Proceeding Book of Abstract

KİLİS 7 ARALIK ÜNİVERSİTESİ 2007

INTERNATIONAL CONFERENCE ON NATURAL SCIENCE AND ENGINEERING ICNASE'16

March 19-20 Kilis 7 Aralık University 2016 ICNASE'16

ISBN No: 978-605-83631-2-0

978-605-83631-2-0

International Conference on Natural Science and Engineering (ICNASE'16)
Uluslararası Doğa Bilimleri ve Mühendislik Konferansı Özet Metin Bildiriler Kitabı

Editör
Murat Ceyhan

Yayın Tarihi
Nisan/2016

Dizgi ve Sayfa Tasarımı
Thales Akademik Yayıncılık

Birinci Baskı
ISBN: 978-605-83631-2-0

Matbaa
Mavi Kitap Yayıncılık

Matbaa Sertifika No
118005

Adres
Thales Akademik Yayıncılık, İsmetpaşa Mah. Hükümet Bulvarı, No:12, K:7, D:30, Dulkadiroğlu/Kahramanmaraş

Gsm
0 543 710 07 06

Adres
Elmalı mah. Şht. Bn. Cengiz Toytunç Cad. No:70 Başargan İş hanı Kat.2 No:39/40 Muratpaşa/Antalya

Tel/Fax
0 242 247 98 45-0 507 442 35 20

icnase'16 Scientific Committee

Prof. Dr. Ömer Faruk FARSAKOĞLU, Kilis 7 Aralık University, Dean of Faculty of Eng. and Arch., Chair
Prof. Dr. Sabir RÜSTEMLİ, Bitlis Eren University, Vice Rector
Prof. Dr. Mehmet Emin AYDIN, Konya Necmettin Erbakan University, Vice Rector
Prof. Dr. Bektaş TEPE, Kilis 7 Aralık University, Vice Rector
Prof. Dr. Recep YURTAL, Cukurova University, Rectorate Counselor
Prof. Dr. Selami ŞAŞMAZ, Recep Tayyip Erdoğan University, Director of the Inst.of Sci. and Tech., Turkey
Prof. Dr. Marian Marciniak, National Institute of Telecommunications, Poland
Prof. Dr. Naveed Ramzan, University of Engineering and Technology, Pakistan
Prof. Dr. Guillaume Echevarria, University of Lorraine, France
Prof. Dr. Mohamed Zribi, Kuwait University, Department of Electrical Engineering, Kuwait
Prof. Dr. Arab-Tehrany Elmira, University of Lorraine, France
Prof. Dr. Pedro Pinho, Instituto Superior de Engenharia de Lisboa, Portugal
Prof. Dr. Fawzi M Al-Naima, Nahrain University, Iraq
Prof. Francesco Saverio Capaldo, University Federico II of Naples, Italy
Prof. Dr. Ahmed Kadhim Hussein, Babylon University, Department of Mechanical Engineering, Iraq
Prof. Dr. Bilal ACEMİOĞLU, Kilis 7 Aralık University, Dean of Faculty of Sci. and Letter
Prof. Dr. Ömer ZORBA, Abant Izzet Baysal University, Dean of Faculty of Eng. and Arch.
Prof. Dr. Ünal ALDEMİR, Istanbul Technical University, Dean of Faculty of Civil Eng.
Prof. Dr. Mustafa BAYRAM, Gaziantep University, Dean of Faculty of Eng.
Prof. Dr. Tuncay DÖĞEROĞLU, Anadolu University, Dean of Faculty of Eng.
Prof. Dr. Yusuf BAYRAK, Ağrı İbrahim Çeçen University, Dean of Faculty of Natural Sci. and Eng.
Prof. Dr. Yunus ÇENGEL, Adnan Menderes University, Dean of Faculty of Eng.
Prof. Dr. Nurgül ÖZBAY, Bilecik Seyh Edebali University, Dean of Faculty of Eng.
Prof. Dr. Ahmet YILDIRIM, Karamanoglu Mehmetbey University, Dean of Faculty of Eng.
Prof. Dr. Cemal BÖLÜCEK, Balikesir University, Dean of Faculty of Eng. and Arch.
Prof. Dr. Veli ÇELİK, Yildirim Beyazit University, Dean of Faculty of Eng. and Natural Sci.

Prof. Dr. İrfan KAYMAZ, Erzurum Teknik University, Dean of Faculty of Eng. and Arch.
Prof. Dr. Orhan ENGİN, Selcuk University, Dean of Faculty of Eng.
Prof. Ahmet ERGİN, Istanbul Teknik University, Dean Faculty of Naval Arch. and Ocean Eng.
Prof. Dr. Osman KOPMAZ, Bursa Teknik University, Dean of Faculty of Natural Sci., Arch., Eng.
Prof. Dr. Mesut BAŞIBÜYÜK, Cukurova University, Dean of Faculty of Eng. and Arch.
Prof. Dr. Ahmet ÖZER, Firat University, Dean of Faculty of Eng.
Prof. Dr. Süheyda ATALAY, Ege University, Dean of Faculty of Eng.
Prof. Dr. Nizamettin AYDIN, Yildiz Teknik University, Dean of Faculty of Electrical and Electronics
Prof. Dr. Aziz TEKİN, Ankara University, Dean of Faculty of Eng.
Prof. Dr. Nazım ŞEKEROĞLU, Kilis 7 Aralık University
Prof. Dr. Nil GÜLER, Istanbul Teknik University, Faculty of Maritime
Prof. Dr. Ali BİLGİLİ, Ankara University, Faculty of Veterinary
Assoc. Prof. Dr. Levent ALTINTAŞ, Ankara University, Faculty of Veterinary
Assoc. Prof. Dr. Hakan GÖKDAĞ, Bursa Teknik University, Faculty of Natural Sci., Arch., Eng.
Assoc. Prof. Dr. Kemal DELİHACIOĞLU, Kilis 7 Aralık University, Faculty of Eng. and Arch.
Assoc. Prof. Dr. Mustafa SATOUF, Kilis 7 Aralık University, Faculty of Eng. and Arch.
Assoc. Prof. Dr. Kani ARICI, Kilis 7 Aralık University, Faculty of Sci. and Letter
Assoc. Prof. Dr. Emin ÜNAL, Iskenderun Technical University
Assoc. Prof. Dr. Aybike Ayfer KARADAĞ, Düzce University, Faculty of Forestry
Assoc. Prof. Dr. Züheyr KAMACI, Suleyman Demirel University, Faculty of Eng.
Assoc. Prof. Dr. Fatih ÜNEŞ, Iskenderun Technical University
Assoc. Prof. Dr. Muharrem KARAASLAN, Iskenderun Technical University
Assoc. Prof. Dr. Mustafa DEMİRCİ, Iskenderun Technical University
Assist. Prof. Dr. Oğuzhan AKGÖL, Iskenderun Technical University
Assist. Prof. Dr. Furkan DİNÇER, Kilis 7 Aralık University, Faculty of Eng. and Arch.
Assist. Prof. Dr. Mustafa NALBANTOĞLU, Kilis 7 Aralık University, Faculty of Eng. and Arch.
Assist. Prof. Dr. Demet DEMİROĞLU, Kilis 7 Aralık University, Faculty of Eng. and Arch.
Assist. Prof. Dr. Faika YARALI, Kilis 7 Aralık University, Faculty of Agriculture
Assist. Prof. Dr. Bekir Bülent ARPACI, Kilis 7 Aralık University, Faculty of Agriculture
Assist. Prof. Dr. Mehmet KÖTEN, Kilis 7 Aralık University, Faculty of Eng. and Arch.
Assist. Prof. Dr. Filiz UÇAN TÜRKMEN, Kilis 7 Aralık University, Faculty of Eng. and Arch.
Assist. Prof. Dr. Hidayet SAĞLAM, Kilis 7 Aralık University, Faculty of Eng. and Arch.
Assist. Prof. Dr. Eyyüb KARAKAN, Kilis 7 Aralık University, Faculty of Eng. and Arch.
Assist. Prof. Dr. Salih Seçkin EROL, Kilis 7 Aralık University, Faculty of Eng. and Arch.
Assist. Prof. Dr. Bilge İNAN, Kilis 7 Aralık University, Faculty of Muallim Rıfat Education
Assist. Prof. Dr. Rasim ÖZDEMİR, Kilis 7 Aralık University, Vocational School of Kilis
Assist. Prof. Dr. Esra ÖZEL, Çanakkale 18 Mart University, Faculty of Arch. and Design
Assist. Prof. Dr. Özgür Burhan TİMUR, Çankırı Karatekin University, Faculty of Forestry
Assist. Prof. Dr. Atilla ATİK, İnönü University, Faculty of Fine Arts and Design
Assist. Prof. Dr. Mustafa ARTAR, Bartın University, Faculty of Forestry
Assist. Prof. Dr. Cevdet Emin EKİNCİ, Firat University, Faculty of Technology
Assist. Prof. Dr. Nevin ÇANKAYA, Usak University, Faculty of Sci. and Letter

icnase'16 Organizing Committee

Prof. Dr. İsmail GÜVENÇ, Kilis 7 Aralık University, Rector
Prof. Dr. Edmond HAJRIZI, University for Business and Technology, Prishtin, Rector
Prof. Dr. İsmail GÜL, Kilis 7 Aralık University, Vice Rector
Prof. Dr. Bektaş TEPE, Kilis 7 Aralık University, Vice Rector
Prof. Dr. Ömer Faruk FARSAKOĞLU, Kilis 7 Aralık University, Dean of Faculty of Eng. and Arch.
Assist. Prof. Dr. Furkan DİNÇER, Kilis 7 Aralık University, Faculty of Eng. and Arch.
Assist. Prof. Dr. Demet DEMİROĞLU, Kilis 7 Aralık University, Faculty of Eng. and Arch.
Assist. Prof. Dr. Bilge İNAN, Kilis 7 Aralık University, Faculty of Muallim Rıfat Education
Assist. Prof. Dr. Faika YARALI, Kilis 7 Aralık University, Faculty of Agriculture
Assist. Prof. Dr. Mehmet DALKILIÇ, Kilis 7 Aralık University, Faculty of Eng. and Arch.
Lecturer, Nurdan BAYKUŞ, Kilis 7 Aralık University, Faculty of Eng. and Arch.
Research Assist. H. Yusuf HASIRCI, Kilis 7 Aralık University, Faculty of Eng. and Arch.
Research Assist. İbrahim ÇELİK, Kilis 7 Aralık University, Faculty of Eng. and Arch.
Research Assist. Mehmet KOÇ, Kilis 7 Aralık University, Faculty of Agriculture
Research Assist. Sinan DİKEN, Kilis 7 Aralık University, Faculty of Arts and Sciences
Cemil Duduk, Kilis 7 Aralık University, Student
Eyyüp ÖZÇINAR, Kilis 7 Aralık University, Student

CONFERENCE PROCEEDING PAPERS PRESENTED ORAL AND PUBLISHED AS ABSTRACT

SÖZLÜ OLARAK SUNULAN VE ÖZET METİN OLARAK YAYIMLANAN

TEBLİĞLER

On the Elements of Ideals

Erdal Ekici
Department of Mathematics, Canakkale Onsekiz Mart University,
Terzioglu Campus, Canakkale / TURKEY

ABSTRACT

In 1966, Kuratowski introduced the concept of ideal on a nonempty set X. After then, the literature has many studies on Kuratowski's ideal with topological structures. In this paper, the roles of the elements of an ideal with topological structures are investigated.

Keywords: ideal, element of ideal, topology, local function

REFERENCES

[1] Ekici E. and Noiri T. (2009). On subsets and decompositions of continuity in ideal topological spaces. Arabian Journal for Science and Engineering, Volume 34, Number 1A, 165-177.
[2] Ekici E. (2013). On A_I^*-sets, C_I-sets, C_I^*-sets and decompositions of continuity in ideal topological spaces. Analele Stiintifice Ale Universitatii Al. I. Cuza Din Iasi (S. N.) Matematica, Tomul LIX, f. 1, 173-184.
[3] Ekici E. (2012). On pre-I-open sets, semi-I-open sets and b-I-open sets in ideal topological spaces. Acta Universitatis Apulensis, 30, 293-303.
[4] Janković D. and Hamlett T. R. (1990). New topologies from old via ideals. Amer. Math. Monthly, 97, 295-310.
[5] Kuratowski K. (1966). Topology, Vol. I. Academic Press, NewYork.

On a Study of Open and Closed Sets in Topology

Erdal Ekici
Department of Mathematics, Canakkale Onsekiz Mart University,
Terzioglu Campus,Canakkale / TURKEY

ABSTRACT

Open and closed sets were considered for various problems in topology. For example, some properties were investigated in 0-dimensional topological spaces. The main aim of this paper is to study properties of peculiar open and closed sets in a generalization of topology.

Keywords: open and closed, topology, 0-dimensional, generalization

REFERENCES

[1] Ekici E. (2013), On A_I^*-sets, C_I-sets, C_I^*-sets and decompositions of continuity in ideal topological spaces. Analele Stiintifice Ale Universitatii Al. I. Cuza Din Iasi (S. N.) Matematica, Tomul LIX, f. 1, 173-184.
[2] Ekici E. and Noiri T. (2009), Decompositions of continuity, α-continuity and AB-continuity. Chaos, Solitons and Fractals, 41, 2055-2061.
[3] Ekici E. (2007). On C*-sets and decompositions of continuous and ηζ-continuous functions. Acta Mathematica Hungarica, 117 (4), 325-333.
[4] N. Levine, Generalized closed sets in topology, Rend. Circ. Mat. Palermo, 19 (2) (1970), 89-96.
[5] Kuratowski K. (1966). Topology, Vol. I. Academic Press, NewYork.
[6] Willard S. (1970). General Topology, Addison-Wesley.

On a Preserving Mapping

Erdal Ekici
Department of Mathematics, Canakkale Onsekiz Mart University,
Terzioglu Campus,Canakkale / TURKEY

ABSTRACT

One of the main research areas in mathematics is to study preserving properties. In this paper, some preserving properties are discussed by a mapping. Some relationships and contra-examples of some implications are investigated.

Keywords: preserving, mapping, topology, contra-example

REFERENCES

[1] Ekici E. (2005). Generalization of perfectly continuous, regular set-connected and clopen functions. Acta Mathematica Hungarica, 107 (3), 193-206.
[2] Ekici E. (2008). Generalization of weakly clopen and strongly θ-b-continuous functions. Chaos, Solitons and Fractals, 38, 79-88.
[3] Janković D. and Hamlett T. R. (1990). New topologies from old via ideals. Amer. Math. Monthly, 97, 295-310.
[4] Janković D. and Hamlett T. R. (1992). Compatible extensions of ideals. Boll. Un. Mat. Ital. (7), 6-B, 453-465.

Investigation of Response of Vegetation to Drought Conditions in the Semi-Arid Mediterranean Climate Using Vegetation Index Models (NDVI, EVI, VCI)

Mehmet Ali Çelik
Kilis 7 Aralık Üniversitesi, Fen-Edebiyat Fakültesi, Coğrafya Bölümü, Kilis

Ali Ekber Gülersoy
Dokuz Eylül Üniversitesi, Buca Eğitim Fakültesi, Sosyal Bilgiler Eğitimi Anabilim Dalı, İzmir

Habib Cuydur
Kilis 7 Aralık Üniversitesi, Fen-Edebiyat Fakültesi, Coğrafya Bölümü, Kilis

ABSTRACT

Semi-Arid climates are areas where rainfall variability is 25% and over. The rainfall variability being high in these regions has lead drought conditions to be oftenly experienced. Primary motivation of this study is to answer to the question what kind of responses is the vegetation giving to the high variability in the rainfall, in a region showing Mediterranean climatic characteristics. Within this scope, main purpose of our study, in Mediterranean Region, is to determine the response of the vegetation to drought conditions, by appointing test areas, which is an area showing semi-arid characteristics In line with this purpose, Vegetation Index was created using MODIS data. Thus, we analyzed responses of the vegetation to drought conditions in monthly intervals during the period covering the years of 2000-2014. According to findings obtained from Vegetation Index analysis, we have seen that vegetative drought has been remarkable in certain months and years. These periods during which vegetative drought happened are not simultaneous with meteorological drought. Therefore, negative deviations which occur in rainfall variability during some periods do not constitute decrease on photosynthetic activity of vegetation. Because, plant accommodates to the said arid conditions.

Keywords: Vegetation, Drought, NDVI, EVI, VCI, Rainfall Variability, Semi-Arid Mediterranean Climate.

ÖZET

Yarı kurak iklimler, yağış değişkenliğinin % 25 ve üzerinde olduğu alanlardır. Bu bölgelerde, yağış değişkenliğinin yüksek olması, kurak koşulların sıklıkla yaşanmasına sebep olmaktadır. Bu çalışmanın temel motivasyonu; yarı kurak Akdeniz iklim özellikleri gösteren bir bölgede, bitki örtüsü yağışta meydana gelen yüksek değişkenliğe ne gibi tepkiler vermektedir sorusuna cevap olmaktır. Bu çerçevede çalışmamızın temel amacı; Akdeniz bölgesinde, yarı-kurak özellik gösteren bir alanda test alanları belirleyerek, bitkinin kurak koşullara verdiği tepkiyi tespit etmektir. Bu amaç doğrultusunda, MODIS verileri kullanılarak bitki indisleri oluşturulmuştur. Böylelikle, 2000-2014 yıllarını kapsayan dönemde

aylık periyotlar halinde bitki örtüsünün kurak koşullara verdiği tepkiler analiz edilmiştir. Bitki indisleri analizinden elde edilen bulgulara göre, belli yıl ve aylarda vejetatif kuraklığın dikkat çekici olduğu görülmektedir. Vejetatif kuraklığın meydana geldiği bu dönemler, meteorolojik kuraklık ile eş zamanlı değildir. Dolayısıyla, bazı dönemlerde yağış değişkenliğinde meydana gelen negatif sapmalar, bitki örtüsü fotosentetik aktivitesi üzerinde düşüş teşkil etmemektedir. Çünkü bitki söz konusu kurak koşullara uyum sağlamaktadır.

Anahtar kelimeler: Bitki Örtüsü, Kuraklık, NDVI, EVI, VCI, Yağış Değişkenliği, Yarı-Kurak Akdeniz İklimi

An Elementary Generalization on Modified Rivest Encryption

Emin Aygün
Erciyes University

Erkam Lüy
Erciyes University

Zekeriya Yalçın Karataş
Tuskegee University

ABSTRACT

In this article, we construct a new cryptosystem by an elementary improvement on the famous Modified Rivest Encryption. This improvement allows us to build up a stronger system. We deceive the attackers by using a mod value other than the public key.

Keywords: Modified Rivest Scheme, Homomorphic Encryption

REFERENCES

[1] Gentry, C. (2009). A fully homomorphic encryption scheme. Ph.D. Thesis. (Stanford University)

[2] Goldwasser, S., & Micali, S. (1982). Probabilistic encryption and how to play mental poker keeping secret all partial information. Proceedings of the 14th ACM Symposium on Theory of Computing, 365–377.

[3] Pailler, P. (1999). Public-key cryptosystems based on composite degree residuosity classes. Advances in Cryptology, EUROCRYPT, 223–238.

[4] Rivest, R. L., Adleman, L. A., & Dertouzos, M. (1978). On data banks and privacy homomorphisms. Foundations of Secure Computation, 169–179.

[5] Silverberg, A. (2013). Fully homomorphic encryption for mathematicians. sponsored by DARPA under agreement numbers FA8750-11-1-0248 and FA8750- 13-2-0054.

[6] Vizar, D., & Vaudenay, S. (2014). Cryptanalysis of chosen symmetric homomorphic schemes. EPFL CH-1015. (Lausanne, Switzerland)

T_0 and T_1 Proximity Spaces

Samed Özkan
Department of Mathematics, Erciyes University

ABSTRACT

Various generalizations of the usual separation properties of topology and for an arbitrary topological category over sets separation properties at a point p are given in [1]. Baran [1] defined separation properties first at a point p, i.e., locally, then they are generalized this to point free definitions. One of the uses of separation properties at a point p is to define the notions of (strong) closedness in set-based topological categories which are introduced in [1, 2]. These notions are used to generalize each of the notions of compactness, connectedness, Hausdorffness, and perfectness to arbitrary set-based topological categories.

The notion of proximity on a set X was introduced by Efremovich [3]. He characterized the proximity relation "A is close to B" as a binary relation on subsets of a set X. The set X together with this relation was called a proximity space. A proximity space is a natural generalization of a metric space and of a topological group [6]. Hunsaker and Sharma [4] showed that **Prox**, the category of proximity spaces and proximity mappings, is a topological category over **Set**.

In this paper, the characterization of the separation properties T_0 and T_1 is given in the category of proximity spaces. Moreover, we investigate the relationships among generalized separation properties T_0 and T_1 (in our sense), separation properties at a point p in [5] and separation properties T_0 and T_1 in the usual sense [7] in this category.

Keywords: Topological category, proximity space, proximity mapping, separation

REFERENCES

[1] Baran M. (1992). Separation properties. Indian J. Pure Appl. Math., 23, 333–341.
[2] Baran M. (1993). The notion of closedness in topological categories. Comment. Math. Univ. Carolinae, 34, 383–395.
[3] Efremovich V. A. (1951). Infinitesimal spaces (in Russian). Doklady Akademii Nauk SSSR, 76, 341–343.
[4] Hunsaker W. N. and Sharma P. L. (1974). Proximity Spaces and Topological Functors. Proceedings of the American Math. Society, 45 no. 3, 419–425.
[5] Kula M., Maraşlı T. and Özkan S. (2014). A Note on Closedness and Connectedness in the Category of Proximity Spaces. Filomat, 28 (7), 1483–1492.
[6] Naimpally S. A. and Warrack B. D. Proximity Spaces. Cambridge University Press, Cambridge, (1970).
[7] Sieber J. L. Generalizations of Some Topological Notions to Syntopogenic Spaces. Ph. D. Thesis, The Pennslyvania State University, (1963).

Fuzzy Hahn-Banach Extension Theorem

Çağrı Tutlupınar
Gaziantep Üniversitesi, Matematik Bölümü, Gaziantep, Türkiye

Mehmet Şahin
Gaziantep Üniversitesi, Matematik Bölümü, Gaziantep, Türkiye

ABSTRACT

In this study, classic clusters, fuzzy clusters and Hahn-Banach Extension Theorem are examined and some correlations among these concepts are emphasized. In this context, firstly, algebraic structures of classical clusters, fuzzy clusters and partial sequential clusters are familiarized. Then, by giving related general description and theorems about Fuzzy Hahn-Banach Extension Theorem explain with examples.

Finally, in this study, other descriptions and theorems related to Hahn-Banach Extension Theorem are given.

Key Words: Classic clusters, Fuzzy clusters, Hahn-Banach Extension Theorem, Fuzzy Hahn-Banach Extension Theorem

Fuzzy Hahn-Banach Genişleme Teoremi

ÖZET

Bu çalışmada, klasik kümeler, Fuzzy kümeleri, klasik Hahn-Banach genişleme teoremi incelenmiş ve bu kavramlar arasındaki bazı ilişkiler verilmiştir. Bu kapsamda ilk olarak klasik kümeler, Fuzzy kümeleri ve kısmi sıralı kümelerin cebirsel yapıları tanıtılmıştır. Daha sonra klasik Hahn-Banach genişleme ile ilgili temel tanım ve teoremler verilerek örneklerle açıklanmıştır. Son olarak da Fuzzy Hahn-Banach genişleme teoremi ile ilgili tanım ve teoremler verilmiştir.

Anahtar Kelimeler: Klasik kümeler, Fuzzy kümeleri, Hahn-Banach genişleme teoremi, Fuzzy Hahn-Banach genişleme teoremi

A new numerical scheme for the generalized Huxley equation

Bilge İnan
Department of Mathematics, Faculty of Muallim Rıfat Education, Kilis 7 Aralık University, Kilis, Turkey

ABSTRACT

In this paper, an implicit exponential finite difference method is applied to compute the numerical solutions of the nonlinear generalized Huxley equation. The numerical solutions obtained by the present method are compared with the exact solutions and obtained by other methods to show the efficiency of the method. The comparisons showed that proposed scheme is reliable, precise and convenient alternative method for solution of the generalized Huxley equation.

Keywords: The generalized Huxley equation, Finite difference method, Exponential finite difference method, Implicit exponential finite difference method.
2010 AMS Classification: 65N06, 35D99

REFERENCES

[1] Wang X. Y., Zhu Z. S. and Lu Y. K. (1990). Solitary wave solutions of the generalized Burgers-Huxley equation, J. Phys. A: Math. Gen. 23, 271-274.

[2] Hashim I., Noorani M. S. M. and Batiha B.(2006). A note on the Adomian decomposition method for the generalized Huxley Equation, Appl. Math. Comput. 181, 1439-1445.

[3] Batiha B., Noorani M. S. M. and Hashim I. (2007). Numerical simulation of the generalized Huxley equation by He's variational iteration method, Appl. Math. Comput. 186, 1322-1325.

[4] Bhattacharya M. C.(1985). An explicit conditionally stable finite difference equation for heat conduction problems, Int. J. Num. Meth. Eng. 21, 239-265.

[5] Bahadır A. R.(2005). Exponential finite-difference method applied to Korteweg-de Vries equation for small times, Appl. Math. Comput. 160, 675-682.

[6] İnan B. and Bahadır A. R.(2013). Numerical solution of the one-dimensional Burgers equation: Implicit and fully implicit exponential finite difference methods, Pramana J. Phys. 81,547-556.

[7] İnan B. and Bahadır A. R.(2014). A numerical solution of the Burgers' equation using a Crank-Nicolson exponential finite difference method, Journal of Mathematical and Computational Science, 4, 849-860.

[8] İnan B. and Bahadır A. R.(2015). Numerical solutions of the generalized Burgers-Huxley equation by implicit exponential finite difference method, Journal of Applied Mathematics, Statistic and Informatics, 11, 57-67.

Investigation of Fatigue Behavior under Internal Pressure Effect of the CNT Reinforced GRP Composite Pipe with Surface Crack

Mustafa Taşyürek
Selçuk Üniversitesi Teknoloji Fakültesi
Metalurji ve Malzeme Mühendisliği Bölümü

Necmettin Tarakçıoğlu
Selçuk Üniversitesi Teknoloji Fakültesi
Metalurji ve Malzeme Mühendisliği Bölümü

Abstract

In this study, fatigue life of glass fiber - epoxy matrix material produced by the filament winding composite pipes and matrix material reinforced with multi-walled carbon nanotubes nanocomposite filament winding tubes were determined experimentally and numerical under the influence of internal pressure.

Elliptical surface cracks which opened in different depth ratio (a/t=0,25 ve a/t=0,50) were examined. In this study, two different rates of 0,5% and 1% by addition of nano-reinforced material were compared with the glass reinforced plastic pipe (GRP). Also, fatigue life of both surface cracks samples and non-cracks samples were investigated.

