazırda FDA onaylı kullanılan ilaçları geliştirmek ve bu ilaçları birleştirerek yeni anti-kanser ilaçlarının oluşturulması popülerite kazanmıştır. Bu sebeple kullanılan yöntemler dışında başka tedavilere ihtiyaç duyulmakta ve araştırılmaktadır. Tamoxifen, anti-östrojenler grubundan nonsteroidal ilaçtır. Son yıllarda, Tamoxifen hem meme kanseri tedavisinde hem de kemoprevensiyonunda kullanılmaktadır. Ayrıca, selektif östrojen reseptör modülatörlerini (SERM) ele alan araştırmalarda da bulunarak tüm dünyada öncü bir ilaç olarak kabul edilmektedir (Shagufta ve Ahmad I., 2018). Bileşiminde klorambusil adlı etkin maddeyi içeren leukeran, kemik iliğinin çok fazla sayıda anormal beyaz kan hücresi ürettiği Kronik Lenfositik Lösemi (KLL)'de, lenf sistemi hücrelerinden kaynaklanan kanser çeşidi olan Hodgkin lenfoma hastalığında, B-lenfosit akyuvar hücrelerinin aşırı miktarda çoğaldığı ve kanda anormal protein serbestleşmesine neden olduğu Waldenströmün makroglobulinemisi tedavisinde, yumurtalık, meme ve testis kanserini tedavi etmek için kullanılır. Bu hipotezle yola çıkarak çalışmada MDA-MB-231 hücre hattı üzerinde Tamoxifen ve Klorambusil ilaçlarının hücre hatlarında sitotoksik etkisinin araştırılması amaçlanmıştır. Bu amaçla çalışmada Tamoxifen ve Klorambusil ilaçlarının ayrı ayrı ve birlikte sitotoksik etkisi XTT assay ile toksik etkisi belirlenmiştir. Çalışma sonuçları bir ön çalışma niteliğinde olup ileriki çalışmalarda moleküler mekanizmaları çalışılacak ve yeni tedavi metodlarının keşfi yapılacaktır.

Anahtar Kelimeler: Meme kanseri, Tamoksifen, Klorambusil, sitotoksisite.

Abstract

Cancer develops in somatic cells and thus it is the most common but also the most complicated condition of somatic genetic disease. Cancer cells show clonal spread by disrupting their growth feature. It is in the second group of diseases that cause death after the most common heart disease in the world. According to Globalcan 2012 data, a total of 14.1 million new cancer cases were detected in the world in 2012, resulting in 8.2 million deaths

due to cancer. For this reason, it has been stated that there will be a total of 193 million new cancer cases in 2025 compared to the world population increase, depending on the ongoing cancer growth rate (Aygün Çevik B. et al., 2017). Some anomalies in DNA cause cancer. According to today's data, it has been determined that 10-15% of cancers are a hereditary process by being transferred to genes from parents, and the remaining 85-90% is the result of exposure of DNA to mutagens under environmental conditions. (Yokuş B. et al., 2012). Various treatment methods such as surgery, chemotherapy, and radiotherapy are used in cancer treatment. Considering these side effects, it has gained popularity to develop FDA-approved drugs that are currently used and to combine these drugs to create new anti-cancer drugs. For this reason, other treatments are needed and investigated other than the methods used. Tamoxifen is a non-steroidal drug from the group of anti-estrogens. In recent years, Tamoxifen has been used for both breast cancer treatment and chemoprevention. In addition, it is accepted as a pioneer drug all over the world by researching selective estrogen receptor modulators (SERMs) (Shagufta and Ahmad I., 2018). Leukeran, which contains an active substance called chlorambucil in its composition, in Chronic Lymphocytic Leukemia (CLL) where the bone marrow produces too many abnormal white blood cells, in Hodgkin's lymphoma, which is a type of cancer originating from the cells of the lymphatic system, in which B-lymphocyte white blood cells proliferate excessively and abnormal protein in the blood is produced. It is used to treat ovarian, breast, and testicular cancer, in the treatment of macroglobulinemia of Waldenström. Based on this hypothesis, this study aimed to investigate the cytotoxic effects of Tamoxifen and Chlorambucil on MDA-MB-231 cell lines. For this purpose, the cytotoxic effects of Tamoxifen and Chlorambucil drugs separately and together were determined by XTT assay. The results of the study are like a preliminary study molecular mechanisms will be studied in future studies and new treatment methods will be discovered.

Keywords: Breast cancer, Tamoxifen, Chlorambucil, cytotoxicity.

DEPREMZEDELERDE SAĞLIKLI BESLENMENİN ÖNEMİ

THE IMPORTANCE OF HEALTHY NUTRITION IN EARTHQUAKE VICTIMS

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Özet

Doğal afetler son yirmi yılda tüm dünyada 3 milyondan fazla can almıştır. Bunlar arasında depremler en fazla sayıda cana mal olmuştur. Sel, toprak kayması, kasırga, tsunami ve deprem gibi her doğal afet insanların beslenme durumunu etkilemektedir. Nükleer saldırılar ve savaşlar, insan sebebiyle ortaya çıkabilecek kıtlığa sebep olurken, deprem, kuraklık, sel, gibi olağan dışı durumlar ise doğa kaynaklı kıtlık sorununa neden olmaktadır. Afetler, sosyal yaşamı ve ekonomik durumu olumsuz yönde etkiler. Afetleri takiben özellikle dezavantajlı kişiler olmak üzere tüm afetzedelerde enerji ve besin bileşenlerinin yetersizliği ile alakalı sağlık problemlerinin ortaya çıkmasına sebep olmaktadır. Depremlerin travmalar, ekonomik sorunlar ve gıda arzının kesintiye uğramasına neden olarak ciddi beslenme sorunlarına yol açabilir. Bu nedenle, zamanında beslenme müdahalelerinin olmaması, toplum üzerinde kısa vadeli ve uzun vadeli etkilerle son derece zararlı beslenme sonuçlarına yol açabilir. Küresel olarak yapılan birçok çalışma, deprem gibi doğal afetlerin çocukların büyümesini olumsuz etkilediğini göstermiştir. Hatta yetersiz beslenme ve mikrobeyinlere yeterli ulaşmama durumu çocuklarda hastalıklara ve ölüme bile sebep olabilir. Deprem sonrasında beslenme imkânının olmaması ve sağ kalanlar üzerindeki psikik baskı nedeniyle bireylerin pek çoğunun iştahsızlık, aşırı yeme, eski yeme alışkanlıklarını terk etmek ve yeni alışkanlıklar oluşturmak gibi yeme bozuklukları geliştirebilecekleri bildirilmiştir. Gelecekteki felaket olaylarını önlemek için etkili müdahalelerin tasarlanmasına katkıda bulunabileceğinden, herhangi bir afetten sonra beslenme sorunlarının doğru bir şekilde anlaşılması önemlidir. Doğal afetlerden sonra besleyici gıda sağlamak, yerine getirilmesi gereken en önemli günlük işlevlerden biridir. Acil beslenme sadece açlığı gidermekle kalmamalı, aynı zamanda beslenme ihtiyaçlarını da göz önünde bulundurmalıdır. Deprem sonrası beslenmeyle ilişkili oluşabilecek hastalıkların önlenmesi için önlemlerin alınması malnütrisyon, anemi, kardiyovasküler hastalıklar ve gastrointestinal hastalıkların engellenmesinde etkili olabileceği yapılan bilimsel çalışmalarla vurgulanmıştır. Aksi takdirde mortalite ve morbiditeyle mücadele yetersiz kalacaktır. Böylece alınan önlemler sonucunda olağan yaşam koşullarına bir an önce dönülebilir.

Anahtar Kelimeler: Afet, deprem, sağlıklı beslenme, malnütrisyon.

Abstract

Natural disasters have claimed more than 3 million lives all over the world in the last two decades. Among them, earthquakes claimed the greatest number of lives. Every natural disaster such as flood, landslide, hurricane, tsunami and earthquake affects the nutritional status of people. Nuclear attacks and wars cause famine that may arise due to human beings, while extraordinary natural situations such as earthquakes, droughts, floods cause the problem

of natural famine. Disasters negatively affect social life and economic situation. Following disasters, many health problems related to the inadequacy of energy and nutritional components happen in all disaster victims, especially disadvantaged people. Earthquakes can cause serious nutritional problems by causing traumas, economic problems and interruption of food supply. Therefore, the lack of timely nutritional interventions can lead to extremely harmful nutritional consequences with short-term and long-term effects on society. Many studies conducted globally have shown that natural disasters such as earthquakes negatively affect the growth of children. In fact, malnutrition and insufficient access to micronutrients can even cause diseases and death in children. It has been reported that many of the individuals may develop eating disorders such as loss of appetite, overeating, abandoning old eating habits and forming new habits due to the lack of nutrition opportunity and the psychic pressure on survivors after the earthquake. A proper understanding of nutritional issues after any disaster is essential as it can contribute to the design of effective interventions to prevent future catastrophic events. Providing nutritious food after natural disasters is one of the most important daily functions to fulfill. Emergency feeding should not only satisfy hunger, but also consider nutritional needs. It has been emphasized by scientific studies that taking measures to prevent nutritional-related diseases after an earthquake can be effective in preventing malnutrition, anemia, cardiovascular diseases and gastrointestinal diseases. Otherwise, the fight against mortality and morbidity will be insufficient. Thus, as a result of the measures taken, normal living conditions can be returned as soon as possible.

Keywords: Disaster, earthquake, healthy diet, malnutrition.