Fatigue test performed at different stress values to determine the fatigue life. Fatigue life up to 5 times increased with 1% CNT reinforcement. It also fractured surface in pipes 7 times. In conclusion, by determining of the effect of the reinforcement of carbon nanotubes GRP pipes with and without surface cracks on the material properties were discussed. Also, results were evaluated on computer via L9 Taguchi design. Interactions between parameters and effective parameters were determined by ANOVA program. According to the experimental conditions, the suitability of 1% CNT reinforcement to the GRP pipes was determined.

Keywords: Carbon Nanotubes, Composite Pipe, Fatigue, Filament Winding, Surface Crack

Yüzey Çatlakli CNT Takviyeli CTP Kompozit Borularin İç Basinç Etkisi Altindaki Yorulma Davranişinin Araştirilmasi

ÖZET

Bu çalışmada, filaman sarım metodu ile imal edilen E camı - epoksi kompozit boruları ile, çok duvarlı karbon nanotüplerle takviye edilen nanokompozit boruların iç basınç etkisi altında yorulma ömürleri deneysel ve sayısal olarak araştırılmıştır.

Farklı derinlik oranlarında (a/t=0,25 ve a/t=0,50) açılmış olan eliptik yüzey çatlakları incelenmiştir. Çalışmada, % 0,5 ve % 1 olmak üzere iki farklı oranda nano malzeme takviyesi kullanılarak, referans malzemesi olan takviyesiz cam takviyeli plastik (CTP) ile kıyaslama yapılmıştır. Ayrıca her çeşit numunenin hem yüzey çatlaklı numunelerin hem de çatlaksız numunelerin yorulma ömrüne etkisi araştırılmıştır.

Yorulma ömürlerinin tespit edilmesi için farklı yorulma gerilmesi değerlerinde deneyler gerçekleştirilmiş ve sonuçlar yorumlanmıştır. Yorulma ömrü % 1 CNT takviyesiyle 5 kata kadar attırılmıştır. Bu artış yüzey çatlaklı borularda 7 kat artmıştır. Tüm bu deneyler ile malzeme sabitleri ve hasar mekanizmaları belirlenmiştir. Sonuç olarak yüzey çatlaklı ve çatlaksız CTP boruların karbon nanotüp takviyesinin malzeme özellikleri üzerine etkisinin belirlenmesi ile elde edilen sonuçlar irdelenerek değerlendirilmiştir. Ayrıca L9 Taguchi yaklaşımı kullanılarak sonuçlar bilgisayar ortamında değerlendirilmiştir. Parametrelerin kendi aralarındaki etkileşimleri ve etkin parametre ANOVA programı ile belirlenmiştir. Deney şartlarına göre % 1 CNT'nin CTP'lere takviye edilmesinin daha uygun olduğu belirlenmiştir.

Anahtar Kelimeler: Filaman Sarım, Karbon Nanotüp, Kompozit Boru, Nanokompozit, Yorulma, Yüzey Çatlağı

Soft Set Cryptosystems with Symmetric Groups

Emin Aygün
Erciyes Üniversitesi, Matematik Bölümü, Kayseri

ABSTRACT

Soft set theory, proposed by Molodtsov, has been regarded as an effective mathematical tool to deal with uncertainties. This paper is a continuation of the paper [6]. In this paper, the operations inverse and characteristic products of soft sets are redefined without using relation forms of soft sets. This leads to simplicity and brevity. We define soft cryptosystem which is a new cryptosystem method by using inverse and characteristic products of soft sets with symmetric groups and give some applications.

Keywords: Soft set, Soft matrices, Cryptosystem, Symmetric groups.

REFERANSLAR

[1] U. Acar, F. Koyuncu, B. Tanay, Soft sets and soft rings, Comput. Math. Appl. 59 (2010) 3458-3463.

[2] H. Aktas. and N. C.aˇgman, Soft sets and soft groups, Inform.Sci. 177 (2007) 2726-2735.

[3] H. Aktas. and N. C.aˇgman, Eeatum to "Soft sets and soft groups", Inform. Sci. 3 (2009) 338.

[4] M.I. Ali, F. Feng, X. Liu, W.K. Min, M. Shabir, On some new operations in soft set theory, Comput. Math. Appl. 57 (9) (2009)1547-1553.

[5] A.O. Atagün and A. Sezgin, Soft substructures of rings, fields and modules, Comput. Math. Appl., 61 (3) (2011) 592-601.

[6] A.O. Atagün and E. Aygün, Groups of soft sets, Journal of Intelligent and Fuzzy Sys., DOI:10.3233/IFS-151793) (2015).

[7] K. Atanassow, Operators over interval valued intuitionistic fuzzy sets, Fuzzy Sets and Systems 64 (1994) 159-174.

[8] D. Chen, E.C.C. Tsang, D.S. Yeung, X. Wang, The parametrization reduction of soft sets and its applications, Comput. Math. Appl., 44 (2002) 1077-1083.

[9] D. Chen, E.C.C. Tsang, D.S. Yeung, X. Wang, Some notes on the parameterization reduction of soft sets, Int. Con. on Mac. Lea., 3 (2003) 1442-1445.

[10] N.C.ağman and S. Enginoˇglu, Soft set theory and uni-int decision making, Eur. J. Oper. Res. 207 (2010) 848-855.

[11] N.C.ağman and S. Enginoˇglu, Soft matrix theory and its decision making, Comput. Math. Appl. 59 (2010) 3308-3314.

[12] F. Feng, Y. B. Jun, X. Zhao, Soft semirings, Comput. Math. Appl. 56 (2008) 2621-2628.

[13] F. Feng, X.Y. Liu, V. Leoreanu-Fotea, Y.B. Jun, Soft sets and soft rough sets, Inform. Sci. 181 (6) (2011) 1125-1137.

[14] F. Feng, C.X. Li, B. Davvaz, M. Irfan Ali, Soft sets combined with fuzzy sets and rough sets: a tentative approach, Soft Comput. 14 (2010) 899-911.

[15] Y.B. Jun, Soft BCK/BCI-algebras, Comput. Math. Appl. 56(2008) 1408-1413.

[16] Y.B. Jun and C.H. Park, Applications of soft sets in ideal theory of BCK/BCI-algebras, Inform. Sci. 178 (2008) 2466-2475.

[17] Z. Kong, L. Gao, L. Wang and S. Li, ¸ S. Yılmaz, S. Yamak, Soft sets and soft BCH-algebras, Comput. Math. Appl. 56 (12) (2008) 3029-3037.

[18] P. K. Maji, R. Biswas, A.R. Roy, Fuzzy soft set, Journal of Fuzzy Math 9 (6) (2001), 589-602.

[19] P. K. Maji, R. Biswas, A.R. Roy, An application of soft sets in a decision making problem, Comput. Math. Appl. 44 (2002),1077-1083.

[20] P. K. Maji, R. Biswas, A.R. Roy, Soft set theory, Comput. Math. Appl. 45 (2003), 555-562.

[21] [21] P. Majumdar and S.K. Samanta, On soft mappings, Comput. Math. Appl. 60 (9) (2010) 2666-2672.

[22] D. Molodtsov, Soft set theory-first results, Comput. Math. Appl. 37 (1999) 19-31.

[23] D. Molodtsov, The description of a dependence with the help of soft sets, Journal of Computer and Sys. Sci. 40 (2001) 977-984.

[24] M.M. Mushrif, S. Sengupta, A.K. Ray, Texture classification using a novel, soft-set theory based classification, algorithm, Lecture Notes in Computer Science, 3851 (2006) 246-254.

[25] D. Pei, D. Miao, From soft sets to information systems, Proceedings of Granular Comp., 2 (2005) 67-621.

[26] R. Rivest, L. Adleman and M. Dertouzos, On data banks and privacy homomorphisms, In Foundations of Secure Compu., 21 (1978) 169-180.A

[27] A.R. Roy, P.K. Maji, A fuzzy soft set theoretic approach to decision making problem, Journal of Comput. and App. Math. 203 (2007) 412-418

[28] A.S. Sezgin, A.O. Atagün, E. Aygün, A note on soft near-rings and idealistic soft near-rings, Filomat, 25 (1) (2011) 53-68.

Finite Element Solution for a Stefan Problem Describing the Melting Process

Hatice Karabenli
Inonu University, Malatya

E.Nesligül Aksan
Inonu University, Malatya

Alaattin Esen
Inonu University, Malatya

ABSTRACT

An initial version of a Stefan problem is the melting of a semi-infinite sheet of ice. This problem is described by a parabolic partial differential equation along with two boundary conditions on the moving boundary which are used to determine the boundary itself and complete the solution of the differential equation. In this paper firstly, we use variable space grid method, boundary immobilisation method and isotherm migration method to get rid of the trouble of the Stefan problem. Then, collocation finite element method based on cubic B-spline bases functions is applied to the Stefan problem. The numerical schemes of finite element methods are provide a good numerical approximation for the Stefan problem. The numerical results show that the present results are in very good agreement with the exact solutions.

Keywords: Variable Space Grid Method, Boundary Immobilisation Method, Isotherm Migration Method, Finite Element Method, Cubic B-splines

REFERENCES

[1] J. Stefan, Uber die theorie der eisbildung inbesondee uber die eisbindung im polarmeere, Ann. Phys. U. Chem., 42, (1891), 269-286.

[2] J. Crank, Free and Moving Boundary Problems, Clarendon Press, Oxford, 1984.

[3] W.D. Murray, and F. Landis, Numerical and Machine Solutions of Transient Heat Conduction Involving Melting or Freezing, J. Heat Transfer, 81, 106-112, (1959).

[4] S. Kutluay, A.R. Bahadir, A. Ozdes, The numerical solution of one-phase classical Stefan problem, J. Comp. Appl. Math., 81, (1997), 35-44.

[5] N. S. Asaithambi, A Variable Time-Step Galerkin Method for the One- Dimensional Stefan Problem, Applied Mathematics and Computation, 81 (1997) p. 189--200.

[6] T.R.Goodman, The Heat-Balance Integral and its Application to Problems Involving a Change of Phase, Trans. ASME, 80, (1959), 335-342.

[7] R.C. Dix and J. Cizek, The isotherm migration method for transient heat conduction analysis, in: U. Grigull and E. Hahne, Eds., Heat Transfer 1, Proc. 4th Znternat. Heat Transfer Conf, Paris (Elsevier, Amsterdam, 1970) Cul.1.

[8] A.S. Wood, A note on the use of the isotherm migration method, J. Comput. Appl. Math., 36, (1991), 371-384.

[9] A. Esen and S.Kutluay, An isotherm migration formulation for one-phase Stefan problem with a time dependent Neumann condition, Applied Mathematics and Computation, 150, 59-67, 2004.

[10] A. Esen, S. Kutluay, A numerical solution of the Stefan problem with a Neumann-type boundary condition by enthalpy method, Applied Mathematics and Computation, 148, (2004), 321-329.

[11] J. Caldwell, S. Savovic´, Y.Y. Kwan, Nodal Integral and Finite Difference Solution of One-Dimensional Stefan Problem, J. Heat Mass Trans., 125, (2003), 523-527.

[12] A.H.A. Ali, G.A. Gardner, L.R.T. Gardner, A collocation solution for Burgers equation using cubic B-spline finite elements, Comput. Meth. Appl. Mech. Eng., 100, (1992), 325-337.

[13] R.M. Furzeland, A comparative study of numerical methods for moving boundary problems, J. Inst. Maths. Appl. 26(1980) 411-429.

Conventional and Adaptive Pushover Analysis Comparison for Seismic Response Assessment in 10 story Moment Resisting Steel structure

Mehrzad Mohabbi Yadollahi
Department of Civil Engineering, Bingol University, Bingol, Turkey

Ahmet Benli
Department of Civil Engineering, Bingol University, Bingol, Turkey

Fethi Işsever
Department of Civil Engineering, Bingol University, Bingol, Turkey

ABSTRACT

Conventional pushover analyses have weakness at considering higher modes effect in inelastic phase, so, some advanced multi modal and also adaptive pushover procedures have been developed recently. Generally guidelines and regulations of seismic designing and pushover analysis have been clarified in ATC-40 and FEMA-356. In this research for assessment of adaptive and general pushover; a Moment Resisting Steel structure with 10 story has been selected. Both of the force-based adaptive pushover and displacement-based adaptive pushover with two uniform and triangular load patterns have been used in this study. The results indicate that adaptive pushover analyses are more accurate than conventional pushover method.

Keywords: Adaptive pushover, conventional pushover, steel structure

Exergy analysis on the Basis of Country: Turkey

Mehmet Yılmaz
İnönü Üniversitesi, Mühendislik-Mimarlık Fakültesi, Makine Mühendisliği Bölümü

Celebi Karapınar
K.Maraş Sütçü İmam Üniversitesi, Teknik Bilimler Meslek Yüksekokulu

Annual energy need for energy in the World is increasing each day at a great pace. This rapidly invreasing demand for energy is supplied by fossil based fuels. Although these fossil based fuels are limited and they run out rapidly, there is not an energy source which can substitute them. This situation makes it compulsory for us to use present energy sources more efficiently. One of the things which must be priorly done is to determine how efficiently these systems work by doing their analyses of exergy and energy. In this article, the studies which have been carried out in Turkey so far have been analysed and various statistics have been produced.

Ülke Bazında Ekserji Analizi: Türkiye Örneği

Dünyanın yıllık enerji talebi her geçen gün daha da artmaktadır. Hızla artan enerji talebi çok büyük oranda fosil kaynaklı yakıtlardan karşılanmaktadır. Fosil kaynaklı yakıtların sınırlı miktarda olması ve hızla tükeniyor olmasına karşılık, kısa süre içinde fosil kaynaklı yakıtların yerine koyulabilecek yeni bir enerji kaynağı bulunmamaktadır. Bu durum mevcut enerji kaynaklarını daha etkin kullanmamızı zorunlu hale getirmektedir. Enerjiyi daha etkin kullanmak için ilk yapılması gereken işlerden birisi, sistemlerin enerji ve ekserji analizini yaparak, ne kadar verimli çalıştığını tespit etmektir. Bu makalede Türkiye'de bugüne kadar yapılmış olan ekserji analiziyle ilgili çalışmalar araştırılıp, çeşitli istatistikler çıkarılmıştır.

Soft Lattice On Cyclic Groups

Hacı Aktaş
Erciyes University Faculty of Science Department of Mathematic, Kayseri

Abstract

In this paper, we define two binary relation on a soft group defined on cyclis group. We show that this algebraic structure created with two binary relations is a lattice algebra. Using a β relation defined on lattice algebra we investigate some algebraic properties of lattice algebra.

Keywords: soft group, lattice algebra, soft lattice, relation.

Salicylic Acid Effect on Cadmium-Induced Accumulation of Mineral Content in Leaves of Pistachio Species: Analysis Coupled with Chemo-Metrics

Hakan Çetinkaya
Department of Horticulture, Faculty of Agriculture, Kilis 7 Aralık University, Kilis

Muhittin Kulak
Department of Biology, Faculty of Arts and Sciences, Kilis 7 Aralık University, Kilis

Abstract

Cadmium (Cd) is highly toxic and causes detrimental effects on plants through interference with many cellular mechanisms and inhibition of essential cellular functions but the adverse effects of Cd can be alleviated by exogenous applications. Hence, in the current study, the possible alleviative roles of salicylic acid (SA) on accumulation of Cd were investigated in leaves of pistachio species. For the present study, two–year old pistachio species (*Pistacia vera, Pistacia khinjuk, Pistacia terebinthus*) were exposed to the combination Cd (50 and 100 μM) from root and SA (0.5 mM) with foliar applications. Mineral accumulation variations in leaves were tested by analysis of variance (ANOVA) followed by the multiple comparison test of Duncan using SPSS and chemo-metric analysis. Application of chemo-metric approach in characterization of experimental samples has been extensively applied to quantitative evaluation of discrimination of variable results. Due to the existence of different experimental factors, chemo-metric techniques including Principal Component Analysis (PCA) were applied for analytical evaluation of mineral accumulation between cultivars under different applications. Accordingly, both SA treatment and Cd had significant effects on accumulation of minerals but SA acid was found to have a little alleviative effects on accumulation Cd. P (2.151 fold-change; P<0,001) and Cu (4.702 fold-change; P<0,001) were significant and highly variable over-accumulated elements. According to the PCA, the multivariate data processing for elements allowing for a large group of diverse data samples was explained in 46.43% and 26.945% as the first and second principal components ($PC_1$and PC_2). Two components were extracted describing approximately 73.38% of the common variance. Differences concerned with mineral accumulation and responses against foliar SA among cultivars were revealed and discriminated via chemometric techniques. Also, possible active roles of P and Cu against Cd and SA applications were also determined for pistachio species.

Keywords: Cadmium, salicylic acid, *Pistacia vera, Pistacia khinjuk, Pistacia terebinthus*, chemometrics

Determination of Yield Components and Oil Composition of Linseed (*Linum usitatissimum* L.*)* Grown in Karaisalı/Adana Ecological Conditions

Sebile Azırak
Adıyaman Üniversitesi, Sağlık Hizmetleri Meslek Yüksekokulu, Adıyaman

Leyla Sezen Tansı
Çukurova Üniversitesi, Ziraat Fakültesi, Tarla Bitkileri Bölümü, Adana

Emel Dıraz
Kahramanmaraş Sütçü İmam Üniversitesi, Fen Edebiyat Fakültesi, Biyoloji Bölümü, Kahramanmaraş

Şengül Karaman
Kahramanmaraş Sütçü İmam Üniversitesi, Fen Edebiyat Fakültesi, Biyoloji Bölümü, Kahramanmaraş

ABSTRACT

This research was conducted at Çukurova University, Karaisalı Vocational School research area between the years 2010-2013. Linseed plants were grown in the collection garden and examined in terms of quality and efficiency. Seed oils obtained by soxhalet method and analysed by GC-MS at Kahramanmaraş Sütçü İmam University, Science and Letter Faculity, Biology Department. As results of the study, the most e most abundant fatty acids have been identified as oleic acid (21.49%) linoleic acid (14.25%) and α-linolenic acid (50.56%)

Keywords: Linum usitatissimum, fatty acid, GC-MS, alfa-linolenic acid

Karaisalı/Adana Ekolojik Koşullarında Yetiştirilen Keten Tohumu (*Linum usitatissimum* L.) Verim Özelliklerinin İncelenmesi ve Yağ Bileşenlerinin Tespiti

ÖZET

Bu çalışma 2010-2013 yılları arasında Çukurova Üniversitesi Karaisalı Meslek Yüksek Okulu deneme alanında yürütülmüştür. Koleksiyon bahçesinde büyütülen keten tohumu bitkisi kalite ve verim yönünden incelenmiş, tohumlarından soksalet yöntemi ile elde edilen yağlar Kahramanmaraş Sütçü İmam Üniversitesi, Fen Edebiyat Fakültesi, Biyoloji Bölümü Bitki Fizyolojisi Laboratuvarı'nda GC-MS ile analiz edilmiştir. Çalışma sonucunda en fazla bulunan yağ asitleri oleik asit (%21.49), linoleik asit (%14.25) ve α-linolenic acid (%50.56) olarak tespit edilmiştir.

Anahtar Kelimeler: Linum usitatissimum, yağ asidi, GC-MS, alfa-linolenik asit

Effect of Reinforcement Amount on Aluminium Matrix Composite Powders Properties

Cihad Nazik
Department of Metallurgical and Materials Engineering, Selçuk University

Necmettin Tarakcioglu
Department of Metallurgical and Materials Engineering, Selçuk University

Serdar Ozkaya
Department of Metallurgical and Materials Engineering, Karadeniz Technical University

Aykut Canakci
Department of Metallurgical and Materials Engineering, Karadeniz Technical University

ABSTRACT

Composite materials especially aluminium matrix are widely used in structural and functional applications including aerospace, defence, automotive industries. In this study; Aluminium composite powders reinforced boron carbide paticules were milled by mechanical alloying method. The microstructural evolution of the milled powders was characterized scanning electron microscopy (SEM) and hardness measurements was performed by vickers method. Hardness of powders increased with increasing both milling time and boron carbide content.

Keywords: Aluminium, B_4C, Mechanical Alloying, Microstructure

Özet

Kompozit Malzemeler özellikle alüminyum matrisli olanları yaygın olarak yapısal ve fonksiyonel uygulamalarda geniş miktarda kullanım imkânına sahiptir. Bu çalışmada; bor karbür takviyeli alüminyum matrisli kompozitler mekanik alaşımlama yöntemi ile öğütülmüştür. Mikroyapı karakterizasyonu SEM ile yapılmış ve sertlik ölçümleri vikers yöntemi ile gerçekleştirilmiştir. Tozların sertliği artan öğütme zamanı ve bor karbür içeriği ile artmıştır.

Anahtar Kelimeler: Alüminyum, B_4C, Mekanik Alaşımlama, Mikroyapı

The Investigation of the Carbon Nanotubes Reinforced High Density Polyethylene Nanocomposite Materials at Low Temperature Tensile Strength

Murat Mirik
Cumhuriyet Üniversitesi,
Sivas MYO Motorlu Araçlar ve Ulaştırma Teknolojileri Bölümü, Sivas

Mustafa Taşyürek
Selçuk Üniversitesi,
Teknoloji Fakültesi Metalürji ve Malzeme Mühendisliği Bölümü, Konya

Necmettin Tarakçıoğlu
Selçuk Üniversitesi,
Teknoloji Fakültesi Metalürji ve Malzeme Mühendisliği Bölümü, Konya

ABSTRACT

All polymers show a high rigidity (high elastic modulus and shear modulus) at low temperatures. Polymer shows elastic properties by softening at a temperature called the glass transition temperature T_g but at a low enough temperature it becomes hard and brittle, such as glass. Thermoplastics are in a solid condition at lower temperatures and they soften when they are heated.

In this study as the matrix material High Density Polyethylene (HDPE) and as the reinforcement material Multi Wall Carbon Nanotubes (MWNT's) were used. Samples that were used in the experiments for MWNT's 0%, 1%, 3% and 5% weight ratio are mixed with HDPE, nanocomposite material in granules extruder machine is produced. These granules are produced to be used in test specimens according to ASTM D638 test standard in plastic injection machines. Specimens for tensile tests respectively; +20°C, -10°C, -20°C and -30°C temperatures by being exposed to experiments at the tensile strength were found.

Keywords: MWNT's, HDPE, Nanocomposite, Tensile, Low temperature

Karbon Nanotüp Takviyeli Yüksek Yoğunluklu Polietilen Nanokompozit Malzemelerin Düşük Sıcaklıklardaki Çekme Dayanımlarının Araştırılması

ÖZET

Bütün polimerler düşük sıcaklıklarda yüksek bir rijitlik (elastik modülü ve kayma modülü yüksektir) gösterirler. Polimer ısıtıldığında camsı geçiş sıcaklığı T_g denilen bir sıcaklıkta yumuşayarak elastik özellik gösterirler fakat yeterince düşük sıcaklıklarda ise cam gibi sert ve kırılgan olurlar. Termoplastikler düşük sıcaklıklarda sert halde bulunurlar ve ısıtıldıklarında yumuşarlar.

Bu çalışmada matriks malzeme olarak Yüksek Yoğunluklu Polietilen (YYPE) ve takviye malzemesi olarak ta Çok Duvarlı Karbon Nanotüpler (ÇDNT) kullanılmıştır. Deneylerde kullanılmış olan numuneler, ÇDNT için %0, %1, %3 ve %5 ağırlık oranlarında YYPE ile karıştırılıp, ekstrüzyon makinesinde granül halinde nanokompozit malzeme üretilmiştir. Bu granüller plastik enjeksiyon makinesinde ASTM D638 standardına uygun olarak deneylerde kullanılacak olan deney numuneleri üretilmiştir. Çekme deneyleri için numuneler sırasıyla; +20°C, -10°C, -20°C ve -30°C sıcaklıklarda deneylere tabi tutularak çekme dayanımları bulunmuştur.

Anahtar Kelimeler: ÇDNT, YYPE, Nanokompozit, Çekme, Düşük Sıcaklık

Nanoindentation Study of $(Ni_{80}Fe_{20})_xCr_{1-x}$ Magnetic Thin Films

Osman Şahin
Mustafa Kemal University Department of Physics,
Micro/Nanomechanic Characterization Lab., Hatay, Turkey.

Şükrü Çakmaktepe
Kilis 7 Aralık University, Education Faculty, Department of Science Education, Kilis, Turkey

Selma Özarslan,
Mustafa Kemal University Department of Physics, Micro/Nanomechanic Characterization Lab.

Sinan Diken
Kilis 7 Aralık University, Department of Physics, Kilis, Turkey

ABSTRACT

Soft magnetic thin films play a key role in magnetic recording industry. Permalloy (Ni80Fe20) films are the most common soft magnetic materials. In this research, the nanoindentation study of (Ni80Fe20)xCr1-x (x=0.2, 0.4, 0.6, 0.8) thin films is reported. The thin films are deposited onto Si (100) substrates by direct current (DC) magnetron sputtering technique at room temperature. Structural and mechanical properties of the thin films were investigated using Scanning Electron Microscopy (SEM), X-ray diffraction (XRD) and Nanoindentation techniques (Hysitron Triboindenter TI-950). X-ray diffraction (XRD) results confirm that (Ni80Fe20)xCr1-x thin films have face-centered cubic (fcc) structure and dominant (111)-oriented texturing. Crystallite size is also found to be dependent on Cr amount. Nanoindentation tests were performed under displacement control mode between 5-20 nm at room temperature. For each indentation, a set of nanoindentation tests on at least 2 different locations on the surface were performed to obtain more representative average results. The Nanoindentation curve of the thin film demonstrates a smooth shape and no pop-in could be detected. (Ni80Fe20)xCr1-x thin film has identical elastic and plastic deformation mechanisms throughout the entire load range. As a result, nanohardness and reduced elastic modulus of the film were 1,60 GPa and 13,0 GPa, respectively. It is obvious that Cr content affects the structural and mechanic properties of (Ni80Fe20)xCr1-x films.

Keywords: Nanoindentation, NiFeCr Thin Film

ACKNOWLEDGEMENTS

This work was supported by the the Turkish State Planning Organization (DPT) with Project no. 2010K121220.

A Brief Introduce to Open Source Softwares in Mathematics Education

Pelin Tekin
Aksaray University, Art and Science Faculty, Department of Mathematics, Aksaray

Fatma Güzel
Aksaray University, Art and Science Faculty, Department of Mathematics, Aksaray

Erdal Özüsağlam
Aksaray University, Art and Science Faculty, Department of Mathematics, Aksaray

ABSTRACT

Using Computers can be more effectful in learning and teaching mathematics education. There are many Open Source Softwares which make algebraic calculations in Mathematics Education.

All OSS (Open Source Softwares), Maxima, Octave, XCAS, Edubuntu, Sage, Geogebra, have features which to manipulate, compute symbolic expressing, solve derivation, integrals, LDE.

Keywords: OSS, Maxima, CAS, Sage, Octave.

REFERENCES

[1] Baki, A. 2002, Bilgisayar Destekli Matematik İstanbul: Bitav Yayınları.

[2] Özüsağlam, E., 2001, Mathematica Destekli On-line Matematik Dersi Sunumu Üzerine Bir Çalışma, BTIE ODTU, Ankara.

[3] Özüsağlam, 2004, E. Teknoloji Destekli Matematik Öğretiminin Öğretimi, Matematik Etkinlikleri 2004, Ankara.

[4] Özüsağlam E., Atalay A., Poşpoş P., 2010, Matematik Eğitiminde Açık Kaynak Kodlu Yazılım:Octave" IX.Matematik Sempozyomu, KTU, Trabzon.

[5] E.Özüsağlam, Ali Atalay, 2008, Eğitimde Açık Kaynak Kodlu Yazılımlar: Edubuntu**,** 7.Matematik Sempozyumu, İzmir Ekonomi Üniversitesi, İzmir.

On The Involute of the Null Curve with a Timelike Ruling in Minkowski 3-Space

Erdal Özüsağlam
Aksaray University, Art and Science Faculty, Department of Mathematics, Aksaray

Efruz Özlem Mersin
Aksaray University, Art and Science Faculty, Department of Mathematics, Aksaray

ABSTRACT

In the study, we have generalized the involute curves of the null curve α with timelike ruling in Minkowski 3-space. Firstly, we have shown that, the lenght between the null curve α and the timelike curve β is constant. Also, The Frenet frame of the involute curve β has been found as depend on curvature of the curve α.

Keywords: Timelike Ruling, Involute curve, Minkowski 3-space, null curve.

REFERENCES

[1] B.O'Neill, 1983, Semi-Riemannian Geometry, Academic Press, New York-London.

[2] Abdel-All N.H., Abdel-Baky R.A, Hamdoon F.M., 2004, Ruled surfaces with timelike rulings, Applied Mathematics and Computation, Volume 147, Number 1, pp. 241-253 (13)

[3] Graves., L., Codimension one isometric immersions between Lorentz spaces. Trans. A.M.S., 252 (1979), 367-392.

[4] Özüsağlam, E., Ekici, C., Görgülü, A. 2007, Second Gaussian Curvature of B-Scroll Surfaces in Minkowski 3-Space, SDU Fen Dergisi, Vol: 2, 210-215

[5] Hacısalihoğlu, H.H., 2000, Diferensiyel Geometri, IV. Baskı, Ankara.

[6] Arif Sabuncuoğlu, 2004, Diferensiyel Geometri, Nobel Yayın Dağıtım.

[7] Bükçü, B., Karacan, M., K., 2007, On the Involute and Evolute Curves of the Spacelike Curve with a Spacelike Binormal in Minkowsi 3-space, Int. J. Contemp. Math. Sciences, Vol. 2, no. 5, 221 – 232.

Javascript Applications in Teaching Linear Algebra

Erdal Özüsağlam
Aksaray University, Art and Science Faculty, Department of Mathematics, Aksaray

Asiye Altinsoy
Aksaray University, Art and Science Faculty, Department of Mathematics, Aksaray

ABSTRACT

Research showed that effectiveness and benefits of using computer in mathematics education has been going on for more than in recent years. All computer applications reinforce to learning mathematics.

The main purpose of this study is to show applications of linear algebra with computer programming which is easy to use javascript applications. Moreover, in this study to show more effective learning in linear algebra course, by using the Javascript Programming Language.

Keywords: Javascript, teaching linear algebra, computer based education.

REFERENCES

[1] Baki, A. 2002, Bilgisayar Destekli Matematik İstanbul: Bitav Yayınları.

[2] Özüsağlam, E., 2001, Mathematica Destekli On-line Matematik Dersi Sunumu Üzerine Bir Çalışma, BTIE ODTU, Ankara.

[3] Özüsağlam, 2004, E. Teknoloji Destekli Matematik Öğretiminin Öğretimi, Matematik Etkinlikleri 2004, Ankara.

[4] Özüsağlam E., Atalay A., Poşpoş P., 2010, Matematik Eğitiminde Açık Kaynak Kodlu Yazılım:Octave" IX.Matematik Sempozyomu, KTU, Trabzon.

[5] E.Özüsağlam, Ali Atalay, 2008, Eğitimde Açık Kaynak Kodlu Yazılımlar: Edubuntu**,** 7.Matematik Sempozyumu, İzmir Ekonomi Üniversitesi, İzmir.

[6] https://tr.khanacademy.org/math/precalculus/precalc-matrices, Erişim: 29.01.2016.

Coverings of Crossed Modules in the Category of Commutative Algebras

Tunçar Şahan
Aksaray Üniversitesi, Matematik Bölümü, Aksaray

Ali Aytekin
Aksaray Üniversitesi, Matematik Bölümü, Aksaray

ABSTRACT

In this study, the notion of coverings of crossed modules in the category of commutative algebras is defined and for a fixed crossed module the category of coverings of that crossed module is constructed. Further the relations between this category and some other categories are investigated. Moreover, after giving some properties of covering structure the notion of universal covering is defined and the existence of universal covering is studied.

Keywords: Covering, commutative algebra, crossed module

Değişmeli Cebirler Kategorisinde Çaprazlanmış Modüllerin Örtüleri

ÖZET

Bu çalışmada değişmeli cebirler kategorisindeki çaprazlanmış modüller için örtü kavramı tanımlanıp sabit bir çaprazlanmış modül için bu çaprazlanmış modülün örtülerinin kategorisi elde edilmiştir. Bu kategorilerle diğer bazı kategoriler arasındaki ilişkiler incelenmiştir. Ayrıca örtü yapısının bazı özellikleri verildikten sonra evrensel örtü yapısı tanımlanıp varlığı incelenmiştir.

Anahtar Kelimeler: Örtü, değişmeli cebir, çaprazlanmış modül

REFERANSLAR

[1] Brown, R., Higgins, P. J. and Sivera, R., Nonabelian Algebraic Topology: filtered sapaces, crossed complexes, cubical homotopy groupoids, European Mathematical Society Tracts in Mathematics 15, 2011.

[2] Arvasi, Z., Crossed Squares and 2-Crossed Modules of Commutative Algebras. Theory and Applications of Categories, 3, 160-181, 1998.

[3] Ellis, G. J., Crossed Modules and Their Higher Dimensional Analogues. Ph.D. Thesis, U.C.N.W. 1984.

[4] Porter, T., Some Categorical Results in the Theory of Crossed Modules in Commutative Algebras. J. Algebra 109, 1987.

[5] Sharp, R.Y., Steps in Commutative Algebra. London Mathematical Society Student Texts, 19, 321 pages.

[6] Shammu, N.M., Algebraic and Categorical Structure of Category of Crossed Modules of Algebras. Ph.D. Thesis, U.C.N.W. (1992)

[7] Kuzpınarı, T.S., Değişmeli Cebirler için 3-Tipten Cebirsel Modeller, Ph.D. Thesis, Eskişehir Osmangazi University, 2005.

Liftings of Crossed Modules in the Category of Commutative Algebras

Ali Aytekin
Aksaray Üniversitesi, Matematik Bölümü, Aksaray

Tunçar Şahan
Aksaray Üniversitesi, Matematik Bölümü, Aksaray

ABSTRACT

In this study, lifting of crossed modules in the category of commutative algebras over an algebra homomorphism is defined. Some properties of this lifting are investigated and for a fixed crossed module the category of lifting crossed modules is constructed. Finally the notion of universal lifting of a crossed module is defined and existence of universal lifting under some conditions and some properties of universal liftings are given.

Keywords: Lifting, commutative algebra, crossed module

Değişmeli Cebirler Kategorisinde Çaprazlanmış Modüllerin Yükselmeleri

ÖZET

Bu çalışmada değişmeli cebirler kategorisindeki çaprazlanmış modüllerin bir cebir homomorfizmi üzerinden yükselmesi tanımlanmıştır. Bu yükselmenin bazı özellikleri incelenmiş ve sabit bir çaprazlanmış modül için yükselmelerin kategorisi oluşturulmuştur. Son olarak bir çaprazlanmış modülün evrensel yükselmesi tanımlanıp evrensel yükselmenin bazı şartlar altında varlığı ve evrensel yükselmeler ile ilgili bazı özellikler verilmiştir.

Anahtar Kelimeler: Yükselme, değişmeli cebir, çaprazlanmış modül

REFERANSLAR

[1] Brown, R., Higgins, P. J. and Sivera, R., Nonabelian Algebraic Topology: filtered sapaces, crossed complexes, cubical homotopy groupoids, European Mathematical Society Tracts in Mathematics 15, 2011.

[2] Arvasi, Z., Crossed Squares and 2-Crossed Modules of Commutative Algebras. Theory and Applications of Categories, 3, 160-181, 1998.

[3] Ellis, G. J., Crossed Modules and Their Higher Dimensional Analogues. Ph.D. Thesis, U.C.N.W. 1984.

[4] Porter, T., Some Categorical Results in the Theory of Crossed Modules in Commutative Algebras. J. Algebra 109, 1987.

[5] Sharp, R.Y., Steps in Commutative Algebra. London Mathematical Society Student Texts, 19, 321 pages.

[6] Shammu, N.M., Algebraic and Categorical Structure of Category of Crossed Modules of Algebras. Ph.D. Thesis, U.C.N.W. (1992)

[7] Kuzpınarı, T.S., Değişmeli Cebirler için 3-Tipten Cebirsel Modeller, Ph.D. Thesis, Eskişehir Osmangazi University, 2005.

Magnetic and Structural Properties of Sputtered $(Ni_{80}Fe_{20})_xCu_{1-x}$ Thin Films

Sinan Diken
Kilis 7 Aralık University, Department of Physics, Kilis

Nuri Polat
Kilis 7 Aralık University, Department of Physics, Kilis

Sukru Cakmaktepe
Kilis 7 Aralık University, Department of Educational Sciences, Kilis

ABSTRACT

Nanostructured materials with ferromagnetic nature have been attracting much attention due to their applications in the field of sensor and data storage technology [2-3]. In this work, a systematic investigation through structural and magnetic characterization of $(Ni_{80}Fe_{20})_xCu_{1-x}$ (x=0.2, 0.4, 0.6, 0.8) thin films is discussed with regards to the influence of copper (Cu) content. Deposition of the thin films is carried out by DC magnetron sputtering at room temperature onto Si (100) substrates. Structural and magnetic properties of the thin films were investigated using X-ray diffraction (XRD), vibrating sample magnetometer (VSM) and atomic force microscope (AFM) techniques. X-ray diffraction measurements indicated that all samples have face-centred cubic structure and dominant (111)-oriented texturing. In addition; crystallite sizes, lattice spacing and lattice parameters were calculated using the Scherrer equation and Bragg diffraction equation [1]. AFM micrographs correspond to surface morphologies with a scan area of 5x5 μm^2. It is seen that all of the films have randomly distributed nanoscale needle-like asperities. Finally, magnetic characteristic of the materials are determined with the hysteresis curves on vibrating sample magnetometer (VSM) graphs. Our results suggest that Cu content plays a significant role on tuning structural and magnetic properties of $(Ni_{80}Fe_{20})_xCu_{1-x}$ (x=0.2, 0.4, 0.6, 0.8) thin films.

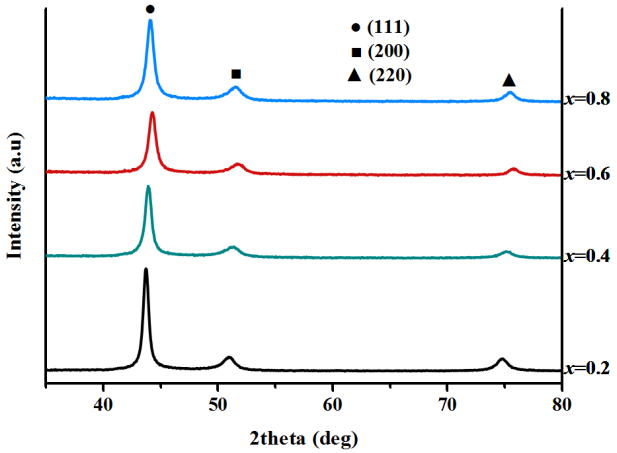

Fig.1 XRD patterns of $(Ni_{80}Fe_{20})_xCu_{1-x}$ (x=0.2, 0.4, 0.6, 0.8) thin films

Keywords: DC Magnetron Sputtering, NiFeCu, Thin Films, Alloys

REFERENCES

[1] Cullity B.D. and Stock S.R. Elements of X-Ray Diffraction 3rd ed. Prentice Hall (2001).

[2] Kuru H., Kockar H. and Alper M. (2015). Electrodeposited NiFeCu/Cu multilayers: Effect of Fe ion concentration on properties. Journal of Magnetism and Magnetic Materials, 373, 135-139.

[3] Esmaili S., Bahrololoom M. E. and Péter L. (2012). Magnetoresistance of electrodeposited NiFeCu alloys. Thin Solid Films, 520(6), 2190-2194.

Electron Tunnelling: A Novel Approach to Old Paradigm

S. Basak Yanardag
Selcuk University, Medical Faculty, Departments of Biophysics

Murat Ayaz
Selcuk University, Medical Faculty, Departments of Biophysics

ABSTRACT

Quantum mechanics -by using the of the system what we know about it now- provides us information about the future of the system. Quantum physics and biology have been regarded as unrelated disciplines, describing nature at the inanimate micro level on the one hand and living species on the other hand. However, currently it is known that quantum mechanics is necessary in the description and understanding of natural phenomena. It leads naturally to the question: Can quantum mechanics play a role in biology? In many ways it is clear that it already does. However, in many ways quantum mechanics is still a concept alien to biology, especially on a scale that can have a physiological impact.

The experiments utilize a metal-oxide-metal junction, which is understood by the physical point of view. The concept of the flow of electrons through sufficiently thin insulating film arises from the theory of quantum mechanics. When a classic particle on a barrier of height V, it has 100% probability of transmission if its energy E>V, and will be reflected with 100% probability if its energy E<V. Conversely, in quantum mechanics; if the barrier is thin enough, an electron has a finite probability of tunnelling through the insulator -classically forbidden region- without any real tunnel even when E<V.

We propose that the electron tunnelling occurs in the nerve membrane because the membrane – insulator- is approximately 60 to 100 angstrom thick, which is in the favourable range and intra; extra cellular matrices are the electron providers. It is also shown that I-V characteristics of the nerve membrane have same shape as the I-V plot of the tunnel diode. Even the gating characteristics of the voltage gated ion channels; synaptic transmission and the nerve-firing rates can be affected by electron tunnelling.

Key words: Electron tunnelling, metal-oxide-metal junctions, nerve conduction, quantum mechanics

Assessment of Heavy Metal Contamination in Sediments of the Keban Dam Lake (Turkey)

Memet Varol
İnönü University, Faculty of Fisheries, Malatya, Turkey

Muhammet Raşit Sünbül
Fisheries Research Institute, Elazığ, Turkey

ABSTRACT

In this study, pollution indices, sediment quality guidelines and factor analysis were employed for evaluation of sediment pollution in the Keban Dam Lake, Turkey. Total heavy metal concentrations in the sediment samples from the dam lake followed the order: Fe > Mn > Cr > Ni > Zn > Cu > Co > As > Pb > Cd. The values of potential ecological risk factor (Ef) for all metals studied were < 40 in sediments of all sites, which denotes low potential ecological risk. The potential ecological risk index (RI) values were <150 in the sediments of the dam lake, suggesting low grade ecological risk level. Heavy metal concentrations in assessed sediment samples were compared with sediment quality guidelines. The results have indicated that the concentrations of Cr and Ni are likely to result in harmful effects on sediment-dwelling organisms. Factor analysis suggest that Cr and Ni are derived from the anthropogenic sources.

Keywords: Keban Dam Lake, heavy metals, sediment, potential ecological risk.

Keban Baraj Gölü (Türkiye) Sedimentlerinde Ağır Metal Kirliliğinin Değerlendirilmesi

Memet VAROL
İnönü Üniversitesi, Su Ürünleri Fakültesi, Malatya, Turkey

Muhammet Raşit SÜNBÜL
Su Ürünleri Araştırma Enstitüsü, Elazığ, Turkey

ÖZET

Bu çalışmada, Keban Baraj Gölü'nde sediment kirliliğinin değerlendirilmesi için kirlilik indeksleri, sediment kalite rehberleri ve faktör analizi kullanılmıştır. Keban Baraj Gölü'nden alınan sediment örneklerinin toplam ağır metal düzeyleri büyükten küçüğe şu şekilde sıralanmıştır: Fe > Mn > Cr > Ni > Zn > Cu > Co > As > Pb > Cd. Bu çalışmada çalışılan metallere ait potansiyel ekolojik risk faktörü (Ef) değerleri, tüm istasyonlarda 40'dan küçük bulunmuştur. Bu durum, düşük potansiyel ekolojik riski göstermektedir. Potansiyel ekolojik risk indeksi (RI) değerlerinin ise tüm istasyonlarda 150'den küçük olması, düşük dereceli ekolojik risk indeks seviyesini göstermektedir. Keban Baraj Gölü'nde kaydedilen metal konsantrasyonları sediment kalite kriterleri ile karşılaştırılmıştır. Sonuçlar, Cr ve Ni konsantrasyonlarının sedimentte yaşayan organizmalar üzerinde muhtemelen zararlı etkilere yol açtığını göstermektedir. Faktör analizi Cr ve Ni elementlerinin antropojenik kaynaklardan geldiğini önermektedir.

Anahtar Kelimeler: Keban Baraj Gölü, ağır metaller, sediment, potansiyel ekolojik risk

The Effects of Zeolite on Copper Accumulation in Gills Tissue of *Oreochromis niloticus*

Hikmet Yeter Çoğun
Çukurova Üniversitesi Ceyhan Veteriner Fakültesi,
Temel Bilimler Bölümü, Fizyoloji AD 01330 Ceyhan / Adana, Türkiye

Abstract

In this study, *Oreochromis niloticus* gill tissue environment zeolite (ZE) in the presence of copper (Cu) accumulation were determined to spectrophotometric method (ICP-MS). In the study, copper (1.0 mg / L Cu) and copper + zeolite (1.0 mg / L Cu + 1.0 g / L ZE) of copper accumulation levels in suitable concentrations of 5 and 10 days in *O. niloticus* gill tissue were examined. In the study of *O. niloticus* gill tissue accumulation of copper in the environment effect in the presence of zeolite is reduced compared to the control group, depending on the duration increase. This reduction in condition at the end of 5 days only 2-fold increased compared to control fish copper effect, while the zeolite has been a 50% reduction compared to the effect of being alone. Likewise, at the end of 10 days only increased 3-fold compared to control fish copper effect, while the zeolite assets were 80% decrease compared to this increase. Fish gill tissue copper accumulation in the zeolite have been reduced with the environment, this reduction has been in up to 10 days. When compared to the period increased copper levels in *O. niloticus* gill tissue than the control group, a distinction has led to a statistically ($p < 0.05$). As a result, zeolite (ZE) has kept from copper toxicity to fish so reducing the gill tissue accumulation of copper

Keywords: *Oreochromis niloticus*, copper, Zeolite, Accumulation, gill tissue

Zeolit Etkisinde *Oreochremis niloticus*'un Solungaç Dokusundaki Bakır Birikimi

Özet

Bu araştırmada, *Oreochromis niloticus*'un solungaç dokusunda ortamda zeolit (ZE) varlığında bakırın (Cu) birikimi Spektrofotometrik yöntemle (ICP-MS) belirlenmiştir. Araştırmada bakır (1.0 mg/L Cu) ve bakır+zeolitin (1.0 mg/L Cu+1.0 g/L ZE) uygun derişimleri 5 ve 10 günlük sürelerde *O. niloticus* solungaç dokusundaki bakır birikim düzeyleri incelenmiştir. Yapılan çalışmada *O. niloticus* solungaç dokusunda bakır birikimi ortamda zeolitin varlığında etkide kalınan süre artışına bağlı olarak kontrol grubuna göre azalmıştır. Bu azalmalar denenen koşullarda 5. gün süre sonunda sadece bakır etkisinde kontrol balıklarına göre 2 kat artarken, zeolit varlığında ise tek başına etkisine göre %50 azalma olmuştur. Aynı şekilde 10. gün süre sonunda sadece bakır etkisinde kontrol balıklarına göre 3 kat artarken, zeolit varlığında ise bu artışa göre %80 azalma olmuştur. Balıkların solungaç dokusunda bakır birikimi zeolitin ortamda bulunması ile azalmalar olmuş, bu azalma en fazla 10 günde olmuştur. *O. niloticus* solungaç dokusundaki bakır düzeyleri artan sürelere göre karşılaştırıldığında kontrol grubuna göre istatistiksel bir ayrıma neden olmuştur ($p<0.05$). Sonuç olarak zeolit (ZE) bakırın solungaç dokusunda birikimini azaltarak balığın bakır toksisitesinden korumuştur.

Anahtar Kelimeler: *Oreochromis niloticus*, Bakır, Zeolit, Birikim, Solungaç dokusu

A Generalization of n-absorbing Elements in Multiplicative Lattices

Ece Yetkin Çelikel
Gaziantep University

ABSTRACT

A multiplicative lattice is a complete lattice L with the least element 0 and compact greatest element 1, on which there is defined a commutative, associative, completely join distributive product for which 1 is a multiplicative identity. Notice that $L(R)$ the set of all ideals of a commutative ring R is a special example for multiplicative lattices which is principally generated, compactly generated and modular. However there are lots of non-modular multiplicative lattice. The purpose of this study is to introduce a new generalization of n-absorbing elements in multiplicative lattices, to investigate the basic properties of this new type of elements, and to give relations among prime, 2-absorbing, n-absorbing elements.

Keywords: Prime element, 2-absorbing element, n-absorbing element, multiplicative lattice.

Trace Element Analysis of Sea Water in Iskenderun Bay

Sezer Göycincik
Mustafa Kemal University, Faculty of Arts and Science, Chemistry Department, Tayfur Sokmen Campus, Antakya,Hatay

H. Bekir Karayiğit
Mustafa Kemal University, Faculty of Arts and Science, Chemistry Department, Tayfur Sokmen Campus, Antakya,Hatay

ABSTRACT

The Mediterranean is known to be one of the most contaminated wetlands in the world, because of intensive populated coastal areas, unsustainable waste management practices, especially in the developing countries, and heavily performed agricultural and industrial activities in the environment [1].

Heavy metals are produced from a kind of natural and anthropogenic sources. In wetland environments, however, metal pollution can result from direct atmospheric deposition, geologic weathering or owing to the discharge of agricultural, municipal, residential or industrial waste products [2]. The trace elements as arsenic, cadmium, chromium, copper, lead, nickel, silver and zinc have a particular interest because of their toxicity to aquatic organisms [3].

In this study, marine pollution caused by the industrial companies in İskenderun Bay was investigated in terms of trace elements and examined the changes of these elements in certain periods. Four different sampling stations were determined for pollution measurements. Boron, aluminum, chromium, iron, nickel, copper, arsenic and selenium trace elements (B, Al, Cr, Fe, Ni, Cu, As, Se) concentrations were carried out by ICP-MS instrument in sea water samples. Additionally, pH and conductivity values of these samples were measured.

Keywords: İskenderun Bay, trace element, ICP-MS, marine pollution

REFERENCES

[1] Özdilek H.G., Yalçın Özdilek Ş., Ozaner F.S. and Sönmez B. (2006). Impact of Accumulated Beach Litter on Chelonia mydas L. 1758 (Green Turtle) Hatchlings of the Samandağ Coast, Hatay, Turkey. Fresenius Environmental Bulletin, 15(2), 95-103.

[2] Demirak A., Yilmaz F., Tuna A.L. and Ozdemir N. (2006). Heavy Metals in Water, Sediment and Tissues of Leuciscus cephalus from a Stream in Southwestern Turkey. Chemosphere, 63, 1451– 1458.

[3] Cohen T., Que Hee S.S. and Ambrose R.F. (2001). Trace Metals in Fish and İnvertebrates of Three California Coastal Wetlands. Marine Pollution Bulletin, 42(3), 224-232.

Investigation Antibiotic Sensitivities Test, And Presence of Esbl, Identification of *Escherichia Coli* and *Klebsiella Pneumoniae* Isolated from Urinary System Infections

Mustafa Onur Aladag*
SelcukUniversity, Vocational School of Health Services,
Department of Medicinal Laboratory, Konya, Turkey

Mustafa Kul
SelcukUniversity, Vocational School of Health Services,
Department of Medicinal Laboratory, Konya, Turkey

ABSTRACT

Extended- spectrum β- lactamases (ESBL) is the most importantmechanism of resistance to β -lactam antibiotics in Gram -negative bacteria. In this study, It was determined presence of ESBL and antibiotic sensitivities at *Escherichia coli*and*Klebsiellapneumoniae* strains obtained to hospital and community sources in a year. Antibiotic sensitivities and ESBL presence of isolates were detected to disc diffusion method and double disc synergy method. Evaluation of zone diameters was made according to Clinical and Laboratory Standards Institute criteria. Various resistance rates against antibiotics was determined in study results. The most effective antibiotics on *E. coli* isolates are cephalothin (58%), moxalactam (57%) andpiperacillin(48%) and the most effective antibiotics on *K. pneumoniae* isolates are cephalothin (60%), moxalactam (60%), piperacillin(56%), andcefazolin(50%). ESBL was not detected.

E. coli and *K. pneumoniae*, isolated from urinary tract system, resistance rates should be noticed. In clinical, antibiotic resistance rates should be periodically measured, followed and used for empirical treatment choice.

Keywords: *Escherichiacoli*,GSBL,*Klebsiellapneumoniae*.

Effects of Temperature on Antioxidant Activity and Phenolic Profile of *Rheum ribes*

Raciye Meral
Yüzüncü Yıl University, Faculty of Engineering-Architecture,
Department of Food Engineering, Van

ABSTRACT

Rheum ribes L. (RR) is one of the wild rhubarb species belonging to the Polygonaceae family and it is locally known as 'ısgın, ıskın, uçgun or uskun'. RR is used as a laxative because it contains 21-37% crude fibre. The digestive parts of RR are used in the treatment of hemorrhoids and diabetes. The fresh roots of RR are used as a diuretic. RR is an endemic species that have positive effects on health due to its antimicrobial and antioxidant properties and high fibre content. In spite of the functional properties it has, RR can be consumed for only short periods during the it grows and has no other area of usage. The most important factor that limits the usage of this plant is its short vegetation life. Sometimes it can be added to foods in order to create a sour taste. Also, dried RR can be used in food formulations. One of the preservation methods is drying. Drying is a very important aspect of food processing. The main function of drying is to lower the water activity of the product. Generally, these processes may cause negative consequences to the final food product. Studies proved that the antioxidant properties of certain foods may be enhanced, antioxidant properties of certain foods may be reduced by drying process. In this study, effects of different temperatures on antioxidant activity and phenolic profile of RR were investigated. For this, RR samples were dried at three different temperature degrees (50°, 80° and sun-drying methods). The TPC (Total Phenolic Content) value of the samples varied between 86-236 mg GAE /100 g. The TPC of sun dried samples is higher than samples dried at 50°, 80°. The antioxidant activities of the samples were analysed using TEAC and DPPH radical scavenging activity. The highest antioxidant activity was observed at sun dried samples. Rising temparature was negatively affected antioxidant avtivity of samples. Thermal processing increased the content of p-coumaric acid, ferulic acid, rutin and quercetin; whereas it decreased the other analysed compounds such as gallic acid, o-coumaric acid, phloridzin and protocatechuic acid.