AKDENİZ DİYETİNİN SAĞLIĞIMIZA YARARLARI
BENEFITS OF THE MEDITERRANEAN DIET FOR OUR HEALTH

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Özet

Dünya yaşlı nüfusunun 2050'den önce ikiye katlanması bekleniyor. Sağlıksız alışkanlıklar ve sağlıksız yaşam tarzları genellikle yaşa bağlı hastalıklar veya bunların kötüleşmesiyle ilişkilendiriliyor. Günlük yaşam tarzı ve diyetteki değişiklik, yaşa bağlı hastalıkların başlamasını önlemeye yardımcı olabilir ve bunların evrimini etkili bir şekilde etkileyebilir. Böylece yakın zamanda hastaliksız yaşlanma sürecini tanımlamak için ortaya atılan bir kavram olan Sağlıklı Yaşlanma sürecini teşvik edebilir. Obezite, diyabet, metabolik sendrom ve kardiyovasküler olaylar gibi bulaşıcı olmayan hastalıkların çağdaş toplumlarda yüksek oranda morbidite ve mortaliteye neden olduğu dünya çapında tespit edilmiştir. Hareketsizlik, uyku yoksunluğu, sigara içme ve sağlıksız beslenme alışkanlıkları gibi birçok değiştirilebilir risk faktörü bu artışa katkıda bulunmuştur.

Çeşitli beslenme kalıpları sağlık yararları ile ilişkilendirilmiştir, ancak literatürdeki en büyük kanıt, Akdeniz bölgesindeki popülasyonların izlediği geleneksel beslenme alışkanlıklarına ve yaşam tarzına atfedilebilir. Akdeniz diyeti (AD) ekolojik olarak sürdürülebilirdir. Dolayısıyla bu maddi olmayan dünya mirası, sağlıklı beslenme ve çevreye saygılı yaşama biçimini oluşturmaktadır. Daha uzun yaşayan bir insan, hastalık olasılığını artıran risk faktörlerine daha uzun süre maruz kalır. Bu olgu sadece gelişmiş ülkelerde değil, gelişmekte olan ve az gelişmiş dünya bölgelerinde de yaşanmaktadır. Gelecek nesillerin genel sağlığını şekillendirirken, AD'nin metabolik, üreme ve zihinsel sağlık üzerindeki yararlı etkilerini vurgulamak önemlidir. Sağlıklı bir beslenmenin faydalı etkileri, sağlıklı bir yaşam tarzı değişikliği bağlamında artan fiziksel aktivite ve uyku yoksunluğundan ve aşırı psikososyal stresten kaçınılmasıyla daha da artırılabilir. Sağlığı iyileştirmek ve yaşam beklentisini artırmak için çocukluktan başlayarak günlük diyet lifi için mevcut alım hedeflerine ulaşmalarına yardımcı olacak beslenme eğitimi ve stratejilerine daha fazla önem verilmeli ve çocuklar ve gençler arasında sağlıklı yaşlanma sürecini teşvik eden yararlı etkiler gösteren AD'nin daha fazla yaygınlaştırılması gerekmektedir. AD'ne özgü besinlerin tekli modifikasyonlarının, yaşlanma sırasında hücre, doku ve organ sağlığını destekleyen temel mekanizmaları modüle etmede enerji alımı, enerji harcaması ve mikrobiyom ile nasıl etkileşime girdiğini anlamak için daha fazla çalışmaya ihtiyaç vardır.

Anahtar Kelimeler: Akdeniz diyeti, oksidatif stres, beslenme, Bulaşıcı olmayan hastalıklar

Abstract

The world's elderly population is expected to double before 2050. Unhealthy habits and unhealthy lifestyles are often associated with age-related diseases or their worsening. Change in daily lifestyle and diet can help prevent the onset of age-related diseases and can effectively

influence their evolution. Thus, it can promote the Healthy Aging process, a concept that was recently introduced to describe the disease-free aging process. It has been determined worldwide that non-communicable diseases such as obesity, diabetes, metabolic syndrome and cardiovascular events cause high rates of morbidity and mortality in contemporary societies. Many modifiable risk factors contributed to this increase, including inactivity, sleep deprivation, smoking, and unhealthy eating habits.

Various dietary patterns have been associated with health benefits, but the greatest evidence in the literature can be attributed to the traditional dietary habits and lifestyle followed by populations in the Mediterranean region. The Mediterranean diet (AD) is ecologically sustainable. Therefore, this intangible world heritage constitutes a healthy diet and a way of living that respects the environment. A person who lives longer is exposed longer to risk factors that increase the likelihood of disease. This phenomenon is experienced not only in developed countries, but also in developing and underdeveloped world regions. In shaping the overall health of future generations, it is important to highlight the beneficial effects of AD on metabolic, reproductive and mental health. The beneficial effects of a healthy diet can be further enhanced by increased physical activity and avoidance of sleep deprivation and excessive psychosocial stress in the context of a healthy lifestyle change. In order to improve health and increase life expectancy, greater emphasis should be placed on nutritional education and strategies that will help them achieve current dietary fiber intake targets, starting from childhood, and more dissemination of AD, which has beneficial effects promoting healthy aging, among children and youth. Further work is needed to understand how single modifications of AD-specific nutrients interact with energy intake, energy expenditure, and the microbiome in modulating key mechanisms that support cell, tissue, and organ health during aging.

Keywords: Mediterranean diet, oxidative stress, nutrition, Noncommunicable diseases

**AN INVESTIGATION TO DETERMINE THE ROLE AND EFFECT OF
MAINTENANCE FACTORS IN AIRCRAFT ACCIDENTS**

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Abstract

Air transportation is currently one of the most popular ways of transportation. Aircraft accidents have major repercussions even though they happen less frequently than accidents involving other forms of transportation. Many fatalities occur, aircraft structures are severely damaged, sometimes entire planes are rendered unusable, and aircraft accidents can cost millions of dollars. The maintenance factor also has a direct or indirect impact on aircraft accidents, in addition to factors like the flight crew, air traffic operations, adverse weather, and material issues. The safe continuation of maintenance activities is one of the fundamental requirements for the safe continuation of aircraft operations. Qualified and competent maintenance technicians and maintenance activities carried out in properly prepared maintenance areas will reduce the number of accidents and incidents and will also benefit organizations in reducing their costs. Effective accident analysis, investigation of the primary causes as well as the hidden causes, and prevention of potential accidents and incidents are of utmost importance. As a result of effective research and analysis, main causes and hidden causes will be identified, and improvements will be made. By examining the impact of the maintenance factor on aviation accidents, the research aims to identify the elements that contribute to maintenance errors. Content analysis method was used in the research. Documents and reports published by national and international aviation authorities were examined. Moreover, analysis was done on related academic studies. The acquired data were categorised, examined, and interpreted. The direct or indirect effects of the maintenance factor in the aircraft accidents were determined and relevant statistics were presented. By presenting the change of the effect of the maintenance factor on aircraft accidents over the years, it has been revealed which sub-factors affect the maintenance errors.

Keywords: Aircraft Accidents, Aircraft Maintenance Operations, Accident Statistics

CONTRIBUTION TO DRUG DISCOVERY THROUGH COMPUTATIONAL ANALYSIS OF SEVERAL SERIES OF HETEROCYCLIC MOLECULES

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Abstract

Breast cancer is the most common type of female cancer. One class of hormonal therapy for breast cancer drugs non-steroidal aromatase inhibitors are triazole analogues. In this work a fundamental and original research was made on the molecule of triazole heterocyclic, whose the aim is to predict the reactivity and biological activity studied of the compound. It is based on different computational and approaches used in computer aided -drug-design. (SPR, QSAR, molecular docking, ADMET).

A study of structure – property relationships (SPR) for 1,2,3 triazole derivatives has been carried.

A linear quantitative structure activity relationship model is obtained using Multiple Linear Regression (MLR) analysis as applied to a series of triazole derivatives with inhibitory activity of the aromatase. The accuracy of the proposed MLR model is illustrated using the following evaluation techniques: cross validation, and external test.

Docking process, the interaction and binding of ligands – protein were done and visualized using software Molegro Virtual Docking.

Molinspiration and ADMETSAR web servers used to calculate ADMET and physicochemical properties of the target compounds respectively.

The results are reported and discussed in the present investigation. A close agreement with experimental results was found which improves the affinity of the present work.

Keyword: 1,2,3-triazole, aromatase inhibitory, density functional theory, QSAR, MLR, ADMET, docking molecular

QUALITATIVE STRUCTURE-ACTIVITY RELATIONSHIPS AND 2D-QSAR MODELING OF CK2 INHIBITORS

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Abstract

The development of farnesyltransferase inhibitors based on the benzophenone scaffold directed against Plasmodium falciparum is considered a strategy in malaria treatment. In this work, quantitative structure–activity relationship (**QSAR**) was performed to predict the protein farnesyltransferase (**PFT**) inhibitory activities for a series of 36 benzophenone derivatives. The data set was divided into two subsets of training and test sets, and the best model using **multiple linear regression (MLR)**, with the values of internal and external validity ($R^2 = 0.884$, $R^2_{adj} = 0.865$, $R^2_{pred} = 0.821$, $Q^2_{cv} = 0.822$ and $R^2_p = 0.811$) was found in agreement with the Tropsha and Golbraikh criteria. The applicability domain (AD) was determined using the Williams plot to describe the chemical space for the model used in this study. The model shows that antimalarial activities of benzophenone depend on logP, bpol, MAXDn, and FMF descriptors. These indications prompted us to design new benzophenones PFT inhibitors and predict the value of their anti-malarial activities based on the MLR equation. Docking results reveal that the newly designed benzophenones bind to the hydrophobic pocket and polar contact with high affinity. The predicted results from this study can help to design novel benzophenone as inhibitors of human **PFT** with high antimalarial activities.

Keyword: QSAR, docking, benzophenone, PFT inhibitory, antimalarial.

ANTIBACTERIAL AND ANTI-OXIDANT ACTIVITIES OF EXTRACTS FROM MEDICINAL

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Abstract

The algerian flora provides a diverse range of aromatic plants with a high therapeutic interest due to their secondary biologically active metabolites, which have sparked scientific interest.

In this study, we are interested in the plants *Ocimum basilicum* L. of the Lamiaceae family and *Artemisia campestris* A. of the Asteriaceae family, which are well known locally and have a variety of curative properties in traditional medicine. The first part of this study is devoted to the quality control of the plant powder and the investigation of the metabolites. The phytochemical screening revealed the presence of flavonoids, tannins, coumarine, essential oil, and other metabolic compounds. The HE were obtained using hydrodistillation with a yield of 2.4% for *O.basilicum* L. and 1.8% for *A.campestris* A. The phenolic compounds were obtained by a series of extractions with four solvents of increasing polarity. The concentration of these extracts in total polyphénols, flavonoids, and tanins was determined by using the reactif Folin Ciocalteu, aluminum trichlorure, and vanilline with the addition of chlorhydric acid. In the second section, we investigated the antioxidative capacity of extracts (HE and phenolic compounds) in vitro using the DPPH method.

The results show that our extraits have interesting antioxidant properties, with ethyl acetate being the most effective. Furthermore, the essential oil has a very low antioxidative activity when compared to the benchmark for the two plants.

Finally, we assessed the antibacterial activity of our extracts against ten pathogenic bacteria using the MH diffusion method.

The results show that phenolic extracts of *O.basilicum* L. have higher activity for HE. Unlike *A.campestris* A., the acétate of éthyle extract is the most active on the majority of Gram+ souches.

Keywords: *O.basilicum* L., *Artemisia campestris* A, Antibacterial, oxidant activities

QSAR MODELING USING GAUSSIAN PROCESS APPLIED FOR A SERIES OF FLAVONOIDS AS POTENTIAL ANTIOXIDANTS

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Abstract

For decades, flavonoids have been the core of diverse research, especially for their significant antioxidant activity. They have several biological activities, and they are used as anticancer, antileishmanial, anti-inflammatory, and antiaging compounds. However, current researchers are very much interested in the antioxidant activity of flavonoids since oxidative stress is strongly related to several diseases. In this study, we have chosen to elaborate on a quantitative structure-antioxidant activity relationship (QSAR) using a statistical method called Gaussian process (GP). The main advantage of this method compared to other techniques currently used in QSAR studies is that it does not increase the complexity of learning tests. Typical QSAR studies use common techniques such as the artificial neural method, multiple linear regression, and partial least squares regression. The aim of this work was to use a statistical technique little known in pharmaceutical chemistry, the Gaussian process regression which is rarely used to build a QSAR model. Finally, we have also demonstrated that GP is reliable and capable of predicting the antioxidant activity with a respectable record (R^2_{pred}) which is equal to 0.86, so it is much higher than the reference value of 0.6. Therefore, we estimate that this reliable model can be used to predict the antioxidant activity of a series of new molecules. Also, based on the HC results, our set was divided into four separate clusters according to the presence of glycosides and the molar weight of the flavonoids.

Keywords: Flavonoids, Antioxidant, QSAR, Gaussian process, PCA, HCA.

SIMULATION AND 2D QSAR STUDIES OF SEVERAL SERIES OF HETEROCYCLIC MOLECULES

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Abstract

Drug discovery and design are inextricably linked to various branches of chemistry, particularly organic chemistry. Many aspects of chemistry must be involved in order to translate knowledge of the molecular, genetic, and cellular bases of cancer into effective therapies. Thus, the goal of this research is to identify promising active compounds for coumarin as CK2 protein kinase inhibitors using a QSAR model and drug similarity analysis. CK2 is a ubiquitous Ser/Thr-specific protein kinase that is required for cell cycle viability and progression. CK2 levels are particularly high in proliferating, normal, or transformed tissues, and transgenic mice expressing its catalytic subunit are responsible for lymphomas.

The work began with the optimization of the equilibrium structures of the basic coumarin in order to select the most reliable forecasting approach compared to experimentation and at the lowest computational cost. Following our research, we conduct a multiple linear regression (MLR) analysis to generate QSAR models.

An external validation research was done because the results show that the QSAR model of CK2 inhibitory activity is robust and has extremely strong prediction capacity, as indicated by R² values of 0.951 and 0.927, respectively, following linear regression analysis. The investigation using QSAR models is successful in screening 34 candidate chemicals. Following that, the compounds under consideration were evaluated for drug-likeness and reactivity (ADME, golden triangle, lipophilicity indices).

The results reveal that when supplied orally, the majority of the substances have no bioavailability issues.

The data also aid in determining which chemicals do not have clearance issues, as well as which are the most stable and reactive among those examined.

The anticipated findings of this study may aid in the development of novel coumarins with significant CK2 inhibitor activity.

Keywords: coumarine, CK2, QSAR, MLR.

GASTROINTESTINAL HELMINTHS OF SMALL RUMINANTS IN HILLY AND MOUNTAINOUS PART OF SERBIA

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Abstract

The method of breeding, which has been established in breeding of small ruminants for centuries, is acquired through conditions that affect parasitic infections. From these reasons in mind, we started with examination of parasitic fauna of sheep and goat at various parts of Serbia. In our paper we presented results of examination performed in hilly and mountainous part of Serbia. In the relief of this part of Serbia we a series of surfaces stands out, above which rise low island mountains and wide valleys cut into the surface. Geographical and climatic conditions make this region rich in pastures suitable for breeding small ruminants. They are usually kept in small herds by rural households and spend most of the year grazing. During our research performed in period 2017-2019, total of 769 fecal samples originated from 71 sheep and goats flocks were collected individual at monthly intervals. A total of 67 animals we were analyzed by post-mortem examination. Determination of parasites eggs we performed by morphology characteristic We occurred same parasite species: *Teladorsagia* (*Ostertagia*) *circumcincta*, *Ostertagia* *trifurcata*, *O.ostertagi*, *O.occidentalis*, *Nematodirus* *filicoliis*, *N.spathiger*, *Trichostrongylus* *colubriformis*, *T.axeii*, *T.vitrinus*, *Haemonchus* *contortus*, *Marshallagia* *marshalli*, *Cooperia* *curticei*, *C.punctata*, *C.oncophora*, *Skrjabinema* *ovis*, *Bunostomum* *trigonocephalum*, *Oesophagostomum* *venulosum* and *Chabertia* *ovina*. Poliparasitism and infection were established at all examined animals. The intensity of infection and polyparasitism was monitored in relation to the age of sheep and goats. It was found that in younger animals intensity of infection was lower than that of older animals. The infective rate of each of these parasites showed that the most of its followed the same general

pattern, having a peak in the spring and another in the autumn, separate by a trough during the hot dry summer period when the infection rate was low.

Keywords: small ruminant, goats, sheep, gastrointestinal helminth, hilly and mountainous part of Serbia

**VALIDATION OF FINITE ELEMENT MEMBRANE FOR BENDING BEHAVIOR
WITH SHEAR**

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Abstract

The development of simple and efficient finite elements is a crucial step in structural analysis, therefore, a particular interest is given to formulate and/or to improve new elements. Based on the strain approach and satisfying The Airy functions, a new simple and efficient four-node quadrilateral membrane finite element with drilling rotation is developed. The developed element can be used for the elastic linear analysis. The displacements field of this element is based on the assumed functions for the various components of strain which satisfy the compatibility equation. It has three degrees of freedom at each node (two translations and the in-plane rotation). Several numerical results have shown that the proposed strain-based element exhibits excellent performance over a set of problems in both regular and distorted meshes.

Keywords: Finite element method; Airy functions; Deformation approach; Analytical integration.

**EDUCATION OF LOCAL FOOD SOURCES AND IODIZED SALT IN MACCINI
BAJI VILLAGE, TAKALAR DISTRICT**

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Abstract

In Indonesia, the nutritional problem that still occurs is iodine deficiency which can cause IDD. Iodine deficiency occurs when iodine consumption is less than recommended. The impact that can result from a lack of iodine in the body is very broad and varied which is bad for humans, namely reduced levels of intelligence, slowed growth, goiter, reduced mental and psychological abilities, increased prenatal mortality, and delays in children's physical development. The purpose of this study was to describe the knowledge and attitudes and actions of the community regarding local food sources and iodized salt in Maccini Baji Hamlet, Takalar Regency.

This research is a quantitative research with purposive sampling technique. This study used a quasi-experiment with a one-group pre-test and post-test design. The population in this study is the community in Dusun Maccini Baji as many as 30 people. This data was collected on 15-16 December 2022. This study used a descriptive analytical type with the Wilcoxon test.

The results of research conducted related to counseling regarding local food sources and iodized salt in Maccini Baji Hamlet found that the knowledge of the local community before the intervention was carried out by 16 respondents (53.3%) and after the intervention increased to 23 respondents (76.7%). In the attitude category it increased from 17 respondents (56.7%) to 27 respondents (90%). Furthermore, the distribution of actions taken by the local community increased from 3 respondents (10%) to 25 respondents (83.3%).

It is hoped that the Government will increase the number of extension workers by providing them with comprehensive knowledge and understanding as well as extension techniques. In addition, it is hoped that cross-sectoral and local communities can build good cooperation and support so that the long-term program from the Government, namely iodized salt fortification can improve the quality of life of the community.

Keywords: IDD, iodine, local food sources, iodized salt.