Keywords: Rheum ribes, antioxidant activity, phenolics, temperature

Kefir and Kefiran Exopolysaccharide Produced by Kefir Grains

Eda Ondul
Yuzuncu Yil University, Department of Food Engineering, Van

ABSTRACT

Kefir is a fermented beverage with viscous, whitish color, and effervescent. Lactic acid, asetic acid, ethanol, carbon dioxide and other compounds such as acetaldehyde, diacetyl and acetoin occur as a result of fermentation in the kefir product. Kefiran, a glucogalactan that water soluble branched containing equal amounts of D-glucose and D-galactose, is produced by microorganisms present in the kefir grain and also in fermented product such as milk and whey. This exopolysaccharide has several health promoting properties including antimicrobial activity, immunomodulating activity, anti-inflammatory activity and antiproliferative activity. Kefiran can be used as a food additive for its reological properties. It has viscoelastic properties and is able to form gel at low temperature. It can use suitable packaging in food industry because of its potentiality for increasing the shelf life of many food products. In this study, we will focus on chemical and physical characteristics and health benefits of the exopolysaccharide produced by kefir grains during milk fermentation.

Keywords: Kefir, kefiran, kefir grain, exopolysaccharide, glucogalactan

Some effects of pure fipronil given *in ovo* on the chick embryos and chick hatching

Haluk Özparlak
Selçuk University, Faculty of Science, Department of Biology, Konya, Turkey

ABSTRACT

Fipronil is a highly effective, broad-spectrum insecticide that effectively controls a wide range of crop, public hygiene and veterinary pests and its use worlwide is increasing. The aim of this study was to determine the some effects of pure fipronil on the development of chicken embryos and newly hatched chickens. LD_{50} and sublethal doses of pure fipronil (161 µg/egg, 80.50 µg/egg and 40.25 µg/egg) were injected into the air space of fertilized hen's eggs at the beginning and 8^{th} day of the incubation. Aflatoxin B_1 was also used as positive control group. Following parameters of each group were examined on different days of the incubation (7^{th}, 11^{th}, 14^{th} and 18^{th} days) and after hatching: Relative embryo weights, crown-rump lengths (CRL), embryo liver weights, relative embryo liver weights, relative chick hatching weights, 10-days old chick liver weights and relative chick liver weights. Generally, values of the fipronil groups were significantly different than that of the control group ($p<0.05$). Based on the results, it was concluded that both non-metabolized and metabolized fipronil have negative effects on chicken embryos and newly hatched chicken in a way compatible with other studies.

Keywords: Fipronil, chick embryo, liver, weight, CRL

Level Sets of Soft Sets and Level Soft Matrices

Akın Osman Atagün
Department of Mathematics, Bozok University

ABSTRACT

In 1999, Molodtsov [7] proposed a completely new approach called soft set theory for modeling vagueness and uncertainty.

In this study, α-intersection and α- union sets of soft sets are introduced and their properties are investigated. Also, α -upper, α -lower, α -intersection and α -union soft matrices are defined and some relations between these soft matrices and soft sets are presented. Many illustrative examples are given. When the universe set U is taken as a set of all alternatives, soft sets and soft matrices are very useful tools to overcome many problems that contain uncertainty [1]. For a subset α of the universe U, α-level sets of soft sets and α-level soft matrices are useful to solve different kind of problems containing uncertainty.

Keywords: Soft set, Soft matrix, α-level sets, α-level soft matrices.

REFERENCES

[1] Atagün A.O., Decompositions of soft sets and soft matrices. Submitted.

[2] Çağman N. and Enginoğlu S. (2010). Soft matrix theory and its decision making. Computers and Mathematics with Applications, 59, 3308-3314.

[3] Çağman N. and Enginoğlu S. (2010). Soft set theory and uni-int decision making. European Journal of Operational Research, 207, 848-855.

[4] Gong K., Xiao Z. and Zhang X. (2010). The bijective soft set with its operations. Computers and Mathematics with Applications, 60, 2270-2278.

[5] Kamacı H. and Atagün A.O. Some generalizations of soft matrix products and its decision making. Submitted.

[6] Maji P.K. Roy A. R. and Biswas R. (2002). An application of soft sets in a decision making problem. Computers and Mathematics with Applications, 44, 1077-1083.

[7] Molodtsov D.A. (1999). Soft set theory-first results. Computers and Mathematics with Applications, 37, 19-31.

[8] Xiao Z.,Gong, K., Xia S.,Zou Y. (2010). Exclusive disjunctive soft sets. Computers and Mathematics with Applications, 59, 2128-2137.

Experimental and quantum chemical studies of ethyl 3-hydroxy-7-methyl-3-(3-methyl-3-phenylcyclobutyl)-5-phenyl-3,5-dihydro-5H-thiazolo[3,2-α] pyrimidine-6-carboxylate

Fatih Şen
Kilis 7 Aralık University, Vocational High School of Health Services,
Department of Opticianry, 79000-Kilis, Turkey

İbrahim Yilmaz
Karamanoğlu Mehmetbey University, Faculty of Science,
Department of Chemistry, 70100 Karaman, Turkey

Muharrem Dinçer
Ondokuz Mayıs University, Arts and Sciences Faculty,
Department of Physics, 55139-Samsun, Turkey

Alaaddin Cukurovali
Firat University, Sciences Faculty,
Department of Chemistry, 23119-Elazig, Turkey

ABSTRACT

The title compound, ethyl 3-hydroxy-7-methyl-3-(3-methyl-3-phenylcyclobutyl)-5-phenyl-3,5-dihydro-5H-thiazolo[3,2-α]pyrimidine-6-carboxylate, was synthesized and characterized by experimental and quantum chemical methods. The crystal structure of compound was brought to light by single crystal X-ray diffraction method and its vibrational spectrum (FT-IR) in solid state was observed in the region 4000-400 cm^{-1}. The molecular geometry was those obtained from the X-ray structure determination was optimized using Hartree-Fock and Density Functional Theory (DFT/B3LYP) method with the 6-31G(d) basis set in ground state. From the optimized geometry of the molecule, geometric parameters (bond lengths, bond angles, torsion angles) and vibrational assignments of the compound have been theoretically calculated and compared with the experimental data. The obtained structural and vibrational results are well in agreement with the experimental measurement. The frontier molecular orbital (FMO) and Mulliken population analysis of the optimized geometries were investigated by theoretical calculation results.

Keywords: thiazolo[3,2-α]-pyrimidine, X-ray diffraction, IR spectroscopy, Density Functional Theory (DFT), HOMO and LUMO, Mulliken Charge

REFERENCES

[1] Web-1: https://en.wikipedia.org/wiki/Cyclobutane, consulted 10 February 2016.

[2] Dehmlow E. V. and Schmidt S. (1990). Synthese von stereoisomeren 3-substituierten Cyclobutancarbonsäure-Derivaten. Liebigs Ann. Chem., 5, 411-414.

[3] Karegoudar P., Karthikeyan M. S., Prasad D. J., Mahalinga M., Hollaa B. S. and Kumari N. S. (2008). Synthesis of some novel 2,4-disubstituted thiazoles as possible antimicrobial agents. Eur. J. Med. Chem., 43, 261-267.

[4] Bozdağ-Dündar O., Özgen Ö., Menteşe A., Altanlar N., Atlı O., Kendi E. and Ertan R. (2007). Synthesis and antimicrobial activity of some new thiazolyl thiazolidine-2,4-dione derivatives. Bioorg. Med. Chem., 15, 6012-6017.

[5] Vicini P., Geronikaki A., Anastasia K., Incerti M. and Zania F. (2006). Synthesis and antimicrobial activity of novel 2-thiazolylimino-5-arylidene-4-thiazolidinones. Bioorg. Med. Chem., 14, 3859-3864.

[6] Kumar A., Rajput C. S. and Bhati S. K. (2007). Synthesis of 3-[4′-(p-chlorophenyl)-thiazol-2′-yl]-2-[(substituted azetidinone/thiazolidinone)-aminomethyl]-6-bromoquinazolin-4-ones as anti-inflammatory agent. Bioorg. Med. Chem., 15, 3089-3096.

[7] Holla B. S., Malini K.V, Rao B. S., Sarojini B. K. and Kumari N. S. (2003). Synthesis of some new 2,4-disubstituted thiazoles as possible antibacterial and anti-inflammatory agents. Eur. J. Med. Chem., 38, 313-318.

[8] Hassan G. S., El-Messery S. M., Al-Omary F. A. M. and El-Subbagh H. I. (2012). Substituted thiazoles VII. Synthesis and antitumor activity of certain 2-(substituted amino)-4-phenyl-1,3-thiazole analogs. Bioorg. Med. Chem., 22, 6318-6323.

[9] Hutchinson I., Chua M., Browne H. L., Trapani V., Bradshaw T. D., Westwell A. D. and Stevens M. F. G. (2001). Antitumor Benzothiazoles. 14.1 Synthesis and in Vitro Biological Properties of Fluorinated 2-(4-Aminophenyl)benzothiazoles. J. Med. Chem., 1446-1455.

[10] Azam F., Alkskas I. A., Khokra S. L. and Prakash O. (2009). Synthesis of some novel N^4-(naphtha[1,2-d]thiazol-2-yl)semicarbazides as potential anticonvulsants. Eur. J. Med. Chem., 44, 203-211.

[11] Chimenti F., Bizzarri B., Maccioni E., Secci D., Bolasco A., Fioravanti R., Chimenti P., Granese A., Carradori S., Rivanera D., Lilli D., Zicari A. and Distinto S. (2007). Synthesis and in vitro activity of 2-thiazolylhydrazone derivatives compared with the activity of clotrimazole against clinical isolates of Candida spp. Bioorg. Med. Chem., 17, 4635-4640.

[12] Narayana B., Vijaya Raj K. K., Ashalatha B. V., Kumari N. S. and Sarojini B. K. (2004). Synthesis of some new 5-(2-substituted-1,3-thiazol-5-yl)-2-hydroxy benzamides and their 2-alkoxy derivatives as possible antifungal agents. Eur. J. Med. Chem., 39, 867-872.

[13] Tozkoparan B., Ertan M., Krebs B., Läge M., Kelicen P. and Demirdamar R. (1998). Condensed Heterocyclic Compounds: Synthesis and Antiinflammatory Activity of Novel Thiazolo[3,2-a]pyrimidines. Archiv der Pharmazie, 331, 201-206.

[14] Tozkoparan B., Ertan M., Kelicen P., Demirdamar R. (1999). Synthesis and anti-inflammatory activities of some thiazolo[3,2-a]pyrimidine derivatives. II Farmaco, 54, 588-593.

[15] Alam O, Khan S. A., Siddiqui N., Ahsan W. (2010). Synthesis and pharmacological evaluation of newer thiazolo [3,2-a] pyrimidines for anti-inflammatory and antinociceptive activity. Med. Chem. Res., 19, 1245-1258.

[16] Coburn R. A., Glennon R. A. (1973). Mesoionic purinone analogs IV: Synthesis and in vitro antibacterial properties of mesoionic thiazolo[3,2-a]pyrimidin-5,7-diones and mesoionic 1,3,4-thiadiazolo[3,2-a]pyrimidin-5,7-diones. J. Pharm. Sci., 62, 1785–1789.

[17] Cai D., Zhang Z., Chen Y., Yan X., Zhang S., Zou L., Meng L., Li F. and Fu B. (2016). Synthesis of some new thiazolo[3,2-a]pyrimidine derivatives and screening of their in vitro antibacterial and antitubercular activities. Med. Chem. Res., 25, 292-302.

[18] Cai D., Zhang Z., Chen Y., Yan X., Zou L., Wang Y., Liu X. (2015). Synthesis, Antibacterial and Antitubercular Activities of Some 5H-Thiazolo[3,2-a]pyrimidin-5-ones and Sulfonic Derivatives. Molecules, 20, 16419-16434.

[19] Danel K., Pedersen E. B. and Nielsen C. (1998). Synthesis and Anti-HIV-1 Activity of Novel 2,3-Dihydro-7H-thiazolo[3,2-a]pyrimidin-7-ones. J. Med. Chem., 41, 191-198.

[20] Babu K. R., Rao V. K., Kumar Y. N., Polireddy K., Subbaiah K. V., Bhaskar M., Lokanatha V., Raju C. N. (2012). Identification of substituted [3, 2-a] pyrimidines as selective antiviral agents: Molecular modeling study. Antivir. Res., 95, 118-127.

[21] Jeanneau-Nicolle E., Benoit-Guyod M., Namil A., Leclerc G. (1992). New thiazolo [3,2-a] pyrimidine derivatives, synthesis and structure-activity relationships. Eur. J. Med. Chem., 27, 115–120.

[22] Bansal M., Kaur R., Kaur B. (2013). Synthesis and antifungal evaluation of thiazolo[3,2-a]pyrimidine derivatives. J. App. Chem., 2, 391-397.

[23] Zhao D., Chen C., Liu H., Zheng L.,Tong Y., Qu D., Han S. (2004). Biological evaluation of halogenated thiazolo[3,2-a]pyrimidin-3-one carboxylic acid derivatives targeting the YycG histidine kinase. Eur. J. Med. Chem., 87, 500-507.

[24] Chorell E, Pinkner J S, Phan G, Edvinsson S, Buelens F, Remaut H, Waksman G, Hultgren S J, Almqvist F. (2010). Design and synthesis of C-2 substituted thiazolo and dhydrothiazolo ring-fused 2-pyridones; Pilicides with increased anti-virulence activity, J. Med. Chem.,53, 5690-5695.

[25] Pawde A. V., Kawale D. S. and Vartale S. P. (2015). Synthesis and antioxidant, antimicrobial activity of 6-cyano-5-imino-2-methyl-7-(methylthio)-5H-thiazolo [3, 2-a] pyrimidines. Der Pharma Chem., 7, 205-209.

[26] Sheldrick G. M. (1997). SHELXS-97, Program for the Solution of Crystal Structures, University of Gottingen, Germany.

[27] Sheldrick G. M. (1997). SHELXL-97, Program for Crystal Structures Refinement, University of Gottingen, Germany.

[28] Farrugia L. J. (1999). WinGX suite for small-molecule single-crystal crystallography. J. Appl. Cryst., 32, 837-838.

[29] Stoe & Cie X-AREA (Version 1.18) X-RED32 (Version 1.04) Stoe & Cie. (2002). Darmstadt, Germany.

[30] Spek A. L. (2009). Structure validation in chemical crystallography. Acta Cryst., D65, 148-155.

[31] Frisch M. J., Trucks G. W., Schlegel H. B. et al. (2004). Gaussian 03, Revision E.01, Gaussian, Inc., Wallingford, USA.

[32] Dennington II R., Keith T. and Millam J. (2007). Gauss View, Version 4.1.2, Semichem Inc., Shawnee Mission, Kan, USA.

[33] Inkaya E, Dinçer M., Ekici Ö., Cukurovali A. (2012). N'-(2-methoxy-benzylidene)-N-[4-(3-methyl-3-phenyl-cyclobutyl)-thiazol-2-yl]-chloro-acetic hydrazide: X-ray structure, spectroscopic characterization and DFT studies. J. Mol. Struct., 1026, 117-126.

[34] Inkaya E, Dinçer M., Ekici Ö., Cukurovali A. (2013). 1-(3-Methyl-3-mesityl)-cyclobutyl-2-(5-pyridin-4-yl-2H-[1,2,4]triazol-3-ylsulfanyl)-ethanone: X-ray structure, spectroscopic characterization and DFT studies. Spectrochim. Acta, 101, 218-227.

[35] Allen F. H. (1984). The geometry of small rings. VI. Geometry and bonding in cyclobutane and cyclobutane. Acta Cryst., B40, 64-72.

[36] Pesyan N. N., Rastgar S. and Hosseini Y. (2009). 1,1',3,3',5,5'-Hexamethylspiro[furo-[2,3-d]pyrimidine-6(5H),5'-pyrimidine]-2,2',4,4',6'(1H,3H,1'H,3'H,5'H)-pentaone. Acta Cryst., E65, o1444.

[37] Wriedt M., Sellmer S., Jess I. and Näther C. (2009). catena-Poly[bis[cis-dipyrimidine transdithiocyanatoiron(II)]-di-l-pyrimidine-[trans-dithiocyanatoiron(II)]-di-lpyrimidine]. Acta Cryst., E65, m296-m297.

[38] El-Emam A. A., Al-Deeb O. A., Al-Turkistani A. A., Ng S. W. and Tiekink E. R. T.. (2011). 2 Benzylsulfanyl-4-pentyl-6-(phenylsulfanyl)pyrimidine-5-carbonitrile. Acta Cryst., E67, o3126.

[39] Jian F. F., Zhao P. S., Bai Z. S. and Zhang L. (2005). Quantum Chemical Calculation Studies on 4-Phenyl-1-(Propan-2-Ylidene)Thiosemicarbazide. Struct. Chem., 16, 635-639.

[40] Bahgat K., Ragheb A. G. (2007). Analysis of vibratinal spectra of 8-hydroxyquinoline and its 5,7-dichloro, 5,7-dibromo, 5,7-diiodo and 5,7-dinitro derivatives based on density functional theory calculations. Cent. Eur. J. Chem., 5, 201-220.

[41] Silverstein R. M., Webster F.X. and Kiemle D.J. Spectrometric Identification of Organic Compounds, seventh ed., John Willey & Sons, New York, (2005).

[42] Şen F., Dinçer M. and Cukurovali A. (2014). Synthesis, spectroscopic characterization and quantum chemical computational studies on 4-(3-methyl-3-phenylcyclobutyl)-2-(2-undecylidenehydrazinyl)thiazole. J. Mol. Struct., 1076, 1-9.

[43] Pearson R. G. (1986). Absolute electronegativity and hardness correlated with molecular orbital theory. Proc. Natl. Acad. Sci., 83, 8440–8841.

The Effect of Mixture of Pb and Pb + Zn on Protein Levels and Pb Accumulation of Tilapia Fish (*Oreochromis niloticus*)

Gülbin Firidin
Gazi University, Institute of Science and Technology,
Department of Environmental Sciences, Ankara

ABSTRACT

Fish is an important source of protein consumed by people in the ecosystem. In this study, African freshwater fish *Oreochromis niloticus* were investigated to lead (Pb) toxicity in gill and muscle tissues. Fish were exposed to Pb concentrations (0.1 and 0.5 mg/L Pb) and Pb+Zn concentrations (0.1 mg/L Pb + 0.5 mg/L Zn) and (0.5 mg/L Pb + 2.5 mg / L) at 7, 14 and 28 days. Tissue protein levels were examined by U. V. spectrophotometric method. The Pb accumulations in the tissues were determined by Atomic Absorption Spectrophotometer. When the effects of Pb and Pb+Zn on the tissues of the Pb accumulation significantly decreased to compare with the control group, the protein level increased. The Pb accumulation was higher in the gills. Zn was found to significantly reduce Pb accumulation in *O. niloticus* tissues, studied at all times.

Key words: *Oreochromis niloticus*, lead, zinc, toxicity.

Tilapia (*Oreochromis niloticus*) Balığı Dokularında Protein ve Pb Düzeyleri üzerine Pb ve Pb+Zn Karışımının Etkisi

Balıklar ekosistem içerisinde insan tarafından tüketilen önemli bir protein kaynağıdır. Bu çalışmada Afrika kökenli tatlı su çipurası *Oreochromis niloticus*'un solungaç ve kas dokularında kurşunun (Pb) toksik etkisi incelenmiştir. Balıklar 7, 14 ve 28 günlük sürelerle Pb derişimleri (0.1 ve 0.5 mg/L Pb) ve Pb+Zn derişimlerine (0.1 mg/L Pb+0.5 mg/L Zn ve 0.5 mg/L Pb+2.5 mg/L Zn) maruz bırakılmıştır. Dokuların protein miktarı U.V spektrofotometrik yöntem ile incelenmiştir. Dokulardaki Pb birikimi ise Atomik Absorbsiyon Spektrofotometresiyle belirlenmiştir. Pb ve Pb+Zn etkisinde dokulardaki Pb birikimi kontrol grubuna göre önemli bir şekilde artarken protein düzeyi azalmıştır. Pb birikimi solungaçta daha fazla bulunmuştur. Çalışılan tüm sürelerde Zn'nin *O. niloticus* dokularında kurşun birikimini önemli ölçüde azalttığı saptanmıştır.

Anahtar kelimeler: *Oreochromis niloticus*, kurşun, çinko, toksisite.

Investigation of Morphological and Anatomical Characters of Subsp. of the *Salvia Candidissima* Vahl (Labiatae)

Nermin Elmalı
Selçuk Üniversitesi, Biyoloji Bölüm, Konya

Yavuz Bağcı
Selçuk Üniversitesi, Biyoloji Bölüm, Konya

Süleyman Doğu
Necmettin Erbakan Üniversitesi, Biyoloji Eğitimi Bölüm, Konya

ABSTRACT

In this study the morphological and anatomical properties of Salvia candidissima Vahl subsp. candidissima and Salvia candidissima Vahl subsp. occidentalis Hedge species which belong to Lamiaceae family were investigated. In morphological studies of these two subspecies, parts of stem, leaves, flower and fruit were measured and given as tables. In anatomical investigations of these two subspecies were taken section from root, stem, leaves by microtome and hand. These sections were painted and were made constant slide. After that they were taken photograph of these slides with assist of microscobe which has camera. Stomatal characteristics were examined by section taken superficial from these plants leaves and stomata index was calculated.

Keywords: Anatomy, Konya, Labiatae, Morphology, Salvia

The Effect of Potato Virus Y Pathotypes on Yield and Photosynthethic Capacity of Chilli Pepper

Bekir Bülent Arpacı
University of Kilis 7 Aralik, Faculty of Agriculture, Deparment of Horticulture, Kilis, 79000

Nihal Buzkan
University of Kahmarammaras Sutcu Imam, Faculty of Agriculture, Deparment of Plant Protection, Kahramanmaraş, 46020

Ayhan Ak
Institute of East Mediterranean Transitional Zone Agricultural Research, Kahramanmaraş, 46020

Kerim Karataş
Institute of East Mediterranean Transitional Zone Agricultural Research, Kahramanmaraş, 46020

Faika Yaralı*
University of Kilis 7 Aralik, Faculty of Agriculture, Deparment of Horticulture, Kilis, 79000

Mehmet Koç
University of Kilis 7 Aralik, Faculty of Agriculture, Deparment of Horticulture, Kilis, 79000

ABSTRACT

Viruses are one of the biotic factors that cause significant yield losses in crops. The effects of pathotypes (0), (0,1) and (0,1,2) showing prevalence in the world of Potato Virus Y (PVY) belonging *Potyviridae* family on plant yield and photosynthetic capacity of the red pepper varieties "Maraş 1 and Sena" have been investigated in this research. Pepper plants were infected at seedling stage with virüs isolates by mechanical inoculation.

Experiments were carried out under greenhouse conditions that isolated cover material could not pass over aphids. It was observed that virus isolates were significantly influence on pepper plant fruit weight, fruit yield and the number of fruit per plant. On the contrary, isolates did not affect fruit width, fruit length and flesh thickness. PVY inoculation did not change the net photosynthetic rate (P_N) of leaves but it increased stomatal resistance (g_s), intercellular CO_2 concentration and transpiration rates (E).

Photosynthesis capacity parameters showed an increase from the first flowering period to the fruit ripening period. PVY pathotypes reduced the number of fruit from 52 to 26 control plants in cv. Maras 1. Control plants of cv. Sena has 29 fruit per plant but fruit number has reduced to 16 by the effect of PVY infection. Yield of per plant has been decreased %52,25 in cv. Maras 1 and %50,75 in cv. Sena after PVY infection.

It was determined that PVY caused significant yield losses in red pepper. Pepper plants increased stomatal resistance, intercellular CO_2 concentration and the transpiration rate as a defense mechanism to maintain the rate of photosynthesis under PVY infection.

Keywords: Potato virus Y, Yield, Photosynthesis, Pepper

*Corresponding author: faikayarali@gmail.com

Determining New Pests in Olive Groves in Eastern Mediterranean and South-eastern Regions of Turkey

Gülay Kaçar
Abant Izzet Baysal University, Agriculture and Natural Science Faculty,
Plant Protection Department, Golkoy, Bolu, 14280, Turkey

ABSTRACT

Olive is one of the most important crops in the eastern Mediterranean and South-eastern regions of Turkey. The extensive survey was conducted in those regions including seven provinces between the years 2008 and 2013. Samples were collected from at least 20 trees in small groves, and 5% of trees were examined, if olive tree numbers exceeds 1000 for each grove. Trees were sampled at randomly; four cardinal directions of trees. Insects were collected by shaking and knocking with steiner funnel, a hand aspirator, hand picking, knocking and/or plucking olive twigs. Collected species were separated, killed and pinned in the laboratory. Four lepidopteran, two hemipteran, one coleopteran and Acari species were determined by feeding on one or more parts of olive trees: young leaves, flowers, new born fruits and shoots. Identification result revealed that *Zelleria oleastrella* (Milliere) (Yponomeutidae), *Gymnoscelis rufifasciata* (Haworth) (Geometridae), *Cacoecimorpha pronubana* (Hübner) and *Lobesia botrana* (Denis & Schiffermüller) (Tortricidae), *Omophlus nasreddini* Reitter (Coleoptera: Alleculidae), *Tegolophus hassani* (Keifer) (Acari: Prostigmata: Eriophyidae), *Phenacoccus solani* (Ferris) (Hemiptera: Pseudococcidae) and *Namausus sordidatus* (Stal) (Alydidae) were the first research findings in olive groves in Turkey. *Cacoecimorpha pronubana* is a polyphagous pest in European and Mediterranean Plant Protection Organization (EPPO) list. Olive groves of Adana, Gaziantep, Hatay, Kahramanmaraş and Osmaniye have been infected by this pest in recent years. However, *Omophlus nasreddini* feeding on olive flowers was determined in a limited area (Gaziantep and Kilis provinces). Additionally, *P. solani* and *N. sordidatus* were determined as first detections to feed on olive trees in Turkey.