**QUALITY AND SAFETY OF THE EDIBLE SEAWEED ULVA LACTUCA
(CHLOROPHYTA) FROM THE MARCHICA LAGOON (NE MOROCCO,
MEDITERRANEAN)**

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Abstract

In this study, the presence of soluble proteins (SP), total soluble sugars (TSS), macronutrients (Na, K, Ca, Mg and P) and essential and toxic metals (Fe, Mn, Cu, Zn, Se, Li, Co, Ti, V, Cr, Al, Ni, Sr, Rb, Cd, Pb, As and Ba) in the edible seaweed *Ulva lactuca* (Chlorophyta) from the Marchica lagoon (Mediterranean, Morocco) was assessed. Soluble proteins showed levels between 0.52 and 4.58 mg/g Fresh weight and TSS levels ranged from 2.34 to 32.34 mg/g Fresh weight. A high contribution to the recommended dietary allowances (RDA) for Ca, Mg, Fe, Mn, Cu, and Se was observed. The health risk assessment showed that Hazard index (HI)

values were less than 1.0, suggesting that *Ulva lactuca* did not indicate any hazard related to the ingestion of the studied alga. Therefore, we suggest that the harvest of cultivated or natural *Ulva lactuca* from Marchica Lagoon has the potential to be used as food or feed.

Keywords: seaweeds, *Ulva*, minerals, metals.

MICROWAVE SYNTHESIS OF SCHIFF BASE FROM MEDICATION AND 8-HYDROXYQUINOLINE / 1,10-PHENANTHROLINE AS A CO-LIGAND WITH COMPLEXES: CYTOTOXIC, ANTIBACTERIAL, AND DNA INTERACTION EFFICACY

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Abstract

The N₂O donor ligand's Schiff-base is created by mixing benzophenone and trimethoprim in a 1:1 molar ratio. The ligand is described using various spectroscopies. With Ni(II), Co(II), and Cu(II) ions, multiple new mixed ligand complexes of two ligands are formed, where Schiff-base = (L1) (1,10-Phen) and deprotonated (8-HQ = (L2). (MO)Metal oxide is the last product of heat breakdown for specific complexes, according to research. Additionally, the water molecules linked to the complexes are found to be coordinated or crystalline by thermal gravimetric measurement (TGA). The Schiff base preparation technique yields complexes of Co(II), Ni(II), and Cu(II) with octahedral geometry (for 1,10-Phen). In addition, antimicrobial mixed ligand complexes were tested against pathogenic strains of four fungi: *A. fumigatus*, *S. racemosum*, *G. candidum*, and *C. albicans*. Two Gram (-); *P. aeruginosa* and *E. coli* and two Gram(+) bacteria; *B. subtilis*, and *S. pneumoniae*. A549, HaCaT, and MCF-7 anticancer cell lines were investigated. The outstanding result of mixed Cu(II) complexes was highlighted.

**SYNTHESIS OF SOME SCHIFF BASE METAL COMPLEXES INVOLVING
TRIMETHOPRIM AND 2'-AMINO-4-CHLOROBENZOPHENONE: SPECTRAL,
THERMAL, DNA CLEAVAGE ANTIMICROBIAL, ANTIFUNGAL AND
CYTOTOXIC ACTIVITY STUDIES**

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Abstract

In study of effective bioactive compounds, we have synthesized the Co(II), Mn(II), Fe(II), Cu(II), Ni(II), and Zn(II) complexes of the Schiff base derived from trimethoprim and 2'-amino-4-chlorobenzophenone and characterized by spectroscopic (NMR, IR, Mass, UV-vis), analytical, TGA studies and magnetic data. The solution electronic spectral study suggests the stoichiometry of the synthesized complexes and Elemental analysis detected the square planar and octahedral geometry of the compounds. The prepared metal complexes presented promoted efficiency versus the screened bacterial (*Escherichia Coli* and *Staphylococcus aureus*) antibacterial efficacy against (*Staphylococcus aureus*, *Salmonella* spp., *E. coli*, *Vibrio* spp., *Pseudomonas aeruginosa*, *Vibrio parahaemolyticus*, *Aeromonas* spp., *Klebsiella* spp., *Proteus* spp., and *Bacillus* spp.) and and fungal strains (*Aspergillus flavus*, *Aspergillus niger*, *Penicillium* spp., *Candida albicans*, *Trichophyton* as liken to free ligand [TMAB]. Moreover, results of the DNA-cleavage efficiency propose which [TMAB] and its metal complexes can cleave CT-DNA at various degrees. Cytotoxic activity of $[\text{Cu}(\text{TMAB})(\text{H}_2\text{O})_2]\text{Cl}_2$ was somewhat higher for cancerous hep 2 cells when liken with the ordinary Vero cell.

Keywords: DNA Cleavage Schiff base complexes, Anticancer, Cytotoxic, Antimicrobial.

GM2 GANGLİOSİD AKTİVATÖRÜ (GM2A) PROTEİNİ ve ALZHEİMER HASTALIĞI İLİŞKİSİ

RELATIONSHIP OF GM2 GANGLIOSIDE ACTIVATOR (GM2A) PROTEIN AND
ALZHEIMER'S DISEASE

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ÖZET

Ganglioside GM2 aktivatörü (GM2A), GM2 geni tarafından kodlanan, lizozomal enzim Beta (β)-heksosaminidaz A için substrata özgü bir kofaktör olarak işlev gören glikosillenmiş formda bulunan ve 17.6 kDa moleküler ağırlığına sahip bir lizozomlarda lokalize bir glikolipid taşıma proteindir.

GM2A, β -heksosaminidaz A işlevi için gerekli, toksik maddelerin parçalanarak, geri dönüşümünde lizozomal faaliyeti ve fonksiyonları beyin ve omurilikte kritik bir rol oynayan proteindir. GM2A, gangliyozitleri bağlayarak, gangliyozit GM2 bozunmasını uyarmaktadır.

β -heksosaminidaz A tarafından sadece gangliyozid GM2 ve glikolipid GA2'nin parçalanmasını uyarmaktadır. GM2A geninde meydana gelen olası mutasyonlar, GM2A aktivitesini bozarak, β -heksosaminidaz A'nın GM2 gangliyosidini parçalamasını engellemektedir. Gangliyozitlerin birikmesi ile beyin, omurilik ve nöronlarda GM2A birikimiyle birlikte toksik etki oluşur ve nörit bütünlüğünün kaybına neden olan ve spontan nöronal aktiviteyi azaltarak, nöronal hasar oluşumuna ve lizozomal faaliyetin neden olmaktadır. Bu nedenle, Alzheimer lizozomal depo hastalıkları olan Tay-Sachs hastalığı, Sandhoff hastalığının ortaya çıkmasında rolü bulunan bir proteindir.

Bu kapsamda, GM2 gangliosid aktivatörü proteini (GM2A) fizyolojisi ve Alzheimer hastalığı ile ilişkisinin incelenmesi hedeflenmiştir. Ayrıca, özellikle GM2A'yı Alzheimer ve lizozomal depo hastalıklarını hedefleyen terapötik müdahalelerin geliştirilmesi ve bu alanda yapılanları bir araya getirerek elde edilecek verilerin sonraki çalışmalara değerli bir kaynak olacağı düşünülmektedir.

Anahtar Kelimeler: GM2 gangliosid aktivatörü proteini, β -heksosaminidaz A, Alzheimer, Lizozomal Depo Hastalığı, Nöron

ABSTRACT

Ganglioside GM2 activator (GM2A) is a glycolipid transport protein localized in lysosomes with a molecular weight of 17.6 kDa, located in glycosylated form, which acts as a substrate-specific cofactor for the lysosomal enzyme Beta (β)-hexosaminidase A, encoded by the GM2 gene.

GM2A is a protein essential for the function of β -hexosaminidase A, and its lysosomal activity and functions play a critical role in the brain and spinal cord in the breakdown and

recycling of toxic substances. GM2A stimulates ganglioside GM2 degradation by binding gangliosides. It only stimulates the degradation of ganglioside GM2 and glycolipid GA2 by β -hexosaminidase A. Possible mutations in the GM2A gene disrupt GM2A activity, preventing β -hexosaminidase A from degrading GM2 ganglioside. With the accumulation of gangliosides, a toxic effect occurs with the accumulation of GM2A in the brain, spinal cord and neurons, and it causes neuronal damage and lysosomal activity by reducing spontaneous neuronal activity, which causes loss of neurite integrity. Therefore, Tay-Sachs disease, which is Alzheimer's lysosomal storage diseases, is a protein that has a role in the emergence of Sandhoff disease.

In this context, it is aimed to examine the physiology of GM2 ganglioside activator protein (GM2A) and its relationship with Alzheimer's disease. In addition, it is thought that the development of therapeutic interventions specifically targeting GM2A, Alzheimer's and lysosomal storage diseases and the data to be obtained by combining what has been done in this field will be a valuable resource for future studies.