Key words: Olive, insects, pest, eastern Mediterranean, southeastern

Doğu Akdeniz ve Güneydoğu Anadolu Bölgesi Zeytin Bahçelerinde Belirlenen Yeni Zararlılar

ÖZET

Zeytin, doğu Akdeniz ve güneydoğu Anadolu'nun önemli ürünlerinden biridir. Bu bölgelerden yedi ilde 2008'dan 2013 yılına kadar yoğun bir sörvey çalışması yürütülmüştür. Örneklemeler, en az 20 ağaçtan oluşan bahçelerde tamamı ve 1000 ağacı aşan bahçelerde %5'i olacak şekilde yürütülmüştür. Ağaçların rastgele dört yönünden örnekleme yapılmıştır. Böcek örnekleri Steiner hunisi, el aspiratörü, koparılan sürgünlerden elde edilmiştir. Dört lepidopter, iki hemipter, bir coleopter ve bir akar türü, zeytinin bir veya birden fazla genç yaprak, çiçek, meyve ve sürgünleriyle beslenirken

belirlenmiştir.*Zelleria oleastrella* (Milliere) (Yponomeutidae), *Gymnoscelis rufifasciata* (Haworth) (Geometridae), *Cacoecimorpha pronubana* (Hübner) ve *Lobesia botrana* (Denis & Schiffermüller) (Tortricidae) (Lepidoptera), *Omophlus nasreddini* Reitter (Coleoptera: Alleculidae), *Tegolophus hassani* (Keifer) (Acarina Eriophyidae), *Phenacoccus solani* (Ferris) (Pseudococcidae) ve *Namausus sordidatus* (Stal) (Alydidae) (Hemiptera) türleri Türkiye zeytin bahçelerindeki ilk araştırma bulgularıdır. *Cacoecimorpha pronubana* Avrupa ve Akdeniz Bitki Sağlığını Koruma Örgütü (EPPO)'nün karantina listesinde yer alan bir türdür. Son yıllarda Adana, Gaziantep, Hatay, Kahramanmaraş ve Osmaniye ili zeytin bahçelerinde yayılmıştır. Bununla birlikte *Omophlus nasreddini* sınırlı bir alanda (Gaziantep vend Kilis)'de zeytin çiçekleriyle beslenirken bulunmuştur. Ek olarak, *P. solani* ve *N. sordidatus* zeytin ağacıyla beslendiğinin ilk bulguları belirlenmiştir.

Anahtar Kelimeler: Zeytin, böcekler, zararlı, aoğu Akdeniz, güneydoğu

Batch Kinetics and Isotherms for Biosorption of Thorium Ions onto Pre-Treated Powdered Waste Sludge (PWS) from Aqueous Solution

M. Yunus Pamukoğlu
Süleyman Demirel Üniversitesi, Mühendislik Fakültesi, Çevre Müh. Bölümü, Isparta, 32100

Bülent Kırkan
Süleyman Demirel Üniversitesi, Su Enstitüsü, Isparta, 32100

Mustafa Şenyurt
Süleyman Demirel Üniversitesi, Mühendislik Fakültesi, Çevre Müh. Bölümü, Isparta, 32100

ABSTRACT

In this study, the batch kinetics and isotherms for biosorption of thorium ions onto pre-treated powdered waste sludge (pws) from aqueous solution were investigated. Powdered waste sludge is used as an adsorbent was obtained from the sewage treatment plant aeration basin. The obtained powdered waste sludge was modified with 1% H_2O_2 for removing pollution on its surface and it was increased the active sites to bind metals. The structure of the modified powder sludge biosorbents were characterized by FTIR methodology. It is concluded from the analysis of FTIR results that the modified powdered waste sludge has primary functional groups which can be adsorbed thorium ions.

Langmuir, Freundlich, generalized adsorption isotherm and Lagergren and Ho's kinetic models compatibility were investigated on the obtained experimental results. It can be seen that the Freundlich isotherm was the best isotherms for confirming the experimental results based on the correlation coefficients. This result shows us that the biosorption was occurred as multi-layered not mono-layered. Similarly, it shows that the interaction of adsorbent and contaminant is not only physical as well as both physical and also chemical. 48.9 mg/g biosorption capacity was found by using Langmuir isotherm results which were applied for the removal of Th(IV) ions by using PWS biosorption. The pseudo second order kinetics were more compatible in the applied other kinetic studies. The first and second order rate constants with increasing of Th (IV) concentration from 5 mg/L to 50 mg/L were decreased as 0.454 h^{-1}, 0.120 $(mg/g)^{-1}h^{-1}$ and 1.102 h^{-1}, 0,020 $(mg/g)^{-1}h^{-1}$, respectively.

Keywords: Thorium (IV), biosorption, isotherms, kinetics, batch, powdered waste sludge (PWS)

Sulu ortamlardan Modifiye Edilmiş Toz Arıtma Çamuru Kullanılarak Toryum Metalinin Biyosorpsiyon ile Gideriminde İzoterm ve Kinetik Analizi

ÖZET

Bu çalışmada, sulu ortamlardan modifiye edilmiş toz arıtma çamuru kullanılarak toryum metalinin biyosorpsiyon ile gideriminde izoterm ve kinetik analiz çalışmaları yapılmıştır. Biyoadsorban olarak

kullanılan toz arıtma çamuru, evsel atıksu arıtma tesisi havalandırma havuzundan temin edilmiştir. Elde edilen toz arıtma çamuru %1' lik H_2O_2 ile modifiye edilerek yüzeyinde bulunan kirlilikler giderilmiş ve metal bağlayacak aktif alanlar ise arttırılmıştır. Modifiye edilen toz arıtma çamuru biyosorbentinin yapısı FTIR yöntemi ile karakterize edilmiştir. FTIR spektrumunun incelenmesinden modifiye toz atık çamur biyosorbentinin bünyesinde mevcut olan, toryum iyonlarını adsorplayabilecek temel fonksiyonel gruplara sahip oldukları anlaşılmaktadır.

Elde edilen deneysel verilerin Langmuir, Freundlich ve genelleştirilmiş adsorpsiyon izoterm modelleri, Lagergren ve Ho's Kinetik modelleri ile uyumluluğu araştırılmıştır. Korelasyon katsayıları baz alındığında deneysel verileri en iyi doğrulayan izotermin Freundlich izotermi olduğu görülmektedir. Bu sonuç bize biyosorpsiyonun tek tabakalı değil, çok tabakalı olduğunu da göstermektedir. Benzer şekilde adsorban ve kirleticinin etkileşimlerinin sadece fiziksel değil, bunun yanı sıra hem fiziksel hem de kimyasal olduğunu da göstermektedir. Th(IV) iyonunun TAÇ' u kullanılarak biyosorpsiyonla giderilmesinde uygulanan izoterm deneylerinden Langmuir izotermi sonucunda 48.9 mg/g biyosorpsiyon kapasitesi elde edilmiştir. Uygulanan kinetik çalışmalarında ise yalancı ikinci dereceden kinetiklerin daha uyumlu olduğu görülmüştür. Birinci ve ikinci derece hız sabitleri Th(IV) konsantrasyonunun 5 mg/L' den 50 mg/L' a çıkması ile sırası ile 0,454 sa^{-1}, 0,120 $(mg/g)^{-1}sa^{-1}$ ve 1,102 sa^{-1}, 0,020 $(mg/g)^{-1}sa^{-1}$'e düşmüştür.

Anahtar Kelimeler: Toryum (IV), biyosorpsiyon, izoterm, kinetik, kesikli, toz arıtma çamuru (TAÇ).

TEŞEKKÜR BÖLÜMÜ

Bu çalışma, Süleyman Demirel Üniversitesi, Bilimsel Araştırma Projeleri Komisyonu Başkanlığı tarafından 3975-YL1-14 Nolu proje ile desteklenmiştir.

REFERANSLAR

[1] Alemdar, S., 2011, Biyosorpsiyon Yöntemi İle Kadmiyum Giderimi, Zonguldak Karaelmas Üniversitesi Fen Bilimleri Enstitüsü, Çevre Mühendisliği Anabilim Dalı, Yüksek Lisans Tezi, 66 s, Zonguldak.

[2] Bhainsa, K.C., D'Souza, S.F. (2009) Thorium biosorption by Aspergillus fumigatus, a filamentous fungal biomass, Journal of Hazardous Materials 165: 670–676.

[3] Ding, C., Feng, S., Cheng, W., Zhang, J., Li, X., Liao, J., Yang, Y., An, Z., Luo, S., Yang, J., Tang, J., Liu, N. (2014), Biosorption behavior and mechanism of thorium on Streptomyces sporoverrucosus dwc-3, J Radioanal Nucl Chem, 301: 237–245.

[4] Gok, C., Turkozu, D.A. ve Aytas, S. (2011) Removal of Th(IV) ions from aqueous solution using bi-functionalized algae-yeast biosorbent, J Radioanal Nucl Ch, 287: 533–541.

[5] Ho Y., Chiu W., Hsu C. and Huang C., (2004) Sorption of lead ions from aqueous solution using tree fern as a sorbent, Hydrometallurgy, Volume 73, Issues 1-2 , , Pages 55-61

[6] Karabuğa Ç.M, 2012, Deri Endüstrisi Atıksularında Bulunan Cr+3 Ağır Metalinin Ligand Adsorpsiyonu İle Giderimi Ve Geri Kazanımı, Süleyman Demirel Üniversitesi Fen Bilimleri Enstitüsü, Çevre Mühendisliği Anabilim Dalı, Y.Lisans Tezi, 77 s, Isparta,

[7] Lagergren, S. 1898, Zur theorie der sogenannten adsorption gelöster stoffe. Kungliga Svenska Vetenskapsakademiens, Handlingar, Band 24, No. 4, p. 1-39.

[8] Malkoç E, Ocak S Ve Tekin D, 2000, Algler ve Biyosorpsiyon. Çevre Sorunları Arastırma Merkezi, 13.

[9] Nuhoğlu, Y. ve Malkoç, E., 2007, Cr(Vl) İyonunun Gideriminde Palamut Meşesi Atığının Kullanımı. 7. Ulusal Çevre Mühendisliği Kongresi, 670- 675.

[10] Ozdemir, S., Okumus, V., Dündar A., Kılınç, E. (2014), The Use of Fungal Biomass Agaricus bisporus Immobilized on Amberlite XAD-4 Resin for the Solid-Phase Preconcentration of Thorium, Bioremediation Journal, 18(1): 38–45.

[11] Pamukoğlu M. Y., Kargı F., 2006, Removel of copper (II) ions from aqueous medium by biosorption onto powdered waste sludge. Process Biochemistry, 41: 1047-1054.

[12] Pamukoglu M.Y., F. Kargi, 2006, Batch kinetics and isotherms for biosorption of copper(II) ions onto pre-treated powdered waste sludge (PWS), J Hazard. Mater B., 138, 479-486.

[13] Talip, Z., Eral, M. ve Hiçsönmez, Ü. (2009) Adsorption of thorium from aqueous solutions by perlite, J Environ Radioactiv, 100: 139–143.

[14] Volesky And Vieira, 2000, Biosorption A Solution To Pollution, Internal Microbiology 3:17-24.

[15] Weber, J.R. , 1972, Physicochemical Processes For Water Quality Control. Wiley-Inderscience, USA.

[16] Yang, S.K., Tan, N., Yan, X.M., Chen, F., Long, W., Lin, Y.C. (2013a) Thorium(IV) removal from aqueous medium by citric acid treated mangrove endophytic fungus Fusarium sp. #ZZF51, Marine Pollution Bulletin, 74: 213–219.

[17] Yang, S.K., Tan, N., Yan, X.M., Chen, F., Lin, Y.C. (2013b) Adsorption of thorium(IV) from aqueous solution by non-living biomass of mangrove endophytic fungus Fusarium sp. #ZZF51, J Radioanal Nucl Chem 298: 827–833.

[18] Yazıcı, H.,2007, Marrubium Globosum Ssp. Globosum Bitkisi İle Sulu Çözeltilerden Cr ve Cu İyonlarının Biyosorpsiyonunun İncelenmesi. Süleyman Demirel Üniversitesi, Fen Bilimleri Enstitüsü, Çevre Mühendisliği Anabilim Dalı, Yüksek Lisans Tezi, 142 s, Isparta.

The Effect of Aerobic Condition and The Incubation Period On the Isolation of Group a Beta Haemolytic Streptococci

İlknur Karalezli
Selcuk University, Vocational School of Health Services, Department of Medicinal Laboratory, Konya, Turkey

Mustafa Onur Aladag*
Selcuk University, Vocational School of Health Services, Department of Medicinal Laboratory, Konya, Turkey

Mustafa Kul
Selcuk University, Vocational School of Health Services, Department of Medicinal Laboratory, Konya, Turkey

ABSTRACT

The effect aerobic, anaerobic condition and the incubation period on the isolation of group A beta haemolytic streptococci investigated. Totally 240 throat culture investigated, 169 (71.3%) consist kinder gardan and orphanage and 75 (31.2%) taken from pediatric polyclinic. Culture made on 5% defibrinated sheep blood agar. Cultivation made in two media one of them incubated at 35˚C for 24 and 48 hours. The next put at anaerobic Gas Pack system and incubated for 48 hours. Grouping of the isolates made on subcultures of the isolates by susceptibilitiy of bacitracin and co-trimoxazole.

After 24 hours an aerobic incubation observed group A 30 (12.5%) and after 48 hours this number increased to 40 (16.6%). The isolation rate at anaerobic incubation was 85 (35.4%).

The effect of the anaerobic condition on the isolation of group A beta haemolytic streptococci statistically was significant ($p<0.001$). Also the incubation period of aerobic conditions found more effective in 48 hours ($p<0.001$).

Keywords: Throat culture, A group streptococci, anaerobic incubation.

A result on the Pointwise Convergence of Double Singular Integral Operators in Lp Space

Mine Menekşe Yilmaz
Gaziantep University, Faculty of Arts and Sciences, Department of Mathematics, Gaziantep,Turkey

ABSTRACT

In this study, we present a theorem on pointwise convergence for the family of non-convolution type double singular integral operators and provide some examples to support the theorem.

Keywords: Pointwise convergence, generalized Lebesgue point, double singular integral

REFERENCES

[1] Bardaro C. and Vinti G. (1990). On Approximation Properties of Certain Non-convolution Integral Operators. "Journal of Approximation Theory"; 62, pp. 358-371.

[2] Karsli H. (2010). On Approximation Properties of Non-Convolution Type Nonlinear Integral Operators. "Anal. Teory Appl.", Vol.26 (2) pp. 140-152.

[3] Menekse Yilmaz, M., Uysal G. and Ibikli E. (2014). "A note on rate of convergence of double singular integral operators". Adv. Difference Equ. 287, 2014.

[4] Taberski R. (1962). Singular integrals depending on two parameters. Rocznicki Polskiego towarzystwa matematycznego, Seria I. Prace matematyczne, VII: 173-179.

[5] Taberski R. (1964). On double integrals and Fourier Series. "Ann. Polon. Math." 15, pp. 97-115.

[6] Uysal G., Menekse Yilmaz M. and Ibikli E. (2015). A study on pointwise approximation by double singular integral operators. "J. Inequal. Appl.", 94, 2015.

[7] Uysal G. and Menekse Yilmaz M.,(2015). Some theorems on the approximation of non-integrable functions via singular integral operators. "Proc. Jangjeon Math. Soc." 18, no. 2, pp. 241-251.

[8] Uysal, G. And Ibikli, E. (2015). Further results on approximation by double singular integral operators with radial kernels. "Journal of Pure and Applied Mathematics: Advances and Applications", Volume 14, Number 2, 2015, pp.151-166.

[9] Uysal, G. And Ibikli, E. (2016). A note on nonlinear singular integral operators depending on two parameters "NTMSCI" 4, No. 1, pp. 104-114.

A Note on the Mixed-Type Polynomials Related To Boole Polynomials

Fatmagül Gürkan
Gaziantep University, Mathematics Department, Gaziantep

Mehmet Açikgöz
Gaziantep University, Mathematics Department, Gaziantep

Erkan Ağyüz
Gaziantep University, Mathematics Department, Gaziantep

ABSTRACT

By the same motivation T.Kim et. al.[9],the main aim of this presentations is to define new mixed-type polynomials with connected to Boole polynomials. Finally, we obtain new and interesting identities from these polynomials.

Keywords: Mixed-type polynomials, Boole numbers and polynomials, fermionic *p*-adic integral.

REFERENCES

[1] Acikgoz M. and Araci S. (2010). On the Generating function of Bernstein Polynomials.Numerical Analysis and Applied Mathematics, 1141–1143.

[2] Araci S., Ağyüz E. and Acikgoz M. (2015). On a *q*-analog of some numbers and polynomials, Journal of Inequalities and Applications, DOI 10.1186/s13660-014-0542-y.

[3] Araci S., Acikgoz M., Park K. H. and Jolany H. (2014). On the unification of Two Families of Multiple Twisted Type Polynomials by Using p-Adic q-Integral at q= -1,Bull. Malays. Math. Sci. Soc., 543--554.

[4] Araci S., Acikgoz M. and Şen .E. (2013). On the extended Kim's p-adic q-deformed fermionic integrals in the p-adic integer ring, Journal of Number Theory 133, 3348--3361.

[5] Kim D. S., Kim T., Lee S.-H. and Seo J.-J. (2014). Higher-order Daehee numbers and polynomials, International Journal of Mathematical Analysis 8, no. 5-6, 273--283.

[6] Kim D. S., Kim T., Seo J.-J. and Lee S.-H. (2014). Higher-order Changhee numbers and polynomials, Adv. Studies Theor. Phys. 8, no. 8, 365--373.

[7] Kim T. (2002). *q*-Volkenborn integration, Russ. J. Math. Phys. 9, no. 3, 288--299.

[8] Kim T. (2010). Barnes-type multiple q-zeta functions and q-Euler polynomials, J.Physics A : Math. Theor., 43, 11pp

[9] Kim D. S., Kim T. and Kwon H.I. (2014). Identities of Some Special Mixed-Type polynomials, Adv. Studies Theor. Phys. Vol. 8, no. 17, 745 - 754.

[10] Kim D. S. and Kim T. (2014). A note on the Boole Polynomials, Integral Transforms and Special Functions, 25:8, 627-633.

[11] Kim D. S., Jang Y. S., Kim T., Rim S. H., A note on the Boole Polynomials with *q*-parameter, arXiv:1407.2957.

[12] Kim D. S., Kim T., Seo J.J., A note on q- analogue of Boole Polynomials, arXiv:1403.4447.

[13] Roman S.(1984). The umbral calculus, Pure and Applied Mathematics, vol. 111,Academic Press, Inc. [Harcourt Brace Jovanovich, Publishers], New York, MR 741185 (87c:05015).

[14] Comtet L. (1974). Advanced combinatorics, enlarged ed., D. Reidel Publishing Co., Dordrecht, The art of finite and infinite expansions.

[15] Andrews, G.E, Askey, R. and Roy, R. (1999).: Special Functions. Encyclopedia of Mathematics and Its Applications, vol. 71.Cambridge University Press, Cambridge

[16] Horadam A. F. (1991). Genocchi polynomials, Proceedings of the fourth International Conference on Fibonacci Numbers and Their Applications. Kluwer.

[17] Carlitz L. (1948). *q*- Bernoulli numbers and polynomials, Duke Mathematical Journal, pp. 987-1000.

[18] Fort T. (1948). Finite Differences, Oxford University Press.

[19] Simsek Y. and Acikgoz M. (2010). A new generating function of *q*-Berstein-type polynomials and their interpolation function, Abstract and Applied Analysis.

Effects of Microwave and Conventional Heating on Oxidative Stability of Corn Oils with Different Antioxidants

Ayhan Baştürk
Yüzüncü Yıl University, Department of Food Engineering, Van

ABSTRACT

In this study, it is aimed to determine oxidative stability of corn oils treated by microwave and conventional heating in the presence of tocopherols, ascorbyl palmitate and pepper extracts. For this purpose, corn oil was first run through an activated aluminium oxide column to remove its pro- and anti-oxidants. Then, control sample (CONTROL) and treated samples with tocopherol (TOC), ascorbyl palmitate (AP) and rosemary extract (ROS) added at the level of 890 mg/kg, 200 mg/kg and 800 mg/kg, respectively, were heated by microwave (800 W, 2450 MHz) for 2, 4, 6, 8, 10, 12, 16, 20, 24 and 30 minutes. At the end of each heating cycle, the temperature of the oil samples was determined by using a thermo-couple (Testo 175 T3). Besides, samples prepared as previously described were treated by conventional heating (CH) up to the temperatures as measured in microwave heating (MWH). At the end of each heating process, the samples were cooled to the room temperature before further analyses were carried out. Peroxide value (PV), hexanal content (HEX), conjugated dien (K232) and conjugated trien (K270) values and fatty acid composition of corn oil samples were determined. Based on the results obtained, effects of both different heating methods and different antioxidants on oxidative stability of corn oil were investigated. When heating methods are compared, significant increases ($P<0.05$) were observed in PV and K232 values while heating up to 230°C for both heating methods and it is observed that this increase was even higher in MWH samples ($P<0.05$). After this temperature, HEX and K270 values were dramatically increased in samples treated with both heating methods and even higher in MWH samples ($P<0.05$). This situation shows that hydroperoxides were denatured and converted into secondary oxidation products. The differences in average PV, K232 and K270 values of CH treated samples were significant ($P<0.05$). Increase of these parameters for the samples was CONTROL>CO+TOC>CO+AP>CO+ROS in the descending order. Increase in HEX and K270 values started after when 230°C temperate was reached. Increase in HEX values was no different among the samples. PV increased dramatically in MWH treated samples ($P<0.05$) but no difference was found between the sample groups. Difference among the average values of HEX, K232 and K270 was significant among the sample groups ($P<0.05$). Total average content of unsaturated fatty acid decreased in both CH and MWH treated samples at level of 5.58 and 7.98%, respectively. In conclusion, MWH caused higher deterioration in oil samples when compared to CH process. It is also determined that the efficiency level of the antioxidants used was ROS>AP>TOC in the descending order.

Keywords: Microwave heating; conventional heating; oxidative stability; corn oil.

The Studies of Wheat Stem Sawflies (Hym.: Cephidae) in Southeast Anatolia Region, Turkey

Çetin Mutlu*
Abant İzzet baysal Üniversitesi, Ziraat ve Doğa Bilimleri Fakültesi, Bolu,14280

Vedat Karaca
Zirai Mücadele Araştırma Enstitüsü, Diyarbakır, 21100

Adil Tonğa
Zirai Mücadele Araştırma Enstitüsü, Diyarbakır, 21100

Şahin Erol
Zirai Mücadele Araştırma Enstitüsü, Diyarbakır, 21100

Mehmet Duman
Zirai Mücadele Araştırma Enstitüsü, Diyarbakır, 21100

Stephan Blank
Senckenberg Deutsches Entomologisches Institut, Müncheberg, 15374,Germany

ABSTRACT

Wheat stem sawflies are among common and important pests in the wheat growing sites of Turkey. Recently, densities and infestation level of sawfly increased and a hidden damage was occurred on grains Southeast Anatolia Region. The presence study aimed to reveal species, Life cycle, densities and distribution of wheat stem sawflies in Southeast Anatolia of Turkey. Adult sawflies sampling was conducted at cereal cultivated areas in four province, Adıyaman, Diyarbakır, Mardin, Şanlıurfa, including 16 district in 2014-2015. Cereal grain fields, primarily wheat, were selected randomly and to determine species, densities and distribution of the wheat stem sawflies, 100 sweep net sample were taken each field during the full adult flight period. Life cycle studies were also done in nature and all larval stages of sawfly were determined.

Only 3 species of wheat stem sawflies, *Cephus pygmeus* (Linnaeus, 1767) and *Trachelus tabidus* (Fabricius, 1775), *T. libanensis* (Andre, 1881), were found in cereal fields. The wheat stem sawflies were encountered and recorded in nearly four provinces. The great majority was identified as *C. pygmeus* (82.2% in 2014, 68.3% in 2015) and less than 32% as *T. tabidus*. The results revealed that rate of wheat stem sawfly infested fields was very high (83.4%) in the region. First adults emerged at the end of March in Mardin and at the beginning of April in Diyarbakır, Adıyaman and Şanlıurfa provinces. After emergence, the females fed mainly on mustard plants (*Sinapis arvensis* L.) to obtain nutrition. The males of the sawflies appeared 2-4 days before the females, and were less numerous than females. Eggs and newly emerged first stage larvae appeared in May. Larvae in diapause were found in cut stubs at the middle of June. The results on biology of sawflies, population and distribution of adults will be able to help us to improve management tactics when necessary to be implemented in the future.

Keywords: Wheat stem sawfly, *Cephus pygmeus, Trachelus tabidus, T. libanensis*, Wheat

Güneydoğu Anadolu Bölgesinde Ekin Saparıları (Hym.: Cephidae) Üzerine Çalışmalar

ÖZET

Ekin saparıları Türkiye'nin buğday yetiştirilen bölgelerinde yaygın ve önemli zararlıları arasındadır. Güneydoğu Anadolu Bölgesinde buğdaylarda son zamanlarda yoğunlukları ve bulaşıklık düzeyleri artmış ve gizli bir zarar meydana gelmiştir. Bu çalışma, bölgedeki ekin saparısı türleri, yaygınlık ve yoğunlukları ile yaşam döngüsünü ortaya çıkarmayı amaçlamıştır. Ergin örneklemesi 2014 ve 2015 yıllarında dört ili (Adıyaman, Diyarbakır, Mardin, Şanlıurfa) içeren 16 ilçedeki hububat alanlarında yapılmıştır. Yaygınlık, yoğunluk ve tür belirleme çalışmalarında öncelikle buğday tercih edilmiş, tesadüfi olarak seçilen tarlalarda ergin uçuş dönemi boyunca 100'er atrap her bir tarlada sallanmıştır. Zararlının yaşam döngüsü çalışmaları ise doğada yürütülmüş ve bütün larva dönemleri belirlenmiştir.

Hububat alanlarında sadece 3 sap arısı türü, *Cephus pygmeus* (Linnaeus, 1767) and *Trachelus tabidus* (Fabricius, 1775), *T. libanensis* (Andre, 1881), belirlenmiştir. Belirlenen türler, çalışma yapılan hemen hemen dört ilde rastlanmış ve kayıt edilmiştir. Türlerin büyük çoğunluğunun *C.pygmeus* olduğu (2014 yılı %82.2, 2015 yılı 68.3) ve *T. tabidus*'un is %32 dan daha az bir oranda olduğu tespit edilmiştir. Sonuçlar bölgede, ekin saparısı ile bulaşık alanların oldukça yüksek olduğunu (%83.4) ortaya çıkarmıştır. Doğaya ilk saparısı erginleri, Mardin ilinde Mart ayı sonunda, Adıyaman, Diyarbakır ve Şanlıurfa illerinde Nisan ayı başında çıkmıştır. Erginlerin çıkış yaptıktan sonra genellikle yabani hardal bitkileri (*Sinapis arvensis* L.) üzerinde beslendikleri, erkek bireylerin dişilerden 2-4 gün daha erken doğaya çıktıkları ve sayı olarak dişilere göre daha az olduğu saptanmıştır. İlk yumurta ve yumurtadan yeni çıkmış 1.dönem larva Mayıs ayı içinde belirlenmiş, buğday sapları içinde diyapoza girmiş olgun larva ise Haziran ayı ortasında tespit edilmiştir. Ekin sap arısının biyolojisi, yaygınlık ve yoğunluğu ile ilgili bu sonuçlar, bu zararlılara karşı gelecekte uygulanabilecek olan mücadele yöntemlerini geliştirilmesi açısından faydalı olacaktır.

Anahtar Kelimeler: Ekin sap arısı, *Cephus pygmeus*, *Trachelus tabidus*, *T. libanensis*, Buğday

The Inhibitory Activity of Pummelo (*Citrus maxima)* Different Extracts on *Staphylacoccus aureus and Candida albicans*

Meltem Asan-Ozusaglam
Department of Biotechnology and Molecular Biology,
Faculty of Arts and Sciences, Aksaray University, Aksaray,Turkey

Ayse Gunyakti
Department of Biotechnology and Molecular Biology,
Faculty of Arts and Sciences, Aksaray University, Aksaray,Turkey

ABSTRACT

Citrus fruits are among the most widely grown and economically important crops worldwidely. *Citrus* plants possess great medicinal and food values. Pummelo (*Citrus maxima* (Burm.) Merr.) is one of the *Citrus* species and its fruits and leaves have medicinal potential. In current study, methanol, ethanol, acetone and water extracts of *C. maxima* (fruit (whole part) and leaf) of were determined for their potential antibacterial and antifungal activities against human food borne and clinical pathogenic microorganisms i.e. *Staphylacoccus aureus* ATCC 25923 and *Candida albicans* ATCC 10231. Disc diffusion and micro-dilution broth methods were used in order to evaluate the antimicrobial activity of the extracts (fruit and leaf). The disc diffusion method results revealed that the ethanol, acetone and water extracts exhibited varying degrees (6.17-9.01 mm) of antimicrobial activity on the tested pathogens. The highest antimicrobial activity obtained from leaf acetone extract on *S. aureus*. The minimal bactericidal and fungicidal concentration (MBC and MFC) values for the tested microorganisms were in the range of 25.00-100.00 mg/ml. The leaf acetone extract, the highest inhibitory activity (9.01 mm) in the disc diffusion method, was showed the lowest MBC value (25.00 mg/ml) against *S. aureus*. The MBC and MFC method data indicated that some extracts showed antimicrobial activity against some pathogenic microorganisms which were resistance to the extracts in the disc diffusion method. The results presented here may suggest that the extracts of *C. maxima*, especially leaf acetone, possess antimicrobial property, and therefore, they may be a potential source of a natural preservative in food and pharmaceutical industry.

Keywords: Antibacterial, antifungal, extract, human pathogen

Taxonomic, Morphological, Anatomical and Evolutionary Approaches to *Rorippa amphibia* (L.) Bess. and *Rorippa austriaca* (Crantz.) Besser

Yavuz Bağcı
Selçuk University, Science Faculty, Biology Department, Konya, Turkey

Lütfi Tutar*
Kahramanmaraş Sütçü İmam University, Graduate School of Natural and Applied Sciences, Department of Biology, Kahramanmaraş, Turkey

Esen Tutar
Kahramanmaraş Sütçü İmam University, Graduate School of Natural and Applied Sciences, Department of Bioengineering and Sciences, Kahramanmaraş, Turkey

ABSTRACT

Turkey is one of the richest countries in the world in terms of the number of species of the Brassicaceae (Cruciferae), and with its 571 species it is second only to the United States, where there are 653 native species in 61 genera. The genus *Rorippa* Scop. which has about 86 species in the world is represented by 7 species, one of these endemic and the other is hybrid, in Turkey. In this study, morphological and anatomical features, geographical distributions, phytogeographical regions, and evolutionary relationships between closely related *Rorippa amphibia* (L.) Bess. and *Rorippa austriaca* (Crantz.) Besser were discussed. Field work carried out between 2008 and 2009 to collect plant specimens from different populations of the species. In the morphological studies, parts of stems, leaves, roots, flowers and fruits were measured and differences were determined. In the anatomical investigations, cross sections from roots, stems and leaves were taken by hand. The photographs of slides were taken with a camera which attached to the microscope.

Keywords: Brassicaceae, *Rorippa amphibia, Rorippa austriaca*, Taxonomy, Anatomy, Evolution

*Corresponding author

Schreier Internal 2-Categories in the Category of Monoids

Sedat Temel
Erciyes University, Faculty of Science
Department of Mathematics, Kayseri, Turkey

ABSTRACT

The main idea of this paper is to construct the structure of Schreier internal 2-category in the category of monoids by using Schreier internal categories and crossed semimodules.

Keywords: Crossed Semimodule**,** Schreier Internal 2-Category, Schreier Internal 2-Groupoid.

REFERENCES

[1] Patchkoria, A. (1998) Crossed Semimodules and Schreier Internal Categories In The Category of Monoids, Georgian Mathematical Journal, Vol. 5, No. 6, 575-581.

[2] Maclane, S. (1971) Categories for the Working Mathematician, Graduate Text in Mathematics, Volume 5. Springer-Verlag, New York.

[3] Baez, J.C. (1997) An Introduction to n-Categories, Category Theory and Computer Science, Lecture Notes in Computer Science Volume 1290, pp 1-33.

[4] Baez, J.C., Baratin, A., Freidel, L. and Wise, D.K. (2012) Infinite-Dimensional Representations of 2-Groups, Memoirs of the American Mathematical Society, Volume 219, Number 1032.

The Identification of Mercury and Other Metal Contents in Wild Plants On Mercury Mine Surroundings of Sizma (Konya-Turkey)

Ünal Ekerbiçer
Provincial Agriculture Control Laboratory, Konya-Turkey

Yunus Çengeloğlu
Selcuk University, Science Faculty, Department of Chemistry, Konya-Turkey

Murad Aydın Şanda
Igdır University, Agriculture Faculty, Deparment of Field Crops, Igdır-Turkey

ABSTRACT

Hg, Pb, Fe, Zn, Mn, Ni and Mg analyses of growing soils of natural and cultivated plants on mercury mine surroundings of Sizma town in Konya by ICP-MS device. It was found that the highest mercury content is 4,82 mg/kg for *Alyssum strigosum subsp. cedrorum subsp. Cedrorum* in the part of the aboveground in case at least mercury content is 0,02 mg/kg for *Asphodeline lutea.* In the other elements, it was found that element concentrations were seen around 1,51-15,22 mg/kg for Pb, 13,00-245,70 mg/kg for Zn, 3,92-28,75 mg/kg for Ni, 191,70-9474,10 mg/kg for Fe, 17,97-1048,80 mg/kg for Mn and 743,00-6464,80 mg/kg for Mg. It was found that the highest mercury content is 56,61mg/kg for *Polygala anatolica* in the part of the underground in case at least mercury content is 0,45 mg/kg for *Scrophularia xanthoglassa*. In the other elements, it was found that element concentrations were seen around 0,01-27,25 mg/kg for Pb, 0,50-167,20 mg/kg for Zn, 0,49-14,21 mg/kg for Ni, 45,11-3996,70 mg/kg for Fe, 8,96-178,87 mg/kg for Mn and 618,20-5619,40 mg/kg for Mg. Furthermore, it was found that the highest mercury content is 661,74 mg/kg for *Hypericum perforatum* in growing soil of plants in case at least mercury content is 1,55 mg/kg for *Astragalus angustiflius subsp. angustifolius var. pungens.* In the other elements, it was found that element concentrations were seen around 27,17-191,70 mg/kg for Pb, 133,00-358,40 mg/kg for Zn, 23,84-77,08 mg/kg for Ni, 42,00-62,00 mg/kg for Fe, 338,30-3533,20 mg/kg for Mn and 10595,40-25035,90 mg/kg for Mg. It was evaluated the contents of the element in plant consumed as food in point of limit values of WHO and Turkish Food Codex.

Keywords: Heavy metal, mercury mine, plant, Sızma, Konya, Turkey

Olive Oil Adulteration: A Case Study in Gaziantep, an Important Olive Oil Supplier for the Region

Ali Özkan
Department of Gastronomy, CulinaryArts, Gaziantep University, Gaziantep, Turkey

Recep Bindak
TechnicalSciences School, Gaziantep University, Gaziantep, Turkey

Olea europaea L. is important oil sources for Mediterranean countries fulfilling 90 % of the world olive oil production. Turkey is important producer and stakeholders of olive oil after Spain, Italy, Greece and Tunisia. Olive is the second important crop for Gaziantep province, which is located in the south eastern region of Turkey. In addition to the health benefits, olive oil is an important product for country economies but there may be constraints on exporting olive oil. Compliance with international standards is essential factor. The adulteration in olive oil with other cheaper oils is of the essential targeting issues by stakeholders and thereby profiling and identifying oil quality are required to overcome adulteration or misidentification. In general, cotton, sunflower, rapeseed and corn oils are mixed to olive oils and consequently, the desired profile of fatty acid profile or phyto-sterol composition of the oils for health is influenced. In this context, the present study was designed to determine the fatty acid composition of Turkish native olive cultivars. In this context, eighty-seven olive oil samples screened for their components in comparison in order to detect the any possible addition of oils to olive oils by comparing the fatty acid profile with the proposed values by Turkish Food Codex. In conclusion, significant differences were determined in comparison with Turkish Food Codex. One-third of the samples are found to be outside the legal values proposed by regulations.

Keywords: Adulteration, fatty acid, olive oils, *Olea europaea* L.

Cyclic Voltammetry Investigation of the Effect of Different Additives on Electrolytic ZnNi Deposition Bath

Ali Tozar
Mustafa Kemal Üniversitesi, Fizik Bölümü, Hatay,31000

İsmail Hakkı Karahan
Mustafa Kemal Üniversitesi, Fizik Bölümü, Hatay,31000

ABSTRACT

In this paper, the effect of the three different additives sodium sulphate (Na_2SO_4), boric acid (H_3BO_3) and tri sodium citrate ($Na_3C_6H_5O_7$, TSC) were studied on the formation of electrodeposition process of ZnNi alloys. The cyclic voltammetry which is one of a characterization method of electrochemistry was employed in investigations. It was seen that Na_2SO_4 increased conductivity of the depositon bath and has beneficial effect on deposition of Nickel. Accordingly boric acid and TSC has exhibited similar character on deposition of Nickel also assure the adhesion of metal ions on substrate. it can be commonly dictate that the additives like boric acid and TSC provides progressive nucleation and eventually more compact films by decreasing the deposition speed relatively. Furthermore this kind of complexing agents has great benefits in electrochemical alloying process because of their ability to approaching the reduction potentials of two different metals which has different electrode potentials.

Keywords: Electrodeposition, ZnNi alloy, Cyclic voltammetry, Additives

Farklı Katkı Maddelerinin Elektrolitik ZnNi Banyosunda Dönüşümlü Voltametri ile Analizi

ÖZET

Bu çalışmada, elektrokimyasal olarak depolanan ZnNi elektrolit içerisine farklı katkı maddelerinin depolama aşamasındaki etkilerini gözlemlemek amacı ile Sodyum sülfat Na_2SO_4, H3BO3 Borik asit, trisodyum sitrat $Na_3C_6H_5O_7$ katkılı banyolar, elektrokimyasal karakterizasyon yöntemlerinden dönüşümlü voltametri ile incelenerek yorumlanmaya çalışılmıştır. Na_2SO_4 katkılanan banyonun iletkenliğinin artığı ve nikelin depolanmasında olumlu etki gösterdiği gözlemlenmiştir. Trisodyum sitrat ve borik asit katkısının benzer bir karakter sergileyerek metal iyonlarının altlığa daha sıkı yapışmasına neden olduğu ve nikelin depolanmasını desteklediği görülmüştür. Borik asit ve TSC gibi additiveler depolanma hızını nispeten düşürüp daha gelişimli (progressive) büyüme sağlayarak daha kompakt filmler oluşturulmasında çok etkili oldukları, ayrıca bu tip kompleks yapıcı maddeler elektrot potansiyelleri farklı olan metallerin indirgenme potansiyellerini birbirine yaklaştırarak alaşımlamaya büyük katkıda bulundukları söylenebilir.

Anahtar Kelimeler: Elektrodepolama, ZnNi alaşımı, Dönüşümlü Voltametri, Katkı maddesi

Fabrication of Artificial Bone Minerals (Hydroxyapatite, HAP) by Chemical Ultrasonic Deaglemaration Method

Ali Tozar
Mustafa Kemal Üniversitesi,Fizik Bölümü,Hatay,31000

İsmail Hakkı Karahan
Mustafa Kemal Üniversitesi,Fizik Bölümü,Hatay,31000

ABSTRACT

In this paper, hydroxyapatite (HaP) crystals consists the mineral structure of bone were synthesised via wet chemical method which assisted by ultrasonic waves. Effet of various ultrasonic agitation periods on the crystallization of HaP were investigated by X-Ray diffraction (XRD) method. Average crystallite sizes of fabricated HaP crystals were calculated by Debye-Scherrer formula. It was seen that increasing applied ultrasonic wave durations has benefits on crystallization and decreased the crystallite size. Also it was seen that ultrasonic agitation is superior to magnetic agitation on crystallization of HaP.

Keywords: Hydroxyapatite, CaP, ultrasonic deagleremation, Debye-Scherrer

Yapay Kemik Minerallerinin (Hydroxyapatite, HAP) Kimyasal Olarak Yeni Tür Ultrasonik Deaglemerasyon Yöntemi üretilmesi

ÖZET

Bu çalışmada, kemiğin mineral yapısını oluşturan bir CaP bileşiği olan hidroksiapatit (HaP) kristalleri ultrasonik dalgalar yardımıyla asiste edilen kimyasal bir metodla üretildi. Değişik ultrasonik karıştırma sürelerinin hydroxyapatite kristalleri üzerindeki etkisi X-ışını difraksyon yöntemiyle incelendi. Üretilen HaP kristallerinin ortalama tanecik boyutları Debye-Scherrer formülüyle hesaplanıldı ve artan ultasonik dalga uygula sürelerinin HaP taneciklerinin kristallenmesini iyileştirdiği ve tanecik boyutlarını küçülttüğü gözlemlenilmiştir. Ayrıca ultrasonik karıştırmanın manyetik karıştırmaya göre çok daha etkili olduğu gözlemlenmiştir.

Anahtar Kelimeler: Hidroksiapatit, CaP, ultrasonik deaglemerasyon, Debye-Scherrer

Evaluation of Pathological findings of liver in *Oreochromis niloticus* in experimental acute nitrite Toxication

Mehmet Halıgür
University of Cukurova, Faculty of Ceyhan Veterinary Medicine, Department of Pathology

ABSTRACT

In this study, investigation of the enzyme levels and pathological changes in the liver of *Oreochromis niloticus* that experimental acute nitrate toxicity performed was aimed. Four glass aquariums with 100 liters were prepared for the experiment. Each of the aquariums contained 18 *Oreochromis niloticus.* The length and weight of the animals were 14.9±1.87 cm and 42.5±2.15 gr., respectively. In the experimental design, 1.0 mg/L nitrite (NaNO2 Merck) to Group-I, 5.0 mg/L nitrite (NaNO2 Merck) to Group-II and 10.0 mg/L nitrite (NaNO2 Merck) to Group-III were given. Group IV was designed as control group. Blood samples were taken from experimental and control group for detection of Alanine aminotransferase (ALT), aspartate aminotransferase (AST) and lactate dehydrogenase (LDH) levels and these parameters were determined by the spectrophotometric method. While ALT (U/L) 36 ± 1.02, AST (U/L) 207 ± 1.12 and LDH (U/L) 170 ± 1.21 level were detected in control group, in group-I ALT (U/L) 41 ± 2.00, AST (U/L) 338 ± 2.11 LDH (U/L) 199 ± 2.23, in group-II, ALT (U/L) 52 ± 2.11 AST (U/L) 362 ± 3.15, LDH (U/L) 388 ± 3.42 and group-III, ALT (U/L) 63 ± 3.10 AST (U/L) 388 ± 4.11 LDH (U/L) 455 ± 3.44 were detected. In macroscopical examination, there was no significant difference between the experimental groups. Histopathologically, hyperemia and congestion were observed in all fish liver of experimental groups. In addition, vacuolization in the cytoplasm and pyknotic nucleus were observed in nucleus of hepatocyte. Severe and widespread necrotic areas were seen in liver of fish in group-II and III. Thereto this necrosis, especially, in group III, periaciner necrosis was detected around of the vena centralis.

In this experimental study, when the nitrite level was increased, the increase of severity of toxication was seen. This theory was supported by both increase of liver enzyme levels and widespread necrosis detected as histopathological findings in liver. This study was revealed that increase of adverse effects on the liver in acute nitrite poisoning with toxic substance. This toxication may suggest a serious threat to the toxicity in the fish population.

Key Words: *Oreochromis niloticus*, liver, nitrit-nitrat, pathology, histopathology

Oreochromis Niloticus'un Deneysel Akut Nitrit Toksikasyonunda Karaciğerdeki Patolojik Bulguların Değerlendirilmesi

ÖZET

Bu çalışmada, deneysel akut nitrit toksikasyonu oluşturulan *Oreochromis niloticus*'larda karaciğerdeki enzim düzeyleri ve patolojik değişikliklerin incelenmesi amaçlanmıştır. Her birinde 18 adet *Oreochromis niloticus*'un bulunduğu 100'er litrelik 4 cam akvaryum hazırlanmıştır. Balıklar ortalama 42.5±2.15 gr., ağırlığında ve 14.9±1.87 cm uzunluğunda ölçülmüştür. Deney düzeneğinde, Grup-I'e 1.0

mg/L nitrit ($NaNO_2$ Merck), Grup-II'ye 5.0 mg/l nitrit ($NaNO_2$ Merck), Grup-III'e ise 10.0 mg/L nitrit ($NaNO_2$ Merck) derişimleri verilmiştir. Grup-IV de kontrol olarak kullanılmıştır. Deney ve kontrol gruplarından alınan kan numunelerinde Alanin aminotransferaz (ALT), Aspartat aminotransferaz (AST) ve Laktat dehidrojenaz (LDH) düzeyleri spektrofotometrik yöntemle ölçülmüştür. Kontrol grubunda; ALT (U/L) 36±1.02, AST (U/L) 207±1.12 ve LDH (U/L) 170±1.21 düzeylerinde tespit edilirken, grup I'de ALT (U/L) 41±2.00, AST (U/L) 338±2.11, LDH (U/L) 199±2.23, grup II'de, ALT (U/L) 52±2.11, AST (U/L) 362±3.15, LDH (U/L) 388±3.42 ve grup III'de, ALT (U/L) 63±3.10, AST (U/L) 388±4.11, LDH (U/L) 455±3.44 seviyelerinde belirlenmiştir. Makroskobik incelemede, gruplar arasında önemli bir fark bulunmamıştır. Histopatolojik incelemede tüm deney gruplarındaki balık karaciğerlerinde hiperemi ve konjesyon görülmüştür. Ayrıca, grup-I'de hepatositlerin sitoplazmalarında vakuolleşme ve piknotik çekirdekler saptanmıştır. Grup-II-III'te ise karaciğerde yaygın nekrozlara rastlanmış, bunun yanında Grup III de özellikle vena sentralislerin çevresinde periasiner hücre nekrozları görülmüştür.

Deneysel olarak yapılan bu çalışmada, nitrit düzeyi arttıkça toksikasyon şiddetinin arttığı hem karaciğer enzim düzeylerinin artması hem de histopatolojik bulgularda gruplar arasında doz artışıyla birlikte nekrozun yaygınlaşmasıyla saptanmıştır. Bu çalışma akut nitrit toksikasyonunun karaciğer üzerinde olumsuz etkisinin alınan toksik madde ile orantılı olarak arttığını ve bu toksikasyonun balık popülasyonu için ciddi tehdit oluşturabileceğini düşündürmüştür.

Anahtar Kelimeler: *Oreochromis niloticus,* karaciğer, nitrit-nitrat, patoloji, histopatoloji

Insidious Problem of Dog; Spondylitis: 28 Cases

Evren Esin
University of Cukurova, Faculty of Ceyhan Veterinary Medicine,
Department of Surgery Ceyhan, Adana

ABSTRACT

In this study was aimed clinical and radiological evaluation of spodylitis, a disease which is characterised with degeneration of vertebrae. 19 male (67,86%) and 9 female (32,14%) total 28 dogs, from different age and breeds, which had been presented to clinic with various complaints, were evaluated. A classification according to body types has been made and Rotweiler (n=6), Golden Retriever (n=4), Boxer (n=3) and German shephard (n=1) consist Large Breed group while, Mix (n=5), Terrier (n=7) and Cocker spaniels (n=2) form Medium Breed group. For their age ranges, dogs were evaluated in three groups; 6-8 years 7 cases (25 %), 9-11 years 13 cases (46,43%), 12 years and over 8 cases (28,57%). In clinical examination findings were as following; 12 dogs showed severe exercise intolerance combined with different grades of incoordination, 8 dogs showed significant exercise intolerance, in 3 cases there were retention of urine, in 2 cases cystitis (in 1 case combined with urolithiasis) were seen while severe exercise intolerance combined with constipation were seen in 2 cases. In 1 case there was only gastritis. A number of 2-4 vertebrae in 18 of cases (64,29%), 5-9 vertebrae in 7 cases (25%) and over 10 vertebrae in 3 cases (10,71%) were affected. In 24 cases lumbal vertebrae were affected and bridging between L1-L2 (n=11) and L2-L3 (n=11) vertebrae was more common comparatively other parts of vertabral column. Symptomatic treatment, including resting and NSAI drugs, applied to cases, which had been diagnosed with spondylitis. In this study, diagnosing Spondylitis mostly on the 9-11 age range proves the importance of these age range for this disease. Furthermore, in this study male dogs comparatively to females and older dogs comparatively to younger dogs were determined to be susceptible to spondylitis. In Spondylitis cases, affecting of lumbal vertebrae was more common than other parts is thought to be related with intervertabral movements. In accordance with results of this study; with radiographical examination of lumbal vertabrae, esspecially after 6 years of age, disease can be diagnosed at the early stages. Thus by planning exercise programme of dogs and with profylactic drug applications, patients can maintain a higher quality of life.

Keywords: Dog, Radyografi, Spondylitis, Vertebra

Köpeklerin Gizli Problemi; Spondylitis: 28 Olgu

ÖZET

Bu çalışmada, köpeklerde kolumna vertabraliste dejenerasyonla karakterize bir hastalık olan spondylitis olgularının klinik ve radyolojik incelenmesi amaçlanmıştır. Çalışmada, çeşitli şikâyetlerle kliniğe getirilen, 19 erkek (%67,86) , 9 dişi (%32,14) olmak üzere değişik yaş ve ırklardan oluşan 28 köpek incelenmiştir. Vücut yapılarına göre "Ağır" ırk; Rotweiler (n=6), Golden Retriever (n=4), Boxer (n=3) ve German shephard (n=1),ve "Orta" ırk; Melez (n=5), Terrier (n=7) ve Cocker spanieller (n=2) olarak sınıflandırılmıştır. Yaş dağılımları açısından hayvanlar 6-8 yaş 7 (% 25), 9-11 yaş 13(% 46,43) ve 8 (%28,57) tanesi de 12 yaş ve üzeri olarak gruplandırılmıştır. Klinik muayenede, 12 olguda şiddetli egzersiz intoleransı ile birlikte çeşitli derecelerde inkordinasyon, 8 olguda belirgin şekilde egzersiz intoleransı, 3 olguda idrar retensiyonu, 2 olguda sistitis (bir olguda ürolithiasisle birlikte), 2 olguda şiddetli egzersiz intoleransıyla birlikte konstipasyon görülürken, bir olguda ise sadece gastritis saptanmıştır. Vakaların 18

tanesinde (%64,29) 2 ile 4, 7 tanesinde (%25) 5 ile 9 ve 3 tanesinde de (%10,71) 10'dan fazla vertebranın etkilendiği görülmüştür. Lumbal vertebraların 24 olguda etkilenmiş olduğu ve L1-L2 (n=11) ile L2-L3 (n=11) vertebraları arasında köprülenmenin diğer omurlara oranla daha fazla şekillendiği gözlenmiştir. Teşhisi konulan olguların istirahat etmeleri sağlanarak, non-steroidantiinflamtuar ilaçlar ile semptomatik tedavileri yapılmıştır. Bu çalışmada, spondylitis tablosunun çoğunlukla 9-11 yaş aralığında teşhis edilmesi, hastalık için bu yaş aralığının önemli olduğunu ortaya koymuştur. Ayrıca, çalışmada erkek hayvanların dişilere, yaşlıların gençlere oranla daha duyarlı olduğu da belirlenmiştir. Spondylitis olgularında lumbal vertabraların daha çok etkilenmesinin omurlar arasındaki hareketlilik durumuna bağlı olarak şekillendiği düşünülmüştür. Çalışmadan elde edilen veriler doğrultusunda, özellikle 6 yaşından sonra alınacak lumbal vertabra radyografileri ile hastalığın ilk aşamalarında tespit edilebileceği ve köpeklerin egsersiz durumu düzenlenerek, profilaktik ilaç uygulamaları ile hasta köpeklerin yaşamlarını daha kaliteli bir şekilde sürdürebileceği düşünülmüştür.

Anahtar Kelimeler: Köpek, Radyografi, Spondylitis, Vertebra

Marker Selection in Molecular Phylogenetics

Armagan Erdem Utuk
Universitiy of Cukurova, Faculty of Ceyhan Veterinary,
Department of Parasitology, Adana, Turkey

ABSTRACT

In recent years, it has been intensively discussed whether the morphological or molecular information should be preferred in answering to certain questions related to evolution. The use of molecular information in the design of phylogenetic trees has become a focus of interest among researchers from various disciplines. In addition to morphological information, molecular data has also been used intensively in the studies of relations among organisms and sometimes, the use of molecular data has been the only option. Molecular phylogenetic trees are designed in five steps: selecting molecular marker, multiple sequence alignment, selecting an appropriate model of evolution, selecting a tree designing method and evaluating the reliability of phylogenetic tree. Among these steps, the selection of a molecular marker is probably the most significant step, since it makes a big difference in designing the correct tree. Nucleotide (DNA, RNA) or protein sequences may be used in the design of a molecular phylogenetic tree. Which data set is to be used depends on the properties of the sequence and the purpose of the study. For instance, for the evolutionary analysis of different individuals in a certain population, the non-coded regions of the mitochondrial DNA is typically used, while ribosomal RNA or protein sequences, which evolve slower, may be used for the evolutionary analysis of more isolated groups of organism. In cases where the phylogenetic relation is explored among organisms, which exhibit dramatic differences such as prokaryotes and eukaryotes, the use of preserved protein sequences is reported to be better than the use of nucleotide sequences. In the present presentation, the selection of the right marker and its reasons are summarized.

Key words: Molecular phylogenetics, marker selection.

Moleküler Filogenetikte Marker Seçimi

ÖZET

Son yıllarda belirli evrimsel sorulara cevap ararken morfolojik mi yoksa moleküler bilgilerin mi tercih edilmesi gerektiği ciddi tartışmalara neden olmuştur. Filogenetik ağaçlar oluşturulurken moleküler bilgi kullanımı günümüzde farklı disiplinlerdeki araştırmacılar arasında büyük bir ilgi odağı haline gelmiş ve organizmalar arasındaki ilişki çalışılırken morfolojik bilgiye ek olarak moleküler veriler yoğun bir şekilde kullanılmaya başlanmış ve bazen de tek seçenek olmuştur. Moleküler filogenetik ağaçlar, moleküler marker seçimi, çoklu dizin hizalama, uygun evrim modelinin seçimi, ağaç oluşturma metodunun seçimi ve ağaç güvenilirliğinin tespiti olmak üzere beş aşamada oluşturulur. Bu aşamalar içerisinde belkide en önemli aşama moleküler marker seçimidir çünkü doğru ağacın oluşturulmasında büyük bir fark yaratır. Moleküler filogenetik ağaç oluştururken nükleotid (DNA, RNA) veya protein

dizinleri kullanılabilir. Hangi veri setlerinin kullanılacağı dizinin özelliklerine ve çalışmanın amacına bağlıdır. Örneğin belirli bir popülâsyon içerisindeki farklı bireylerin evrimsel analizi için mitokondriyal DNA'nın kodlamayan bölgeleri sıklıkla kullanılırken, çok daha fazla ayrışmış organizma gruplarının evrimsel analizi için daha yavaş evrimleşen ribozomal RNA veya protein dizinleri kullanılabilir. Prokaryotlar ve ökaryotlar gibi en üst seviyede farklılık gösteren organizmalar arasındaki filogenetik ilişkinin çalışıldığı durumlarda ise korunmuş protein dizinlerini kullanmak nükleotid dizinlerini kullanmaktan daha iyi olduğu belirtilmektedir. Bu sunuda doğru marker seçimi sebepleriyle özetlenmiştir.