Keywords: GM2 ganglioside activator protein, β -hexosaminidase A, Alzheimer's, Lysosomal Storage Disease, Neuron

NÖRONAL HASAR BELİRTECİ NÖRON SPESİFİK ENOLAZ FİZYOLOJİSİ
NEURONAL DAMAGE MARKER NEURON-SPECIFIC ENOLASE PHYSIOLOGY

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ÖZET

Nöron Spesifik Enolaz (NSE), nöronların (izoenzim $\gamma\gamma$) ve nöroendokrin hücrelerin (izoenzim $\alpha\gamma$) sitoplazmasında lokalize 78 kDa moleküler ağırlığa sahip bir gama-homodimeri bir enzimdir. NSE, nöral aktivite sırasında intranöronal klorür seviyelerini düzenlemekle ilgili, 2-fosfogliserat ile fosfoenolpiruvat'ın karşılıklı dönüşümünü katalize ederek, beyindeki glikolitik enerji metabolizmasında ve hücrenin enerji üretme sürecinde önemli bir fizyolojik rolü bulunmaktadır. Beyin dokusunda yoğun miktarda, eritrositler dışındaki diğer hücre ve dokulardaki düzeyleri az düzeyde yer almaktadır. NSE, normal durumda nöronal hücreler tarafından salgılanmaz, kan-beyin bariyeri bütünlüğünün bozulması, nöronal dokunun hasar görmesi durumunda hücre dışı boşluğa salgılanmaktadır. NSE, nöronal yıkımla sonuçlanan hastalıklarda düzeyinin yükselmesine bağlı olarak nöronlardaki işlevsel hasar ve nörodejeneratif bozuklukların değerlendirilmesinin yanı sıra kafa travması, iskemik inme, anoksik ensefalopati, ensefalit, beyin metastazı, status epileptikus, intraserebral kanama, kardiyak arrest, nörodejeneratif hastalıklar ve Akciğer kanseri, nöroblastom ve diğer nöroendokrin kökenli maligniteler sonucunda nörolojik sonucun değerlendirilmesi için tanınan bir biyobelirteçtir.

Bu kapsamda, nöronal hasar belirteci Nöron Spesifik Enolaz fizyolojisinin incelenmesi hedeflenmiştir. Ayrıca, özellikle nöronal hasarla ve nörodejeneratif hastalıklar ilişkili hastalıkları hedefleyen terapötik müdahalelerin geliştirilmesi ve bu alanda yapılanları bir araya getirerek elde edilecek verilerin sonraki çalışmalara değerli bir kaynak olacağı düşünülmektedir.

Anahtar Kelimeler: Nöron Spesifik Enolaz, Nöronal hasar, Nöron, Parkinson, Alzheimer

ABSTRACT

Neuron Specific Enolase (NSE) is a gamma-homodimer enzyme with a molecular weight of 78 kDa localized in the cytoplasm of neurons (isoenzyme $\gamma\gamma$) and neuroendocrine cells (isoenzyme $\alpha\gamma$). NSE has an important physiological role in glycolytic energy metabolism in the brain and in the energy production process of the cell by catalyzing the interconversion of 2-phosphoglycerate and phosphoenolpyruvate, involved in regulating intraneuronal chloride levels during neural activity. It is found in high amounts in the brain tissue, but at low levels in cells and tissues other than erythrocytes. NSE is not secreted by neuronal cells in the normal state, but is secreted into the extracellular space in case of disruption of blood-brain barrier integrity and damage to neuronal tissue. NSE is used to evaluate functional damage and neurodegenerative disorders in neurons due to its increased level in diseases that result in

neuronal destruction, as well as head trauma, ischemic stroke, anoxic encephalopathy, encephalitis, brain metastasis, status epilepticus, intracerebral hemorrhage, cardiac arrest, neurodegenerative diseases and Lung cancer, neuroblastoma and Lung cancer. It is a recognized biomarker for the evaluation of neurological outcome in other malignancies of neuroendocrine origin.

In this context, it is aimed to examine the neuronal damage marker Neuron Specific Enolase physiology. In addition, it is thought that the development of therapeutic interventions targeting diseases associated with neuronal damage and neurodegenerative diseases and the data to be obtained by combining what has been done in this field will be a valuable resource for future studies.

Keywords: Neuron Specific Enolase, Neuronal damage, Neuron, Parkinson's, Alzheimer's Disease

KISSPEPTİN/GPR54 SİSTEMİNİN ÜREME SİSTEMİNDEKİ FİZYOLOJİK ROLÜ

THE PHYSIOLOGICAL ROLE OF THE KISSPEPTIN/GPR54 SYSTEM IN THE REPRODUCTIVE SYSTEM

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ÖZET

Kisspeptin, gonadotropin salgılatıcı hormon (GnRH) sekresyonunun çok güçlü bir uyarıcısı Kiss-1 geni (1q32) tarafından kodlanan 145 amino asit içeren bir nöropeptittir. Kisspeptin, ovaryumda foliküler olgunlaşma, embriyo implantasyonu, doğurganlık ve ergenlik düzenlemesi, sperm kapasitasyonu ve plasentasyonda rolü bulunan ve GnRH nöronlarının ana aktivatörü, üreme ekseninin olgunlaşması ve işlevi için kritik öneme sahiptir. Ayrıca, kanserde metastaz, insülin sekresyonunu ve glisemiye düzenlemenin yanı sıra beslenme davranışı, lokomotor aktivitenin ve enerji regülasyonunda rolü bulunmaktadır. G-proteinine bağlı reseptör GPR54, doğurganlığının başlatılması ve sürdürülmesinde önemli bir role sahip proteindir.

Kisspeptin ve GPR54 sistemi, üremenin nöroendokrin düzenlemesinde ve yumurtalık fonksiyonu, doğurganlık düzenlemesi, doğum ve emzirmenin düzenlenmesi ve ergenlik başlangıcı ve gonadotropin salgılanmasında yer almaktadır. Bu nedenle, infertilite, hipotalamik amenore, Polikistik Over Sendromu (PCOS) rahatsızlıklarının tedavilerinde ortaya terapötik etkisi bildirilen bir moleküldür.

Bu kapsamda, Kisspeptin/GPR54 sisteminin üreme sistemindeki fizyolojik rolünün incelenmesi hedeflenmiştir. Ayrıca, özellikle infertilite rahatsızlıkları ve hastalıklarını hedefleyen terapötik müdahalelerin geliştirilmesi ve bu alanda yapılanları bir araya getirerek elde edilecek verilerin sonraki çalışmalara değerli bir kaynak olacağı düşünülmektedir.

Anahtar Kelimeler: Kisspeptin, G protein-bağlı reseptör-54 (GPR54), G protein-bağlı reseptör-54, GPR54, Üreme

ABSTRACT

Kisspeptin is a 145 amino acid neuropeptide encoded by the Kiss-1 gene (1q32), a very potent stimulator of gonadotropin-releasing hormone (GnRH) secretion. Kisspeptin is critical for the maturation and function of the reproductive axis, with roles in follicular maturation, embryo implantation, fertility and puberty regulation, sperm capacitation and placentation in the ovary, and the main activator of GnRH neurons. In addition, it has a role in cancer metastasis, regulation of insulin secretion and glycemia, as well as nutritional behavior, locomotor activity and energy regulation. The G-protein-coupled receptor GPR54 is a protein that has an important role in initiating and maintaining fertility.

Kisspeptin and the GPR54 system are involved in the neuroendocrine regulation of reproduction and ovarian function, fertility regulation, regulation of birth and lactation, and puberty onset and gonadotropin secretion. Therefore, it is a molecule with reported therapeutic effects in the treatment of infertility, hypothalamic amenorrhea, and Polycystic Ovary Syndrome (PCOS). In this context, it is aimed to examine the physiological role of the Kisspeptin/GPR54 system in the reproductive system.

In addition, it is thought that the development of therapeutic interventions specifically targeting infertility disorders and diseases and the data to be obtained by combining what has been done in this field will be a valuable resource for future studies.

Keywords: Kisspeptin, G protein-coupled receptor-54 (GPR54), G protein-coupled receptor-54, GPR54, Reproduction

**ASTROSİTLERİN TEMEL ARA FİLAMENT PROTEİNİ ve ASTROSİTİK
AKTİVİTE BELİRTECİ GLİAL FİBRİLER ASİDİK PROTEİN (GFAP)
FİZYOLOJİSİ**

PHYSIOLOGY OF ESSENTIAL INTERMEDIATE FILAMENT PROTEIN OF
ASTROCYTES AND ASTROCYTIC ACTIVITY MARKER GLIAL FIBRILAR ACIDIC
PROTEIN (GFAP)

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ÖZET

Glial fibriler asidik protein (GFAP), 51-kDa moleküler ağırlığa sahip, astrositler ve endodimal hücreler de dahil olmak üzere merkezi sinir sisteminin çok sayıda hücre tipi tarafından eksprese edilen bir tip III ara filament proteindir.

GFAP, astrositlerin spesifik morfolojisinin korunması, bu hücrelerin göçünün kontrolü ve işlemlerinin stabilitesinin sağlanarak sürdürülmesinde önemli bir fizyolojik rolü bulunmaktadır. GFAP'nin aşırı ekspresyonu veya biyosentezinin baskılanması, astrositlerin fonksiyonel aktivitesinde sinir dokusu hasarı, metabolik anormallikler ve nörodejeneratif durumların gelişimine ilişkin değişiklikleri yansıtmaktadır. GFAP, astrositlerin hücre iskeletinin ara filamentlerinin (IF'ler) bir monomer protein alt birimi olması ve astrositlerde bulunması nedeniyle astrositik aktivite ve astroglia için oldukça spesifik bir moleküler belirteç olarak kullanılmaktadır.

Bu kapsamda, Astrositlerin Temel Ara Filament Proteini ve Astrositik Aktivite Belirteci Glial Fibriler Asidik Protein (GFAP) fizyolojisinin incelenmesi hedeflenmiştir. Ayrıca, özellikle GFAP'nin Alzheimer gibi nörodejeneratif hastalıklara yönelik tedavilerin geliştirilmesi çalışmaları, bu alanda gerçekleştirilecek sonraki araştırmalara katkı sağlayacağı düşünülmektedir.

Anahtar Kelimeler: Glial Fibriler Asidik Protein (GFAP), Astrosit, Alzheimer, Nörodejeneratif hastalıklar

ABSTRACT

Glial fibrillary acidic protein (GFAP) is a type III intermediate filament protein with a molecular weight of 51-kDa that is expressed by numerous cell types of the central nervous system, including astrocytes and endodymal cells.

GFAP has an important physiological role in maintaining the specific morphology of astrocytes, controlling the migration of these cells, and maintaining the stability of their processes. Overexpression or suppression of biosynthesis of GFAP reflects changes in the functional activity of astrocytes related to nerve tissue damage, metabolic abnormalities, and the development of neurodegenerative conditions. GFAP has been used as a highly specific

molecular marker for astrocytic activity and astroglia because the intermediate filaments (IFs) of the cytoskeleton of astrocytes are a monomer protein subunit and are present in astrocytes. In this context, it is aimed to examine the physiology of the Basic Intermediate Filament Protein of Astrocytes and the Astrocytic Activity Marker Glial Fibrillar Acidic Protein (GFAP).

In addition, it is thought that especially GFAP's studies on the development of treatments for neurodegenerative diseases such as Alzheimer's will contribute to future research in this field.

Keywords: Glial Fibrillary Acidic Protein (GFAP), Astrocyte, Alzheimer's, Neurodegenerative diseases

BEYİN NATRİÜRETİK PEPTİD (BNP) FİZYOLOJİSİ VE KARDİYOVASKÜLER HASTALIKLARLA İLİŞKİSİ

BRAIN NATRIURETIC PEPTIDE PHYSIOLOGY AND ITS RELATIONSHIP WITH
CARDIOVASCULAR DISEASES

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ÖZET

Beyin Natriüretik Peptid (BNP) olarak da bilinen beyin natriüretik peptidi 32, artan ventriküler kan hacminin neden olduğu gerilmeye yanıt olarak kalp ventriküllerindeki kardiyomyositler tarafından salgılanan kardiyak bir hormondur. BNP, diüretik, natriüretik, hipotansif ve düz kas gevşetici aktiviteler dahil olmak üzere atriyal natriüretik peptidin (ANP) aktivitelerine oldukça benzer bir aktivite spektrumuna sahiptir.

BNP'nin proBNP-108 ve BNP-32 olmak üzere 2 moleküler formu bulunmaktadır. Atriyal dokuda BNP-32 baskınken, ventriküler dokuda proBNP-108 baskındır. Atriyal ve ventriküler duvarların mekanik gerilmesi ve stresi sırasıyla ANP ve BNP'nin güçlü indükleyicileridir. ANP seviyeleri, yüksek atriyal basınca yanıt olarak artarken, BNP ventriküler aşırı yüklenmenin bir yansımasıdır. Anjiyotensin II, endotelin-1, tiroid hormonları, glukokortikoidler ve seks steroidleri, interlökin-1 ve -6 gibi inflamatuvar sitokinler ve tümör nekroz faktörü- α gibi çeşitli hümorale faktörler, ANP ve BNP sekresyonunu regülasyonunda rolü bulunmaktadır.

Bu kapsamda, Beyin Natriüretik Peptid (BNP) fizyolojisi ve kardiyovasküler hastalıklarla ilişkisi incelenmesi hedeflenmiştir. BNP'nin, kardiyovasküler ve obstrüktif Akciğer hastalıklarına yönelik tedavilerin geliştirilmesi çalışmaları, bu alanda gerçekleştirilecek sonraki araştırmalara katkı sağlayacağı düşünülmektedir.

Anahtar Kelimeler: Beyin Natriüretik Peptid (BNP), Natriüretik peptid sistemi, Kardiyovasküler Hastalıklar

ABSTRACT

Brain natriuretic peptide 32, also known as Brain Natriuretic Peptide (BNP), is a cardiac hormone secreted by cardiomyocytes in the heart ventricles in response to strain caused by increased ventricular blood volume. Brain natriuretic peptide (BNP) has a spectrum of activity quite similar to that of atrial natriuretic peptide (ANP), including diuretic, natriuretic, hypotensive and smooth muscle relaxant activities.

BNP has 2 molecular forms, proBNP-108 and BNP-32. BNP-32 is dominant in atrial tissue, while proBNP-108 is dominant in ventricular tissue. Mechanical stretching and stress of the atrial and ventricular walls are potent inducers of ANP and BNP, respectively. ANP levels increase in response to high atrial pressures, while BNP is a reflection of ventricular overload.

Various humoral factors such as angiotensin II, endothelin-1, thyroid hormones, glucocorticoids and sex steroids, inflammatory cytokines such as interleukin-1 and -6, and tumor necrosis factor- α also play a role in regulating ANP and BNP secretion.

In this context, it is aimed to examine the physiology of Brain Natriuretic Peptide (BNP) and its relationship with cardiovascular diseases. It is thought that BNP's studies on the development of treatments for cardiovascular and obstructive pulmonary diseases will contribute to future research in this field.

Keywords: Brain Natriuretic Peptide (BNP), Natriuretic peptide system, Cardiovascular Diseases

GEBELİK VE LAKTASYON DÖNEMİNDEKİ FARKLI KONDİSYON SKORUNA SAHİP MONTOFON SIĞIRLARINDA METABOLİK, ADİPOKİN (İRİSİN,SPEXİN,VİSFATİN) VE ENDOPLAZMİK RETİKULUM STRES (GRP78) YANITININ İNCELENMESİ

INVESTIGATION OF METABOLIC, ADIPOKINE (IRISIN, SPEXIN, VISFATIN) AND ENDOPLASMIC RETICULUM STRESS (GRP78) RESPONSE IN MONTOFON CATTLE WITH DIFFERENT CONDITION SCORE IN PREGNANCY AND LACTATION PERIOD

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ÖZET

Bu çalışmanın amacı, gebelik ve laktasyon dönemindeki farklı kondisyon skoruna sahip montofon sığırlarda metabolik, adipokin (İrisin,Spexin,Visfatin) ve Endoplazmik Retikulum Stres (GRP78) yanıtının incelenmesidir.

Çalışma kapsamında gebeliğin farklı dönemi ve Vücut kondisyon skorlarına göre 3. Grupta incelendi. 1.Grup: ilk 3.cü ayında VKS<2.5, (n=20), VKS = 2.5-3.0, (n=20), VKS>3, (n=20) kondisyon skorlarına sahip montofon ırkı sığırlar; 2.Grup: gebeliğin 3-7.ayında bulunan VKS<2.75,(n=20); VKS = 2.75-3.25, (n=20); VKS>3.25, (n=20) kondisyon skorlarına sahip montofon ırkı sığırlar ; 3.grup ise, gebeliğin son 2 ayında (Kuru dönem) bulunan VKS<3.25, (n=20); VKS = 3.25-3.75, (n=20); VKS>3.75, (n=20) kondisyon skorlarına sahip montofon ırkı sığırlar; 4.grup ise; laktasyon'un 14-100.gününde bulunan VKS<2.5, (n=20), VKS = 2.5-3.0, (n=20), VKS>3, (n=20) kondisyon skorlarına sahip montofon ırkı sığırlar; 5.grup ise, laktasyon'un 100-200.gününde bulunan VKS<2.75, (n=20); VKS = 2.75-3.25, (n=20); VKS>3.25, (n=20) kondisyon skorlarına sahip montofon ırkı sığırlar; 6.grup ise, 200-305.gününde bulunan VKS<3.25, (n=20); VKS = 3.25-3.75, (n=20); VKS>3.75, (n=20) kondisyon skorlarına sahip montofon ırkı sığırların *Vena jugularis externa*'dan kan örneği alındı. Alınan kan serumu örneklerinde ELISA tekniği ile adipokin yanıtın incelenmesinde serum İrisin, Spexin, Visfatin hormon düzeyleri, endoplazmik retikulum stresi (GRP78) yanıtı oluşturan parametrelerin düzeyleri ELISA tekniği ile incelenmiştir.

Elde edilen bulgular, farklı kondisyon skoruna sahip montofon sığırlarda metabolik, adipokin (irisin, spexin, visfatin) ve Endoplazmik Retikulum Stres (GRP78) yanıtının gebelik ve laktasyon döneminde farklılık gösterdiğini ortaya koymuştur.

Elde edilen verilerin analizi Statistical Package for the Social Sciences (SPSS 20) paket programı ile değerlendirilmiştir. Çalışma sonucunda laktasyon ve gebelik döneminde

ortalama serum irisin, spexin, visfatin hormon ve GRP78 düzeyleri ilk 3.cü ayı ve laktasyonu 14-100.gününde VKS>3; gebeliğin 3-7.ayında ve laktasyonun 100-200.gününde VKS>3.25; gebeliğin son 2 ayı ve laktasyonun 200-305.gününde bulunan VKS>3.75'e sahip montofon sığırlarında belirlenmiştir. Laktasyon ve gebelik döneminde ortalama serum irisin, spexin, visfatin hormon ve GRP78 düzeyleri en düşük düzeyleri ise, ilk 3.cü ayı ve laktasyonun 14-100.gününde <2.5; gebeliğin 3-7.ayında ve laktasyonun 100-200.gününde VKS<2.75; gebeliğin son 2 ayı ve laktasyonun 200-305.gününde bulunan VKS<3.25'e sahip montofon sığırlarında belirlenmiştir. VKS değişimine bağlı olarak farklı gebelik ve laktasyon dönemlerinin serum irisin, spexin, visfatin hormon ve GRP78 düzeyleri üzerine etkisi olduğu belirlenmiştir (P<0,05). Sonuçlarımız, metabolik süreçlerin değerlendirilmesinde rolü bildirilen spexin, visfatin'in laktasyondaki fizyolojik rolü ve GRP78 düzeyinin stres düzeylerinin değerlendirilmesinde, miyokin olması ve fizyolojik rolü nedeniyle, kas sistemine ait durum için serum irisin düzeylerinin incelenerek değerlendirilmesine olanak sağlayan fayda sağlayabilecek bir parametre olabileceğini göstermiştir.