Anahtar kelimeler: Moleküler filogenetik, marker seçimi.

Some Classes of Majority-Logic Decodable Cyclic Code

Güven Kaya
Erciyes Üniversitesi, Matematik Bölümü, Kayseri

Hacı Aktaş
Erciyes Üniversitesi, Matematik Bölümü, Kayseri

ABSTRACT

One of the problems in communications is to transmit information or data at as high a rate as possible with the least possible errors. In coding theory we are faced with the basic problem of finding ''good codes'' with practical encoding and decoding techniques. Since the cyclic codes can be easily implemented, they have been used in most error control systems to date. In coding theory many error control determining systems have been used. Majority-logic decoding which is one of these theories, is useful since it is easily practicable, decoding process is short, and performance.

In this study, a general research will be presented about Majority-logic code classes.

Keywords: Coding, Decoding, Majority-Logic, Cyclic Codes, Decodable Cyclic Codes

Bazı Majority-Logic Çözülebilir Devirli Kod Sınıfları

ÖZET

İletişimdeki önemli problemlerden biri, bilginin mümkün olan en hızlı oranda ve en az hata ile iletilmesidir. Kodlama Teorisinde en önemli problemlerden biri pratik kodlama ve çözümleme tekniklerine sahip olan ''iyi kodu'' bulmaktır.

Devirli kodlar kolay uygulanabilir olduğundan günümüze kadar hata kontrol sistemlerinde daha fazla tercih edilmişlerdir.

Kodlama Teorisinde birçok hata kontrol belirleme yöntemi kullanılmıştır. Bu yöntemlerden birisi olan Majority-Logic kod çözme; kolayca uygulanabilir olması, kod çözme işleminin kısa sürmesi ve performansından dolayı kullanışlıdır.

Bu çalışmada Majority-Logic kod sınıfları üzerine genel bir araştırma sunulacaktır.

Anahtar Kelimeler: Kodlama, Kod Çözme, Majority-Logic, Devirli Kodlar, Çözülebilir Devirli Kodlar

Pathological Diagnosis of Canine Mammary Gland Tumors

Ahmet Aydogan
University of Mehmet Akif Ersoy, Faculty of Veterinary Medicine,
Department of Pathology, Burdur-TURKEY

Abstract:

Mammary tumors are the second most common tumor type in dogs after skin tumors. These are almost exclusively seen in female dogs and are very rare in male dogs. In female dogs, mammary cancers are the most prevalent in all malignant tumors and the annual incidence rate of mammary cancers is about 198/100000 in dogs. When canine and woman incidences were adjusted to the same population distribution, age-adjusted canine incidence rate was three times higher. Metastases are generally seen in regional lymph nodes and lungs. When lung metastases occur, dyspnea is seen and causes death. Various classifications are used according to different criteria in histopathological diagnosis of canine mammary gland tumors. The most commonly classification is made by WHO-AFIP (World Health Organization–Armed Forces Institute of Pathology). However, histopathologically, difficulties are occasionally seen in detection of the origin of the tumor tissue. Therefore, immunohistochemical method is widely used for the diagnosis of tumors in human medicine and it has become a requirement also in veterinary medicine for reliable diagnosis. In this review, pathological diagnosis of canine mammary gland tumors which hold an important place in veterinary tumor pathology was summarized.

Key words: Dog, mammary tumors, pathology, diagnosis, immunohistochemistry.

Köpek Meme Tümörlerinde Patolojik Tanı

Özet

Köpeklerde meme tümörleri, deri tümörlerinden sonra en sık görülen tümörlerdir. Ayrıca, köpek meme tümörleri hemen yalnızca dişi köpeklerde görülür, erkeklerde çok ender olarak meydana gelmektedir. Dişi köpeklerde meme kanserleri ise malign tümörler içinde en yaygın rastlananlarıdır ve yıllık insidens oranı yaklaşık 198/100000'dir. İnsan ve köpeklerde aynı populasyon dağılımı göz önüne alındığında, yaşa bağlı olarak meme tümörlerinde insidens oranı dişi köpeklerde kadınlara göre 3 kez daha fazladır. Metastazlar genellikle akciğerler ve bölgesel lenf düğümlerinde görülür ve buna bağlı olarak da köpeklerde meme tümörlerine bağlı ölümler akciğer metastazları sonucu dispne ile meydana gelir. Köpek meme tümörlerinin histopatolojik tanısında farklı kriterler göz önünde bulundurularak değişik sınıflandırmalar yapılmıştır. Bu sınıflandırmalardan en yaygın kullanılanı, WHO-AFIP (World Health Organization–Armed Forces Institute of Pathology) tarafından yapılan sınıflandırmadır. Bununla birlikte, histopatolojik tanıda tümörün köken aldığı dokunun ortaya konulmasında zaman zaman güçlüklerle karşılaşılmaktadır. Bu nedenle, insan hekimliğinde tümör tanısında çok yaygın olarak kullanılan immunohistokimyasal metot, güvenilir bir tanı için veteriner hekimliğinin de vazgeçilmez bir gereksinimi haline gelmiştir. Bu derlemede, veteriner tümör patolojisinde önemli bir yer tutan köpek meme tümörlerinin patolojik tanısı özetlenmiştir.

Anahtar kelimeler: Köpek, meme tümörleri, patoloji, tanı, immunohistokimya.

Investigation of Dystocia Etiology in Extensive Small Ruminants Flocks in Van Province

N Cetin
University of Yuzuncu Yil, Faculty of Veterinary Medicine, Department of Obstetrics and Gynecology, Van, 65010

F Eski*
University of Cukurova, Faculty of Ceyhan Veterinary Medicine, Department of Obstetrics and Gynecology, Adana, 01330

S Sendag

University of Yuzuncu Yil, Faculty of Veterinary Medicine, Department of Obstetrics and Gynecology, Van, 65010

BA Uslu
University Cumhuriyet, Faculty of Veterinary Medicine, Department of Reproduction And Artificial Insemination, Sivas, 58140

A Wehrend
Justus-Liebig University, Clinic for Obstetrics, Gynecology and Andrology of Large and Small Animals, Giessen, Germany

Abstract

Parturition refers to a critical period for a mother, offspring and even for growers. Because a disruption (dystocia, dystoci) of the physiological birth process, as it can directly impact on the mother's subsequent fertility is able to determine the future of reproductive positions of the offspring. In this case, the reflection a livestock economy of the birth loss, things will parallel with the regional dystocia incidence. The snow-covered winter lasts quite long in Van Province and around. In this period, small ruminant flocks are generally kept in narrow places from the second month of pregnancy and melting of snow is waited for grazing. Of such data in our clinics, parturition cases are often transferred power in parturition season. Generally dystocia cases reported from those kind flocks. The aim of this study is to show the etiology of dystocia from these flocks between the years 1994 and 2014 that consult for our clinics. According to our knowledge there is no study about this subject in Turkey until now. In 86 dystocia cases that bring to our clinics; parturation was started but offspring couldn't emerge. There were some samples that were unsuccessful interfered by the owner. At the end of the physical examination we determine that the causes of dystocia were maternal (%32.56 ringwomb, %22.1 torsio uteri, %13.9 uterus inertia) in 59 (68.60%) cases and fetal (%19.76 presentation- position ve posture, %11.63 abnormalities) in 27 (31.40%) cases. As a result, in extensive small ruminant flocks from Van province the etiology of observed dystocia cases were came in to forefront in accordance with the literatures. But torsio uteri were

remarkable in dystocia cases which don't completely matches the literature. Awareness should be raised up about the torsio uteri between the small ruminant breeders and this should be the focus of future researches about this subject in Van province of Turkey. And also the effect of different etiologies of dystocia have to be considered in the reproductive performance of the mother and it's offspring.

Keywords: Dystocia, small ruminant, torsio uteri, ringwomb

The Effects of Climate Change on Alterations in Use of Pesticide

Petek Piner Benli
University of Cukurova, Ceyhan Faculty of Veterinary, Adana

ABSTRACT

Pesticides are chemical products designed to prevent, destroy, repel, or reduce pests such as insects, herbs, fungi, bacteria. In contrast to the economic benefits, the use of pesticides causes adverse effects on human health and environment. Although, in recent years, many countries have made extensive efforts to control and reduce pesticide applications, pesticides have still applied at large amounts in all over the world in agriculture.

Climate change is an increasingly urgent problem with potentially far-reaching consequences for human health and environment. One of the consequences of climate change that has recently attracted attention is its potential to alter the environmental distribution and biological effects of pesticides. The environmental parameters, such as temperatures, precipitation altered by climate change, could affect the environmental distribution and biological effects of pesticides. Climate change could influence the environmental fate and behavior of pesticides by changing fundamental mechanisms of environmental partitioning through mechanisms of increased volatility, wet deposition, and degradation. In this way, climate change may reduce soil and aquatic concentrations of pesticides. Potential increase in the loss of applied pesticides due to enhanced volatility and degradation, a compensatory increase in pesticide applications may be necessary to be efficacious against target pests. Additionally, it is estimated that climate change may cause epidemic diseases in agricultural products; therefore, the use of more pesticides will be obligatory. As a result, it is obvious that increasing in use of pesticides due to the climate change will increase the possible risks of pesticides for the environment and human health.

Keywords: Climate change, Pesticides, Environmental risk, Human health

İlkim Değişikliğinin Pestisid Kullanımındaki Değişimlere Etkileri

ÖZET

Petisitler böcekler, otlar, mantarlar, bakteriler, virüsler gibi zararlılardan korumak, yok etmek, kaçırmak, ya da azaltmak için dizyan edilmiş kimyasal ürünlerdir. Ekonomik yararlarının aksine, pestisid kullanımı insan sağlığı ve çevre üzerinde olumsuz etkilere neden olmaktadır. Son yıllarda birçok ülkenin pestisid uygulamasını azaltmak ve kontrol etmek için çaba harcamasına rağmen pestisidler dünya genelinde tarımda halen fazla miktarlarda uygulanmaktadır.

İklim değişikliği insan sağlığı ve çevre için geniş kapsamlı potansiyel sonuçları ile giderek artan önemli bir problemdir. İklim değişikliğinin son dönemde dikkatleri üzerine çeken sonuçlarından biri pestisidlerin biyolojik etkileri ve çevredeki dağılımlarını değiştirme potansiyelleridir. İklim değişikliğinden etkilenen sıcaklık ve yağış gibi çevresel parametreler pestisidlerin biyolojik etkileri ve çevredeki dağılımlarını etkileyebilmektedir. İklim değişikliği artan buharlaşma, yaş çökelme ve parçalanma mekanizmaları ile çevresel dağılımın temel mekanizmasını değiştirerek pestisidlerin doğadaki davranışlarını etkileyebilmektedir. Böylece pestisidlerin toprak ve sucul ortamlardaki konsantrasyonları azalabilmektedir. Buharlaşma ve parçalanmadaki artıştan dolayı uygulanan pestisid kaybındaki artışlar, hedef zararlılara karşı etkili olabilmesi için pestidisid uygulamasında telafi edici artışları zorunlu kılmaktadır. Ayrıca, iklim değişikliğinin tarım ürünlerinde epidemik hastalıklara neden olabileceği ve böylece daha fazla pestisid kullanımının zorunlu hale geleceği tahmin edilmektedir. Sonuç olarak ilkim değişikliğinden dolayı pestisid kullanımındaki artışın çevre ve insan sağlığı için pestisidlerin mevcutrisklerini artıracağı açıktır.

Anahtar Kelimeler: İlkim değişimi, Pestisidler, Çevresel risk, İnsan sağlığı

Macro-anatomical Investigation of the Lumbosacral Plexus in the Rat

Ayşe Halıgür
Department of the Anatomy, Faculty of Ceyhan Veterinary Medicine,
University of Çukurova, Adana

ABSTRACT

In this study was aimed to macro-anatomical examination of lumbosacral plexus in rats. Totally, 20 rats (10 females, 10 males) were were used for this study. Abdomen and pelvis region of rats were dissected along the linea alba. Organs were removed without damage to the nerves in the abdomen and pelvic cavity. Iliohypogastric nerve had divided into 3 branches in two animals (1 female, 1 male). In male animal, It was determined that a thin branch of thoracal (T) 13 participated in this nerve. Ilioinguinal nerve was determined to consist of two branches in 4 rats (female). Both of them were observed again divided into two branches. Genitofemoral nerve was formed by L3-L4 and a thin branch of L5 in only one male animal. Both lateral femoral cutaneous nerve and genitofemoral nerve were found to leave together in lumbosacral plexus.

This study revealed that the sperate of branches of the lumbosacral plexus was diffrent from the classical knowledge in rats. The difference of this branch was more prevalent in female than male animals. The differences seen in females, suggesting that formed during pregnancy due to active stimulation of the genital organs.

Sıçanlarda Plexus Lumbosacralis'in Makro-anatomik incelenmesi

ÖZET

Bu çalışmada, plexus lumbosacralis'in makroanatomik incelemesi amaçlandı. Çalışmada toplam 20 sıçan (10 dişi, 10 erkek) kullanıldı. Sıçanların karın ve pelvis bölgesi linea alba boyunca diseke edildi. Karın ve pelvis boşluğunda bulunan organlar sinirlere zarar verilmeden çıkartıldı. Nervus iliohypogastricus'un iki hayvanda (1 dişi, 1 erkek) 3 dala ayrıldığı görüldü. Erkek hayvanda thoracal (T) 13'ten bir ince dalın bu sinire katıldığı belirlendi. Nervus ilioinguinalis'in 4 sıçanda (dişi) 2 daldan oluştuğu belirlendi. Bu iki sinirin de tekrar iki dala ayrıldığı görüldü. Nervus genitofemoralis'in sadece 1 erkek hayvanda L3-L4 ve ince bir dal olarak L5 tarafından oluştuğu gözlendi. Plexus lumbosacralis'ten nervus cutaneus femoris lateralis ile nervus genitofemoralis'in birlikte ayrıldığı tespit edildi.

Bu çalışma, sıçanlarda plexus lumbosacralis'in klasik bilgilerinden farklı dallanmaları olduğunu ortaya koydu. Bu dallanmalardaki farklılıklar erkeklerden daha çok dişi hayvanlarda görüldü. Dişilerde farklılıkların görülmesi, gebelik döneminde genital organların aktif olarak uyarılmasına bağlı olarak şekillendiğini düşündürdü.

Structural and Mechanical Properties of $Al_{75}Cu_{12.5}Fe_{12.5}$ Alloy By Arc Melting

Celal Kursun
Department of Physics, Kahramanmaras Sutcu Imam University, Kahramanmaras

Musa Gogebakan
Department of Physics, Kahramanmaras Sutcu Imam University, Kahramanmaras

Nawzad Ali Rasool Belbas
Department of Physics, Kahramanmaras Sutcu Imam University, Kahramanmaras

ABSTRACT

In this study, $Al_{75}Cu_{12.5}Fe_{12.5}$ ingot alloy was produced by arc melting. The ingot alloy was investigated using X-ray diffraction (XRD), scanning electron microscopy coupled with energy dispersive spectroscopy (SEM-EDX), differential scanning calorimetry (DSC), differential thermal analysis (DTA) and Vickers microhardness (HV) tester. According to the XRD and SEM results, the $Al_{75}Cu_{12.5}Fe_{12.5}$ alloy has a fully crystalline structure. It was obviously shown from surface micrographs of the ingot alloy that the $Al_{75}Cu_{12.5}Fe_{12.5}$ alloy occur phases with different shapes. The EDX analysis confirmed compositional homogeneity of the $Al_{75}Cu_{12.5}Fe_{12.5}$ alloy. From the DSC and DTA curves, an endothermic peak was seen at 660 $^{\circ}$C which might be melting point of Al. The microhardness of the alloy was measured about 491.8 (± 11) HV at room temperature.

Keywords: Arc melting, Al-based alloys, microhardness, XRD.

REFERENCES

[1] Maruyama B. and Hunt W.H., (1999) JOM, Vol. 51, No. 11, p.

[2] Tsai A P, Inoue A and Masumoto T (1987) J. Appl. Phys. 26 L1505

[3] Bihar, Z. et al. (2006). J. Alloys Compd., 407, 65.

Mechanical and Microstructural Properties of $Co_{50}Zr_{40}Al_5Ni_5$ Ingot Alloy

Celal Kursun
Department of Physics, Kahramanmaras Sutcu Imam University, Kahramanmaras

Musa Gogebakan
Department of Physics, Kahramanmaras Sutcu Imam University, Kahramanmaras

Mahmood Mohammed A. Ahmad
Department of Physics, Kahramanmaras Sutcu Imam University, Kahramanmaras

ABSTRACT

Co-based alloys have exhibited excellent mechanical and magnetic properties because of their excellent corrosion resistant, ultrahigh strength and soft ferromagnetic, hardness, good thermal and electrical conductivity. It is well known that the mechanical and physical properties of materials are strongly dependent on microstructural parameters, such as phase chemistry, particle size, particle volume fraction, etc. In the present study, $Co_{50}Zr_{40}Al_5Ni_5$ alloy was produced by arc melting. The certain properties of the alloy were characterized by X-ray diffraction (XRD), electron microscopy with energy dispersive spectroscopy (SEM-EDX), differential scanning calorimetry (DSC), differential thermal analysis (DTA) and Vickers microhardness (HV) tester. According to the results the $Co_{50}Zr_{40}Al_5Ni_5$ alloy has crystalline phases which are easily seen in SEM micrographs. These phases are consonant with XRD results, too. The Vickers microhardness of the alloy is measured 816.6 (± 13) Hv which is higher than values of Co-based alloys in literature.

Keywords: Arc melting, Co-based alloys, microhardness, XRD

REFERENCES

[1] A. Inoue et al. Development and applications of Fe- and Co-based bulk glassy alloys and their prospects, Journal of Alloys and Compounds 615 (2014) S2–S8.

[2] S.K. Makineni, et al., A new class of high strength high temperature Cobalt based γ–γ′ Co–Mo–Al alloys stabilized with Ta addition, Acta Materialia 97 (2015) 29–40

[3] B. Gorr, et al., Thermodynamic calculations in the development of high-temperature Co–Re-based alloys, Journal of Alloys and Compounds 582 (2014) 50–58.

Microstructural and Thermal Characterization of $(Ni_{80}Si_{20})_{95}M_5$ (M=Co, Fe, Al, Cu, Zr) Ternary System

Sinan Diken
Department of Physics, Kilis 7 Aralık University, Kilis

Celal Kursun
Department of Physics, Kahramanmaras Sutcu Imam University, Kahramanmaras

Musa Gogebakan
Department of Physics, Kahramanmaras Sutcu Imam University, Kahramanmaras

ABSTRACT

Metallic alloys with superior mechanical and thermal properties are highly demanded for many application fields including aerospace, automotive, electronics and power industries [1-2]. In the present study, Ni-Si rich $(Ni_{80}Si_{20})_{95}M_5$ (M=Co, Fe, Al, Cu, Zr) ternary alloys were successfully prepared by arc melting method. Systematic characterizations were carried out through a combined study of X-ray diffraction (XRD) and differential scanning calorimeter (DSC). The effects of the third alloying element on the microstructure evolution and thermal transformation of Ni-Si based ternary alloys were investigated. The XRD analysis indicated that all arc-melt ingots consist of finely dispersed phases. In addition, microstructural parameters such as mean crystallite size, lattice parameter and lattice spacing of alloys were determined using Debye-Scherer's equation [3]. Continuous heating DSC traces of the investigated alloys exhibit endothermic reactions due to phase transformations. Peaks corresponding to these phases both in XRD and DSC results are consistent with each other and match well with the ternary phase diagrams in the literature. Finally, a nice correlation was established between microstructural and thermal properties of the alloys.

Keywords: Arc melting, Ni-Si based alloys, XRD, DSC

1 ACKNOWLEDGEMENTS

This work was financially supported by Kahramanmaras Sutcu Imam University (KSU) with Project no. 2015/3-85.

REFERENCES

[1] Gogebakan M. et al. (2015). Microstructural and mechanical properties of binary Ni-Si eutectic alloys. Journal of Alloys and Compounds, 643, S219–S225.

[2] Senkov O.N. et al. (2011). Microstructure and room temperature properties of a high-entropy TaNbHfZrTi alloy. Journal of Alloys and Compounds, 509, 6043–6048.

[3] Cullity B.D. and Stock S.R. Elements of X-Ray Diffraction 3rd ed. Prentice Hall (2001).

Prediction of the Juice Volume in Pomegranate by the Fuzzy Logic Method

Mine Pakyürek
Siirt University, Faculty of Agriculture, Department of Horticulture, Siirt, 56100
Nazire Mikail*
Siirt University, Faculty of Agriculture, Department of Animal Science, Siirt, 56100

ABSTRACT

Fuzzy expert systems search for a solution based on the expertise of people who are experts in a particular field. This could be described as a kind of advisory system edited on computer. The use of natural language on the basis of fuzzy logic and easier understanding of system logs provide this technique to resolve many of daily and current problems.

In this study, by the fuzzy logic method which is the closest logic to human mindset, a sample expert system was designed for estimating the juice volume without requiring any laboratory work. As inputs of the system were used the pomegranate feautures such as different harvest time, irrigation amounts, fruit sizes. The Fuzzy Logic Toolbox of MATLAB programme was used in designing of the system.

Key Words: Fuzzy Logic, Pomegranate, Juice Volume, Harvest Time, Fruit Size, Irrigation

The Removal of Cu and Cd from Aqueous Solution Using Sorbents Walnut Shell Immobilized On Amberlite XAD-4

İbrahim Teğin*
Siirt Üniversitesi, Kimya Bölümü, Siirt

Selma Akdeniz
Siirt Üniversitesi, Kimya Bölümü, Siirt

ABSTRACT

In this study, sorbents as walnut shell immobilized on Amberlite XAD-4 polymer of Cu (II) and Cd (II) ions was investigated conditions of enrichment by solid phase extraction method. The effect of the recovery yield of the ambient pH, eluent type and concentration, solution flow rate, the effect of solution volume, salt effect, column repeatability, examined the application of certified reference material and environmental samples.Improved methods has provided 40 times enrichment for Cd and 10 times enrichment for Cu.In addition, 95% confidence level, the relative standard deviation of Cu and Cd was found to be 6.73% and 7.91% for 3 repeat experiments, respectively.

Keywords: AAS, Amberlit XAD-4, spe

Amberlit XAD-4 Polimerinin Biyosorbent Katki Malzemesi Ceviz Kabuğu Kullanilarak Sulardan Cu ve Cd Giderilmesi

ÖZET

Bu çalışmada, biyosorbent olarak ceviz kabuğu ile immobilize edilmiş amberlit XAD-4 polimerinin üzerine Cu(II) ve Cd(II) iyonlarının katı faz özütleme yöntemi ile zenginleştirilme koşulları araştırıldı. Çalışılan metal iyonların geri kazanma verimine ortamın pH'ı, elüent türü ve derişimi, çözelti akış hızı, çözelti hacminin etkisi, tuz etkisi, kolonun tekrarlanabilirliği, sertifikalı referans madde ve çevre örneklerine uygulanması incelendi.

Geliştirilen yöntem ile Cu 10 kat, Cd için 40 kat zenginleşme gerçekleştirildi. Optimum koşullarda, % 95 güven seviyesinde Cu ve Cd geri kazanım verimleri sırasıyla % 98,50 ± 3,89 ve 100,00 ± 4,57 olarak bulunmuştur. Ayrıca % 95 güven seviyesinde, 3 tekrar deneyi için % bağıl standart sapma değeri Cu için %6,73 ve Cd için %7,91 olarak bulunmuştur.

Anahtar Kelimeler: AAS, Amberlit XAD-4, eser element, spe

REFERANSLAR

[1] Camel, V., 2003. Solid phase extraction of trace elements, spectrochim. Acta, 58(7): 1177-1233

[2] Elçi, L., Soylak, M., Doğan, M., 1992. Preconcentration of trace metals in river waters by the application of chelate adsorption on Amberlite XAD-4 fresenious. J. Anal. Chem., 340(1-2): 175-178.

[3] Saraçoğlu, S., Chromosorb-102 Reçinesi Kullanılarak Katı Faz Özütleme Yöntemiyle Eser Elementlerin Zenginleştirilmesi ve AAS ile Tayini, Doktora Tezi, *Erciyes Üniversitesi Fen Bilimleri Enstitüsü*, Kayseri, 142s, 2001.

Erasmus + Program and the Education Abroad Students Measuring Satisfaction Levels

Gülcihan Aybike Dilek
Mehmet Akif Ersoy University School of Nursing Department

Serkan Köksoy
Mehmet Akif Ersoy University School of Nursing Department

Mümin Polat
Mehmet Akif Ersoy University School of Health Emergency and Disaster Management Department

ABSTRACT

Desiderius Erasmus was a Dutch philosopher who lived between 1465-1536. He was the pioneers of Renaissance humanism movement and one of the largest representatives. He studied in various European countries as a student and academician, therefore, his name was considered to be an appropriate name for this program . The programme which implemented in 1987, chanced the name as an Erasmus+ (2014-2020), people with this program, bring new skills, developing their self improvment and increasing employment opportunities without considering their ages and educational background has been aimed . The purpose of this study; It is a measure of overall satisfaction level of students benefiting from the Erasmus program. 51 people participated in the study. The students answered the question which is 'What are the benefits that come from being an Erasmus student?' %19,6 of students; academic achievement, %35,3 of students; to adapt to different cultures, %33,3 for foreign language learning / development,, %2 of students; to increase career planning / job opportunities , %9,8 of students answered as personal development. The students answered the question which is 'What was the main problems when you g oto abroad'; %31,4 of students economic %19,6 of students accommodation, %33,3 of students language problem, %3,9 of students adaptation, %2 of students academic problems, %5,9 of students cultural differences, of students answered food.

As a result; students who lived in abroad with Erasmus program had some problems such as; language and economical but, the period during which they studied their positive contributions and achievements in terms of higher rates has been demonstrated to be effective in the survey results. We believe that; with improving facilities and increasing support, moving to higher levels of satisfaction.