Anahtar Kelimeler: İrisin, Spexin, Visfatin, Endoplazmik retikulum stresi, GRP78, Sığır, Laktasyon, Gebelik, Vücut Kondüsyon Skoru

ABSTRACT

The aim of this study is to investigate the metabolic, adipokine (irisin, spexin, visfatin) and endoplasmic reticulum stress (GRP78) responses in Montofon cattle with different condition scores during pregnancy and lactation.

Within the scope of the study, the 3rd group was examined according to the different periods of pregnancy and body condition scores. Group 1: Montofon cattle with condition scores of BCS<2.5, (n=20), BCS = 2.5-3.0, (n=20), BCS>3, (n=20) in the first 3rd month; 2.Group: BCS<2.75,(n=20) found at 3-7th month of pregnancy; BCS = 2.75-3.25, (n=20); Montofon cattle with condition scores of BCS>3.25, (n=20); In the third group, BCS<3.25, (n=20) found in the last 2 months of pregnancy (Dry period); BCS = 3.25-3.75, (n=20); Montofon cattle with condition scores of BCS>3.75, (n=20); If the 4th group; Montofon cattle with condition scores of BCS<2.5, (n=20), BCS=2.5-3.0, (n=20), BCS>3, (n=20) on day 14-100 of lactation; Group 5, BCS<2.75, (n=20) found on the 100-200th day of lactation; BCS = 2.75-3.25, (n=20); Montofon cattle with condition scores of BCS>3.25, (n=20); In group 6, BCS<3.25, found on day 200-305, (n=20); BCS = 3.25-3.75, (n=20); Blood samples were taken from Vena jugularis externa of Montofon cattle with condition scores of BCS>3.75, (n=20). Serum irisin, spexin, visfatin hormone levels and the levels of the parameters that cause the response to endoplasmic reticulum stress (GRP78) were analyzed by ELISA technique in the analysis of adipokine response in blood serum samples with ELISA technique.

The findings revealed that metabolic, adipokine (irisin, spexin, visfatin) and Endoplasmic Reticulum Stress (GRP78) responses differ in pregnancy and lactation periods in Montofon cattle with different condition scores.

The analysis of the data obtained was evaluated with the Statistical Package for the Social Sciences (SPSS 20) package program. As a result of the study, the average serum irisin, spexin, visfatin hormone and GRP78 levels during lactation and pregnancy are the first 3rd month and lactation on the 14-100th day; VKS> 3.25 on the 3-7th month of pregnancy and on the 100-200th day of lactation; The last 2 months of pregnancy and the 200-305th day of lactation were identified in Montofon cattle with 3.75. The lowest levels of the average serum irisin, Spexin, Visfatin hormone and GRP78 during lactation and pregnancy are the first 3rd

month and 14-100 days of lactation <2.5 ; BCS <2.75 on the 3-7th month of pregnancy and on the 100-200th day of lactation; The last 2 months of pregnancy and the 200-305th day of lactation were identified in Montofon cattle with <3.25 . It has been determined that different pregnancy and lactation periods have an effect on serum irisin, Spexin, Visfatin hormone and GRP78 levels due to BCS exchange ($p < 0.05$). Our results have shown that Spexin, whose role in the evaluation of metabolic processes, has shown that Visfatin physiological role in lactation and the stress levels of the GRP78 level in the assessment of stress levels, and the physiological role of the stress and the physiological role, have shown that the level of serum irisin for the situation of the muscular system can be a useful parameter.

Keywords: Irisin, Spexin, Visfatin, Endoplasmic reticulum stress, GRP78, Cattle, Lactation, Pregnancy, Body Condition Score

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DOĞAL BİR BİYOTATLANDIRICI STEVIA BİTKİSİNİN İNCELENMESİ

INVESTIGATION OF A NATURAL BIOTATTENANT PLANT STEVIA

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ÖZET

Bitkilerin dünya üzerindeki varoluşu insanlığın daha da öncesine dayanıp, yaşam döngüsünün başlaması ile birlikte ortaya çıktığı bilinmektedir. Dünya üzerinde canlılığın en temel yaşam döngüsünü oluşturan ortalama bitki türünün 500. 000 kadar olduğu tahmin edilmekte olup, tıbbi ve aromatik olarak kullanılan ortalama 100.000 üzerinde bitki türünün olduğu bilinmektedir. Ülkemiz bulunduğu konum itibari ile bitki türü bakımından dünyanın en zengin ülkelerinden bir tanesidir. Bu zenginliğe bağlı olarak insanların doğaya olan ilgisi oldukça fazladır. Özellikle doğadan elde edilen bitkilerin gıda, baharat, kozmetik, tıbbi ve boya maddesi olarak kullanımı çok fazladır. Günümüzde modern tıbbın gelişmesi ile birlikte ilaç sektöründeki artışa rağmen farklı sağlık sorunlarının gün yüzüne çıkması alternatif tedavi yöntemleri ve bitkilerle tedavi giderek artan bir ilgi göstermektedir. Günümüzün en büyük sağlık sorunlarından bir tanesi olan diyabet hastalığı organların zarar görmesine ve insan ölümlerine sebebiyet veren metabolik bir hastalıktır. Bu yüzden doğada bulunan tıbbi bitkilerin diyabet tedavisinde kullanımı oldukça dikkat çeken bir konu haline gelmiştir. Bu hastalık üzerinde en fazla durulan tıbbi bitkilerden bir tanesi olan şeker otu (stevia) tatlandırıcı ve diyabet tedavisini iyileştirici özelliği sayesinde milyonlarda insan tarafından yoğun bir şekilde kullanılmaktadır. Bu kadar değerli olan sativa bitkisi alternatif tıpta kullanımının yanında yapılan birçok araştırma gıda sektöründe de kullanımını mümkün olduğunu göstermiştir. Kullanım alanları olarak sıcak ve soğuk içeceklerde, reçel, komposto gibi yiyeceklerde, pasta, kek gibi tatlı ürünlerinde ve şekerlemelerde kullanılmaktadır. Şeker otu bitkisi birçok besin maddesi içermesine rağmen çoğu şeker bitkisinde bulunan sakkaroz içeriğinin 250-300 katı kadar tatlılık veren steviol glikozit bileşikleri bulunmaktadır. Bunun yanısıra stevia bitkisi antimikrobiyal ve antioksidan özelliği olan değerli bir bitkidir.

Önemi saymakla bitmeyen stevia bitkisinin genel özelliklerini, gıda ve sağlık yönünden kullanım alanlarının ele alınması, özellikle şeker yerine kullanımı ve şeker gibi zararlı etkisinin olmadığı olanaklarının ele alındığı derleme yazımızda bilimsel araştırmalara ışık tutması, daha geniş ve uygun bölgeleri kapsayacak alanlarda kültürü yapılabilmesi için bilgi verilmeye çalışılmıştır.

Anahtar kelimeler: Stevia, antimikrobiyal, tatlandırıcı, steviol glikozit, alternatif tedavi

ABSTRACT

It is known that the existence of plants on earth dates back even before humanity and emerged with the beginning of the life cycle. It is estimated that the average plant species constituting the most basic life cycle of life in the world are around 500,000, and it is known that there are

over 100,000 plant species used medicinally and aromatically. Our country is one of the wealthiest countries in the world regarding plant species due to its location. Due to this wealth, people's interest in nature is relatively high. In particular, the use of natural plants as food, spice, cosmetics, medicinal, and dyestuffs is very high. Today, with the development of modern medicine, despite the increase in the pharmaceutical sector, the emergence of different health problems, alternative treatment methods, and treatment with herbs show an increasing interest. Diabetes, one of today's most significant health problems, is a metabolic disease that causes damage to organs and human deaths. Therefore, the use of medicinal plants found in nature in treating diabetes has become a subject of considerable attention. Stevia, one of the most emphasized medicinal plants for this disease, is used extensively by millions thanks to its sweetener and curative properties for diabetes treatment. In addition to using the sativa plant, which is so valuable, in alternative medicine, many studies have shown that it is possible to use it in the food industry. It is used in hot and cold drinks, foods such as jam and compote, and sweet products such as cakes, cakes, and confectionery. Although the sugarcane plant contains many nutrients, there are steviol glycoside compounds that give sweetness 250-300 times the sucrose content found in most sugar plants. In addition, the stevia plant is a valuable plant with antimicrobial and antioxidant properties.

In our review article, in which the general characteristics of the stevia plant, whose importance does not end, its use in terms of food and health, especially its use as a sugar substitute, and its possibilities without harmful effects such as sugar, it has been tried to shed light on scientific researches and to provide information on culture in more comprehensive and suitable regions.

Keywords: Stevia, antimicrobial, sweetener, steviol glycoside, alternative therapy

**MODELLING AND SIMULATION OF COFFEE HUSK PYROLYSIS
FOR BIO-OIL PRODUCTION**

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ABSTRACT

Sustainable energy supplies are one of the best available strategies for minimizing the environmental impact of fossil fuel use. The most promising renewable energies to limit the greenhouse effect increase is biomass, which is converted into biofuels by thermo-chemical conversion. An alternative recycling route can be established through the generation of bio energy and the energy conversion of waste products. Thermochemical processes offer considerable potential and must be optimized for biomass conversion. The pyrolysis is a very promising solution for the generation of high quality bio-oils and high energy chemicals. The residence time, the process temperature, the flow rate and the biomass type strongly influence the biofuels yield. In the present study, the impact of temperature and residence time on the biofuels recovery from coffee husk pyrolysis was studied through the Super Pro Designer simulator. The findings from the different simulation tests show that the highest bio oil yield (25%) was reached at a temperature of 550°C and a residence time of 1s. However, a temperature of 600°C and a residence time of 15s are the optimal operating conditions for maximizing the syngas yield with a production of 35%. The maximal production of Biochar (40%) was attained at a temperature of 400°C and a residence time of 1s. These exploitations have shown that the energy content of coffee husk can be harnessed by pyrolysis or gasification to produce important end products that can be exploited as fuels.

Keywords: Modelling - Simulation - Pyrolysis - Coffee Grounds - Bio-oil .

EVALUATION IN SILICO DE L'ACTIVITE INHIBITRICE DE CERTAINS DERIVES D'ISOTHIAZOLE D'INTERET PHARMACEUTIQUE

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Résumé

L'amarrage moléculaire est l'étape qui permet d'étudier les interactions entre les résidus du site actif de l'enzyme et les inhibiteurs pour former un complexe stable, le logiciel Molegro Virtual Docker (MVD) a été utilisé pour réaliser cette étude. Nous connaissons la structure 3D de la cible et nous voulons calculer l'interaction d'une série de molécules avec la macromolécule.

À l'aide du logiciel MVD, nous avons détecté les cavités dans l'enzyme en question. Le tableau représente le volume et la surface des 5 cavités détectées. On remarque que le ligand de référence isothiazole se trouve dans la cavité 1. Cela nous a permis d'étudier la cavité 1, cette cavité a un volume plus important que les autres cavités détectées. Le ligand est généralement une molécule organique. Les logiciels d'interface graphique et la mécanique moléculaire sont généralement utilisés pour les schémas. Le ligand a trop de degrés de liberté, cela nous a conduit à obtenir la conformation la plus stable lors de l'amarrage moléculaire.

Mots clés : Dérivés de l'isothiazole, QSAR, MVD, Molecular docking, AM1, NS5B.

ANTİDİYABETİK ETKİYE SAHİP ASPİR BİTKİSİNİN İNCELENMESİ

INVESTIGATION OF ASPİR PLANT WITH ANTIDIABETIC EFFECT

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ÖZET

Dünyanın hemen hemen her bölgesinde yetişebilen aspir, stres faktörlerine dayanıklı, oldukça geniş kullanım alanına sahip bir bitkidir. Çok eski dönemlerde dünyanın pek çok ülkesinde üretimi yapılmış olan aspir bitkisinin, önceleri tıbbi amaçlarla, gıda ve kumaş boyacılığında kullanılmış, daha sonraki dönemlerde ise, tohumundaki yağı için üretilmiştir. Bu bitkinin tıbben faydalı olduğu yapılan çeşitli klinik ve laboratuvar çalışmaları ile kanıtlanmıştır. Yapılan klinik testlerde bitkinin tansiyonu düşürdüğü, damarlarda kan akışını artırdığı ve dokuların oksijen miktarını artırdığı belirlenmiştir. Bunun yansira Aspir çiçeklerinin amino asitler, mineral maddeler ve bazı vitaminlerin (**B1, B2, B12, C ve E**) bakımından zengin bir içeriği sahip olması bitkisel çay olarak tüketimini artırmaktadır. Üretim kapasitesinin geniş olmasına rağmen aspir bitkisi, sınırlı alanlarda ve belirli ekolojilerde üretilmektedir. Gerek tıbbi olarak gerekse alternatif bir yağ bitkisi olan aspirin üretime katkıda bulunmak amacıyla tanınırlığının ve ekim alanının artırılmasına yönelik çalışmaların yapılması gerekmektedir.

Anahtar Kelimeler: Antidiyabetik, Aspir, aspir çayı, vitaminler

ABSTRACT

Safflower, which can be grown in almost every region of the world, is a plant that is resistant to stress factors and has a wide range of uses. The safflower plant, which was produced in many countries of the world in ancient times, was used for medicinal purposes, food and fabric dyeing, and later it was produced for the oil in its seed. It has been proven by various clinical and laboratory studies that this plant is medically beneficial. In clinical tests, it has been determined that the plant reduces blood pressure, increases blood flow in the vessels and increases the oxygen content of the tissues. In addition, the fact that Safflower flowers have a rich content of amino acids, mineral substances and some vitamins (B1, B2, B12, C and E), increases its consumption as herbal tea. Despite its large production capacity, the safflower plant is produced in limited areas and in certain ecologies. In order to contribute to the production of aspirin, which is an alternative oil plant, it is necessary to carry out studies to increase its recognition and cultivation area

Keywords: Antidiabetic, Safflower, safflower tea, vitamins

İMMUN SİSTEMİ GÜÇLENDİRİCİ ETKİYE SAHİP ISIRGAN BİTKİSİNİN İNCELENMESİ

INVESTIGATION OF NETTLE PLANT WITH IMMUNITY STRENGTHENING EFFECT
CAUSED

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ÖZET

Isırganotu (*Urtica* spp.) doğal olarak yayılış gösteren ve ülkemizde dızlağan, ağdalak, dalagan, ısırgı gibi isimlerle anılan tıbbi bir bitkidir. Ülkemizin hemen hemen her bölgesinde bulunan ısır otunun en yoğun bulunduğu bölge Karadeniz Bölgesidir. Asırlardan beri ilaç ve gıda olarak kullanılan bitkinin kimyasal içeriği oldukça zengindir. Günümüzde ısırgan otu farmakolojik etkisinden dolayı yoğun akademik çalışmaların yapıldığı ve önemi her geçen gün artan bir bitkidir. Bunun yansira yetiştiriciliğinde herhangi bir sorun olmayan ısırgan otu alternatif ürün olma potansiyeline sahip bir bitkidir Ülkemizde tıbbi bitkiler arasında önemli bir bitki olan ısırganın üretime katkı sağlamak amacıyla bitkinin tanınırlığını artırmak amacıyla araştırmalar yapılması gerekmektedir. Bu makalede, ısırgan bitkisi hakkında genel hatlarıyla bilgi verilmeye çalışılmıştır.

Anahtar Kelimeler: Antioksidan, Isırganotu, Fenolik madde, marmelat

ABSTRACT

Stinging nettle (*Urtica* spp.) is a medicinal plant that spreads naturally and is known in our country with names such as eel, larch, dalagan, nettle. The Black Sea Region is the region where the stinging nettle, which is found in almost every region of our country, is most concentrated. The chemical content of the plant, which has been used as medicine and food for centuries, is very rich. Due to its pharmacological effect, stinging nettle is a plant whose importance is increasing day by day and intensive academic studies are carried out. In addition, nettle is a plant that has the potential to be an alternative product, which has no problems in its cultivation. Researches are needed to increase the recognition of the plant in order to contribute to the production of nettle, which is an important plant among the medicinal plants in our country. In this article, it has been tried to give general information about the nettle plant.

Keywords: Antioxidant, *Urtica*, Phenolic substance, marmalade

ANTİKANSEROJENİK ETKİYE SAHİP KUŞBURNU BİTKİSİNİN İNCELENMESİ
INVESTIGATION OF ROSE HAND PLANT WITH ANTI-CANCEROGENIC EFFECT

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ÖZET

Dünyanın hemen hemen her bölgesinde yetişebilen kuşburnu, stres faktörlerine dayanıklı, oldukça geniş kullanım alanına sahip hakkında türküler yazılıp maniler söylenen bir bitkidir. Mitolojik açıdan oldukça önemli olan bu bitkinin kullanım alanı oldukça geniş olup, son dönemlerde çay, reçel, meyve suyu, marmelat, çorba, kompostosu şeklinde kullanımı ile Türk mutfağının eşsiz lezzetlerinden birini oluşturmuştur. Mucizevi bir bitki olarak ifade edilen kuşburnu halk hekimliğinde sıklıkla kullanılan bitkilerden birisidir. Özellikle üst solunum yolu enfeksiyonların da, bağışıklık sisteminin güçlendirilmesinde kullanılmaktadır. Ayrıca ilaç sanayisinde hammadde kaynağını oluşturmaktadır. Kuşburnu üzerine pek çok araştırma yapılmış olsa da henüz yeterli düzeyde üretimi ve tüketimi gerçekleştirilememektedir. Bu çalışmada kuşburnu üzerine yapılacak bilimsel araştırmalara ışık tutmak ve geniş alanlarda kültür yetiştiriciliğinin başarılı bir şekilde yapılması için bitki hakkında genel bilgi verilmeye çalışılmıştır.

Anahtar Kelimeler: Antioksidan, Kuşburnu, Rosehip, Fenolik madde, marmelat

ABSTRACT

Rosehip, which can be grown in almost every region of the world, is a plant that is resistant to stress factors, has a wide range of uses, and folk songs are written about it. The usage area of this plant, which is very important in terms of mythology, is quite wide, and it has created one of the unique flavors of Turkish cuisine with its use in the form of tea, jam, fruit juice, marmalade, soup, compote in recent years. Rosehip, which is expressed as a miraculous plant, is one of the plants frequently used in folk medicine. It is used to strengthen the immune system, especially in upper respiratory tract infections. It also constitutes the raw material source in the pharmaceutical industry. Although many researches have been made on rosehip, it is not yet produced and consumed at an adequate level. In this study, it has been tried to give general information about the plant in order to shed light on the scientific researches to be made on rose hips and to make culture cultivation successfully in large areas.

Keywords: Antioxidant, Hawthorn, Rosehip, Phenolic substance, marmalade