Keywords: Erasmus, Survey, Satisfaction

Erasmus+ Programı ile Yurtdışında Eğitim Alan Öğrencilerin Memnuniyet Düzeyinin Ölçülmesi

ÖZET

Desiderius Erasmus 1465 - 1536 yılları arasında yaşamış Hollandalı bir felsefe adamıdır. Rönesans'la birlikte ortaya çıkan hümanizm akımının öncülerinden ve en büyük temsilcilerindendir. Değişik Avrupa ülkelerinde hem öğrenci, hem de akademisyen olarak bulunmuş olmasından dolayı Hollandalı bilim adamının adı, bu programa uygun bir isim olarak düşünülmüştür. 1987'de hayata geçirilen, 2014 – 2020 yılları arasında Erasmus+ adıyla projelerine devam etmekte olan program ile kişilere, yaş ve eğitim geçmişlerine bakılmaksızın yeni beceriler kazandırılması, onların kişisel gelişimlerinin güçlendirilmesi ve istihdam olanaklarının artırılması amaçlanmaktadır. Erasmus Programı; eğitim, öğretim, gençlik ve spor alanlarını kapsamaktadır. Bu çalışmanın amacı; Erasmus programından yararlanan öğrencilerin genel memnuniyet düzeylerinin ölçülmesidir. Çalışmaya 51 kişi katılmıştır. Erasmus öğrencisi olmanın size sağladığı kazanımlar nelerdir sorusuna öğrencilerin %19,6'sı akademik kazanım, %35,3'ü farklı kültüre uyum sağlayabilme, %33,3'ü yabancı dil öğrenme/geliştirme , %2'si Kariyer planlaması /iş bulma olanaklarını arttırması, %9,8'i kişisel gelişim olarak cevaplamıştır. Gittiğiniz ülkelerde yaşadığınız temel sorunlar nelerdir sorusuna; %31,4'ü ekonomik, %19,6'sı konaklama, %33,3'ü dil sorunu, %3,9'u adaptasyon, %2'si akademik sorunlar, %5,9'u kültür farkı, %3,9'u beslenme olarak cevap vermiştir.

Sonuç olarak, Erasmus+ programıyla yurtdışında yer alan öğrencilerin dil sorunu, ekonomik sorunlar gibi bazı konularda sıkıntılar çektiği ancak, eğitim gördükleri süre boyunca kendilerine olumlu anlamda katkı ve kazanımlarının daha yüksek oranda etkili olduğu anket sonuçlarıyla ortaya konmuştur. İmkanların geliştirilmesi ve hibe desteğin artırılmasıyla memnuniyetin daha da üst seviyelere taşınacağını düşünmekteyiz.

Structural and Electronic Investigations, MEP analysis on a Vic-Dioxime Cu(II) Complex Using Density Functional Theory

Berna Çatıkkaş
Mustafa Kemal University, Department of Physics, Hatay, Turkey

ABSTRACT

The presence of mildly acidic hydroxyl groups and slightly basic nitrogen atoms cause vicinal dioximes to become amphoteric ligands which form corrin type square-planar complexes with transition metals such as nickel(II), cobalt (II) and copper(II) as central atoms. Vic-dioximes and their metal complexes are of current interest for their physicochemical properties, reactivity patterns and potential applications in many important chemical processes in the areas of medicine, bioorganic systems, catalysis, electrochemical, electro optical sensors and semiconducting properties.

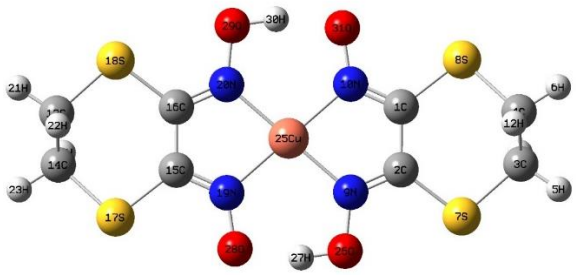

Figure 1. The molecular structure of vic-dioximecopper(II) complex

In this study, structural and electronic parameters of the [(2Z,3Z)-1,4-dithiane-2,3-dionedioxime]copper(II) complex (Figure 1) were determined by using Gaussian 09 program. Firstly, geometric parameters (bond length, bond angle, tortion angle) of the most stable form of the complex were determined with MPW1PW91 iop(3/76=0572004280) / gen [S: cc-pvqz, C and H: 6-31+g(d,p), N: 6-31+g(2d), O: cc-pvqz, Cu: sddall and sdd] level. Secondly, infrared and Raman frequencies of its fundamental modes were calculated by using the selected method and basis sets. Thirdly, its charge distribution was visualized by the map of molecular electrostatic potential. Finally, all the calculated values were compared with the corresponding experimental results.

Keywords: Vicinal dioximes, Density Functional Theory, MEP

Methods Used in the Control of Reproduction in Pet Animals Until Today*

Funda Eşki*

University of Cukurova, Faculty of Ceyhan Veterinary Medicine, Department of Obstetrics and Gynecology, Adana

Muhammet Alan
Eskisehir Osmangazi University, Faculty of Agriculture, Department of Animal Sciences, Eskisehir

Sait Şendağ
University of Yuzuncu Yil, Faculty of Veterinary Medicine, Department of Obstetrics and Gynecology, Van

*[1]This Project was supported by Scientific Research Projects Fund, Yuzuncu Yil University, no: 2010–SBE–D 066. This doctoral thesis are summarized as compiling with different title.

Population control of both domesticated and wild, free-roaming animals has been a important problem throughout the world. This overpopulation has led to social problems, degradation of the ecosystem and increased risks of zoonotic disease. Finding a socially acceptable as well as a safe and effective means of controlling excess populations of animals has been extremely difficult. Temporarily or permanently postponed of oestrous behaivor in animals, suppression of the mating season begins, prevention of implantation and surgical, physical and hormonal methods for the termination of pregnancy have long been used. However, especially in the street with debate on ethical standards in the prevention of stray as cats living and breeding of animals such as dogs and on the basis of there are methods based on the termination of life. It is clear that an inexpensive and non-surgical method of permanent contraception would be of enormous benefit in reducing these populations. Depending on the use, effective in varying degrees, to have its own drawbacks of each of these methods has led researchers to focus on alternative methods. In particular, studies such as immunocontraception and immunosterilizasyon has increased in recent years. This doctorate theses study has taken its place among actual approaches with its investigation immunocontraceptive efficacy of a GnRH vaccine (Eski F, 2012).

Keywords: Control of Reproduction, Pet Animals**, Immunocontraception**

Research of Essential Oil Yield and Composition of Sage (S. Officinalis) Cultivated in Different Locations

S.Ayşe Çelik
Selçuk Üniversitesi Ziraat Fakültesi, Tarla Bitkileri Bölümü Tıbbi Bitkiler Anabilim Dalı, Konya

Yüksel Kan
Selçuk Üniversitesi Ziraat Fakültesi Tarla Bitkileri Bölümü Tıbbi Bitkiler Anabilim Dalı, Konya

Yavuz Bağcı
Selçuk Üniversitesi Fen Fakültesi Biyoloji Bölümü, Kampüs Konya

Süleyman Doğu
Necmettin Erbakan Üniversitesi Biyoloji Eğitimi Bölümü, Konya

Yaşhar Hameed
Selçuk Üniversitesi Fen Fakültesi Biyoloji Bölümü, Kampüs Konya

ABSTRACT

Salvia belongs to lamiaceae family. It is rate in essential oil is very high. It is oerennial plant. The plant befor flowering period the herba ia used medical. For people Medical salvia is used for cold, respiratory, trect infection and intentinal spams solvent, many different medical purposes.It is widely consumed as atea. Besides it is used as an antiseptic and disinfectant because of antitimicrobial activity that contains essential oils. The aim of this study to determine the combination of essential oil. It was made in the condition of Konya, Elazig and Karaman. The study meterrial in different locations in field trials in the pre-flowering from herba examples and were performed in the following laboratory.

Salvia essential oil yield it was obtained by Clevenger apparatus and in% mount was calculated. Essential oil components was determined by GC-MS device and chromatographic method. The amount of essential oil of Salvia wich grow in Konya% 1,7 major components α-thujone (15.04%), 1.8 cineole (13.46%) and camphor (8.90%) d. The amount of sage essential oil that is by 1.4% in the culture of Karaman major components are camphor (26.22%), α-thujone (20.02%) and 1.8 cineole (10.54), respectively. The amount of sage essential oil that is by 1.1% in the culture of Elazig major components of α-thujone (24,55%), 1.8 cinelo to (14.42%) and camphor (11.15%), respectively.

Key words: Salvia officinalis, Essential Oils , GC-MS, Location.

Fatty Acid Composition in *Yersinia Ruckeri* Strains Isolated from Rainbow Trout Farms

Ünal Ispir
İnönü Üniversitesi Su Ürünleri Fakültesi, Malatya

Mikail Özcan
Kahramanmaraş Sütçü İmam Üniversitesi Ziraat Fakültesi, Su Ürünleri Bölümü, Kahramanmaraş

Muammer Kırıcı
Bingol Üniversitesi, Ziraat Fakültesi, Su Ürünleri Bölümü, Bingol.

ABSTRACT

In this study, a total of 33 *Yersinia ruckeri* isolates were obtained from rainbow trout farms in the five different region of Turkey.We were determined to changes in fatty acids group of the strains. All the isolates were identified as *Y. ruckeri* based on colonical, cellular morphology and biochemical characters. All *Y. ruckeri* 11 major fatty acids, including 12:0, 14:0 16:0, 16:1n-7, 17:1, 18:1n-9c, 18:2n-6c, 18:3n-3c, 22:0, 22:1 and 24:1. Compared to isolates biochemical property. There was no different between fatty acids and biochemical characteristics. The results of this study show that the fatty acids composition of *Y. ruckeri*-isolated strains from rainbow trout farms in Turkey is on a large scale homogenous.

Keywords: Rainbow trout, *Y. ruckeri*, biochemical properties, fatty acids composition

Gökkuşağı Alabaliği Yetiştiricilik Tesislerinden Izole Edilen *Yersinia Ruckeri* Suşlarinin Yağ Asit Kompozisyonu

ÖZET

Bu çalışmada Türkiye'nin beş farklı bölgesindeki gökkuşağı alabalığı yetiştiricilik tesislerinden izole edilen 33 *Yersinia ruckeri* yağ asit miktarlarındaki değişimler incelendi. Bütün suşların koloni ve hücre morfolojisi ile biyokimyasal özellikleri yönünden incelenmesi sonucu *Y. ruckeri* olduğu ortaya konuldu. Bütün *Y. ruckeri* suşlarında 12:0, 14:0 16:0, 16:1n-7, 17:1, 18:1n-9c, 18:2n-6c, 18:3n-3c, 22:0, 22:1 and 24:1 gibi 11 önemli yağ asidi tespit edildi. İzolatların biyokimyasal özellikleri karşılaştırıldı. Yağ asidi ve biyokimyasal özellikler arasında farklılık yoktu. Bu çalışmada Türkiye'deki gökkuşağı alabalığı yetiştiricilik tesislerinden izole edilen *Y. ruckeri* suşlarının yağ asidi kompozisyonunun büyük oranda homojen olduğu görüldü.

Anahtar Kelimeler: gökkuşağı alabalığı, *Y. ruckeri*, biyokimyasal özellikler, yağ asidi kompozisyonu

Biosorption of Remazol Brillant Blue-R onto *Saccharomyces cerevisiae* biomass and investigation of biomass biodegradation

Metin Kertmen
Siirt University, School of Health, Department of Occupatinal Health and Safety Siirt

Bilal Acemioğlu
Kilis 7 Aralık University, Faculty of Art and Sciences , Department of Chemistry, Kilis

ABSTRACT

Many industries; especially textile Caused by aqueous dye dye waste pollution, ecological balance and environmental affects in a negative way. Today, this kind of environmental issues is very important, for this purpose, are made in several scientific research. In this study, Saccharomyces cerevisiae(SC) has been used as biosorbent for the Remazol Brillant Blue R (RBBR) from aqueous solution by adsorption technique. Biosorption that in experiments; interactions to explain better; Isotherm, kinetics, thermodynamics and FTIR analysis is made. Also; sorbents in soils and in laboratory petri dishes funguslar of biodegradation was investigated.

The effect of contact time in Biosorption experiments are made up of 300 minutes . From the first minutes, it reached the highest value percentage of biosorption. But, After In the experiment which follows, it was observed that the dye partition into the aqueous environment of the yeast surface. Extend the time; It is made to determine whether the reverse is biosorption. The average equilibrium time of the experiments; It was found to be 30 minutes.

SC from the aqueous medium by the RBBR dyes biosorption experiments; The effect of dye concentration of 10, 20, 50, 75, 100 and 150 mg / l was studied determined. Biosorption highest percent value of 50 mg / L concentration 95%, maximum amount of 150 mg / L concentration of 48,55 mg / g was found.

Experiments observed effect of pH on the biosorption; pH 3, 5, 7, 9 conditions was performed. The highest value of 77,48% was realized at pH 3.

Experimental studies were performed to determine the effect biosorption temperature; 20, 30, 40, 50 and 60 ° C temperature condition was studied. 30 ° C for 30 minutes with the best results were realized as 76,64%. It showed no decrease in value at the next time.

Isotherm analysis results; biosorption and Langmuir, Freundlich isotherm model was determined to comply with both. Comply with the Langmuir isotherm; Explain homogeneous adsorbent surface and covered with a single layer. biosorption obey Freundlich isotherm suggests that the surface of the biomass has some heterogenity.

Kinetic investigations; Pseudo first order kinetic model (YİDK), second-degree Pseudo Kinetic Model (YİDK) and Particle diffusion kinetics within (PIDC) compliance with the model were examined. Biosorption kinetics SC on RBBR; 30 ° C and pH 3 was investigated and it was observed fit with the YİDK kinetic model, has fitted partly PIDC kinetic model.

Thermodynamic analysis of free energy change parameters (ΔG^o), standard enthalpy (ΔH^o) and standard entropy (ΔS^o) were calculated using. The ΔG^o values calculated with the values of temperature were negative for all temperatures. ΔG^o to the negative value indicates that the adsorption is voluntary.

ΔHº values are negative for all temperatures. ΔH value is negative is indicative exothermic. ΔSº values were found to be positive for all temperatures. A positive value of ΔSº indicate that there may be a structural change between dyes and adsorbent.

Experiments examining the biodegradation of sorbents; In the soil and in the laboratory were studied using rot fungi. (A. wentii, A. alternata, P. digitatum, R. oryzae ve F. generoum).

Sorbents biodegradation of the observation period of six (6) months has been identified as. Biosorbents observed biodegradation period of 6 (six) were determined months. Biodegradation rate was made using assay before and after the biosorption SC samples. Weight loss was calculated considering. In the experiment in the soil, sorbents has been almost completely biodegradable.

The weight loss measured in the experiment made with natural biodegradation biomass prior to the experiment in the laboratory; A. wentii, A. alternata, P. digitatum, R. oryzae and F. generoum fungi respectively % 72.55, % 73.85, % 89.50, % 83,25 and % 79,64. Painted sorbents biodegradation of the results of weight loss is detected, respectively; was found to be % 44.22, % 60,51, % 74,62, % 73,71 and % 68,55.

Sorbents in the cell walls of FT-IR analysis; carboxyl, hydroxyl, sulfate, phosphate, amide, and numerous functional groups such as amino, phenolic compounds provides the interaction with the above-mentioned groups. IR chart highlights some of the peaks. These; between 3270-90 cm-1 amide and hydroxyl, 2924 to 34 cm-1; aliphatic C-H and amine, 1626 to 39 cm-1; carbonyl and 1518 to 48 cm-1; amide peak showed a partial change after biosorption.

Keywords: Remazol Brillan Blue-R, Biosorption, *S. cerevisiae*, Biodegradation

Saccharomyces cerevisiae Biyokütlesi üzerine Remazol Brillant Blue-R'nin Biyosorpsiyonu ve Biyokütlenin Biyodegradasyonu

ÖZET

Bir çok sektörün özellikle tekstil sanayinin sulu boyarmadde atıklarının neden olduğu boyar madde kirlilikleri, ekolojik dengeyi ve çevreyi olumsuz yönde etkilemektedir. Günümüzde bu türlü çevresel sorunlar oldukça önemli bir yer oluştururken, bu amaçla birçok bilimsel araştırmalar yapılmaktadır. Bu çalışmada *Saccharomyces cerevisiae* (SC) ile Remazol Brillant Blue R (RBBR)'nin adsorpsiyon tekniği ile sulu çözeltiden giderilmesi araştırılmıştır. Bu amaçla, temas süresinin, boyar madde konsantrasyonunun, pH ve sıcaklığın biyosorpsiyon üzerine etkisi incelenmiştir. Biyosorpsiyon deneylerinde meydana gelen etkileşimleri daha iyi izah edebilmek için analiz olarak; İzoterm, Kinetik, Termodinamik ve FT-IR hesaplamalarıda yapılarak deney sırasında gerçekleşen olaylar izah edilmeye çalışılmıştır. Ayrıca biyosorbentlerin toprakta ve laboratuvarsa petri kaplarında funguslarca biyodegradasyonları araştırılmıştır.

Biyosorpsiyon deneylerinde Temas süresinin etkisi 300. dakikaya kadar yapılmış olup ilk dakikalardan itibaren yüksek değerlere ulaştığı sonrasında deney devam etmesine rağmen boyarmaddenin maya yüzeyinden sulu ortama geçmediği gözlenmiştir. Bu süre uzatılmasının amacı Biyosorpsiyonun ters yönde olup olmadığını taspiti için yapılmıştır. Deneylerin ortalama dengelenme süresi 30 dakika olarak bulunmuştur.

SC tarafından sulu ortamdan RBBR boyar maddesinin biyosorpsiyon deneylerinde boyar madde konsantrasyonunun etkisi 10, 20, 50, 75, 100 ve 150 mg/l olarak belirlenerek çalışılmıştır

En yüksek yüzde biyosorpsiyon değeri 50 mg/L çözelti ortamında %95 olarak, en yüksek miktar 150 mg/L çözelti ortamında 48,55 mg /g olarak bulunmuştur.

Biyosorpsiyona pH etkisinin gözlendiği deneyler pH 3, 5, 7, 9 koşullarında gerçekleştirilmiştir. En yüksek değer pH 3'te % 77,48 olarak gerçekleşmiştir.

Biyosorpsiyona sıcaklık etkisini incelemek için yapılan deneysel çalışmalar; 20, 30, 40, 50 ve 60 °C sıcaklık koşullarında çalışılmıştır. En iyi sonuç 30 °C'de 30. dakikada % 76,64 olarak gerçekleşmiş olup sonraki sürelerde bir azalma gözlenmemiştir.

Deneylerin sonrasında yapılan izoterm incelemerinde gerçekleşen biyosorpsiyonun Langmuir ve Freundlich izotermlerinin her ikisinede uyum gösterdiği tespit edilmiştir. Langmuir'e uyum adsorbent yüzeyinin homojen ve tek tabaka ile kaplandığını izah eder. Freundlich'e uyum boyar maddenin biyosorbentin yüzeyinde lokal olarak adsorplandığına işaret etmektedir.

Kinetik incelemeler Yalancı Birinci Dereceden Kinetik Model(YBDK), Yalancı İkinci Dereceden Kinetik Model (YİDK) ve Partikül İçi Difüzyon Kinetiği (PİDK) modellerine uyumu incelenmiştir. RBBR'in SC üzerine biyosorpsiyonunun kinetiği 30 °C'de ve pH 3'te incelenmiş ve YİDK kinetik modeline tam PİDK kinetik modeline kısmen uyumun varlığı gözlemlenmiştir.

Termodinamik incelemeleri parametreleri serbest enerji değişimi (ΔG^o), standart entalpi (ΔH^o) ve standart entropi (ΔS^o) kullanılarak hesaplandı. Sıcaklık deneylerinin değerleriyle hesaplanan ΔG^o negatif yani adsorpsiyonun istemli olduğuna işaret etmektedir. ΔH^o negatiftir buda adsorpsiyonun negatif olması ekzotermik olduğunun göstergesidir. ΔS^o ise pozitif bulunda buda adsorbent ile boyar madde arasında yapısal bir değişimin olabileceğini göstermektedir.

Biyosorbentin biyodegradasyonunun incelendiği deneyler toprakta ve laboratuvar ortamında çürükçül funguslarca (*A. wentii, A. alternata, P. digitatum, R. oryzae* ve *F. generoum*) gerçekleştirilmiştir. Biyosorbentin biyodegradasyonu gözleme süresi 6 (altı) ay olarak belirlenmiştir. Biyodegradasyon oranı biyosorpsiyon deneyi öncesi ve deney sonrası alınan SC numuneleri kullanılarak yapılmış, ağırlık kayıpları dikkate alınarak hesaplanmıştır. Topraktaki deneyde biyosorbent neredeyse tamamen biyodegrade olmuştur. Laboratuvarda deney öncesi doğal biyosorbentle yapılan biyodegradasyon deneyinde ölçülen ağırlık kayıpları *A. wentii, A. alternata, P. digitatum, R. oryzae ve F. generoum* funguslarında sırasıyla % 72.55, % 73.85, % 89.50, % 83,25, ve % 79,64 olarak gerçekleşmiştir. Boyalı biyosorbentlerle yapılan biyodegradasyon deneyinin sonunda yapılan tartımda ölçülen ağırlık kayıplarının sırasıyla % 44.22, % 60,51, % 74,62, % 73,71 ve % 68,55 olduğu görülmüştür.

FT-IR incelemerinde biyosorbentin hücre duvarında karboksil, hidroksil, sülfat, fosfat, amid ve amino grupları gibi çok sayıda fonksiyonel, fenolik bileşiklerle etkileşimi yukarıda bahsedilen gruplar sağlamaktadır. IR grafiğinin incelenmesiyle bazı pikler dikkat çekmektedir. Bunlar; 3270-90 cm-1 arası amid ve hidroksil, 2924-34 cm-1 arası alifatik C-H ve amin, 1626-39 cm-1 arası karbonil ve 1518-48 cm-1 arası amid pikleri yüzeye boyar madde adsorplanmasıyla kısmi olarak değişim göstermiştir.

Anahtar Kelimeler: Remazol Brillant Blue-R, Biyosorpsiyon, *S. cerevisiae*, Biyodegradasyon

Biosorption of Safranin dye onto Saccharomyces cerevisiae biomass and investigation of biomass biodegradation

Metin Kertmen
Siirt University, School of Health, Department of Occupatinal Health and Safety Siirt

Bilal Acemioğlu
Kilis 7 Aralık University, Faculty of Art and Sciences , Department of Chemistry, Kilis

ABSTRACT

A lot of industries; Caused by aqueous dye dye waste pollution, ecological balance and environmental affects in a negative way. Nowadays, this kind of environmental issues is very important, for this purpose, are made in several scientific research. In this study, Saccharomyces cerevisiae(SC) has been used as biosorbent for the safranin from aqueous solution by adsorption technique. Biosorption that in experiments; interactions to explain better; Isotherm, kinetics, thermodynamics and FTIR analysis is made. Also; sorbents in soils and in laboratory petri dishes funguslar of biodegradation was investigated.

The effect of contact time in Biosorption experiments are made up of 300 minutes . From the first minutes, it reached the highest value percentage of biosorption. But, After In the experiment which follows, it was observed that the dye partition into the aqueous environment of the yeast surface. Extend the time; It is made to determine whether the reverse is biosorption.

SC from the aqueous medium by the SF dyes biosorption experiments; The effect of dye concentration of 10, 20, 50, 75, 100 and 150 mg / l was studied determined. Biosorption highest percent value of 50 mg / L concentration 95%, maximum amount of 150 mg / L concentration of 61.51 mg / g was found.

Experiments observed effect of pH on the biosorption; pH 3, 5, 7, 9 conditions was performed. The highest value of 94.78% was realized at pH 9. Experimental studies were performed to determine the effect biosorption temperature; 20, 30, 40, 50 and 60 ° C temperature condition was studied. 60 ° C for 10 minutes with the best results were realized as 90.46%. It showed no decrease in value at the next time.

Made isotherm examination; Freundlich isotherm was found to fit the biosorption. This biosorption obey Freundlich isotherm suggests that the surface of the biomass has some heterogenity

Kinetic investigations; Pseudo first order kinetic model (YİDK), second-degree Pseudo Kinetic Model (YİDK) and Particle diffusion kinetics within (PIOC) compliance with the model were examined. Biosorption kinetics SC on SF; 60 ° C and pH was investigated and it was observed that all three of the three conditions kinetics model fit.

Thermodynamic analysis of free energy change parameters (ΔG^o), standard enthalpy (ΔH^o) and standard entropy (ΔS^o) were calculated using. The ΔG^o values calculated with the values of temperature were negative for all temperatures. ΔG^o to the negative value indicates that the adsorption is voluntary. ΔH^o values are negative for all temperatures. ΔH value is negative is indicative exothermic. ΔS^o values were found to be positive for all temperatures. A positive value of ΔS^o indicate that there may be a structural change between dyes and adsorbent.

Experiments examining the biodegradation of sorbents; In the soil and in the laboratory were studied using rot fungi. (A. wentii, A. alternata, P. digitatum, R. oryzae ve F. generoum).

Sorbents biodegradation of the observation period of six (6) months has been identified as. Biosorbents observed biodegradation period of 6 (six) were determined months. Biodegradation rate was made using assay before and after the biosorption SC samples. Weight loss was calculated considering. In the experiment in the soil, sorbents has been almost completely biodegradable.
The weight loss measured in the experiment made with natural biodegradation biomass prior to the experiment in the laboratory; A. wentii, A. alternata, P. digitatum, R. oryzae and F. generoum fungi respectively 72.55%, 73.85%, 89.50%, 83.25%, and stood at 79.64%. Painted sorbents biodegradation of the results of weight loss is detected, respectively; was found to be 31.66%, 33.46%, 43.59%, 59.79%, and 54.16%.

Sorbents in the cell walls of FT-IR analysis; carboxyl, hydroxyl, sulfate, phosphate, amide, and numerous functional groups such as amino, phenolic compounds provides the interaction with the above-mentioned groups. IR chart highlights some of the peaks. These; between 3270-90 cm-1 amide and hydroxyl, 2924 to 34 cm-1; aliphatic C-H and amine, 1626 to 39 cm-1; carbonyl and 1518 to 48 cm-1; amide peak showed a partial change after biosorption.

Keywords: Safranin, Biosorption, S. cerevisiae, Biodegradation

Saccharomyces cerevisiae Biyokütlesi Üzerine Safranin Boyar Maddesinin Biyosorpsiyonu ve Biyokütlenin Biyodegradasyonu

ÖZET

Bir çok sanayinin sulu boyarmadde atıklarının neden olduğu boyar madde kirlilikleri, ekolojik dengeyi ve çevreyi olumsuz yönde etkilemektedir. Günümüzde bu türlü çevresel sorunlar oldukça önemli bir yer oluştururken, bu amaçla birçok bilimsel araştırmalar yapılmaktadır. Bu çalışmada Saccharomyces cerevisiae(SC) ile Safranin (SF)'in adsorpsiyon tekniği ile sulu çözeltiden giderilmesi araştırılmıştır. Bu amaçla, temas süresinin, boyar madde konsantrasyonunun, pH ve sıcaklığın biyosorpsiyon üzerine etkisi incelenmiştir. Biyosorpsiyon deneylerinde meydana gelen etkileşimleri daha iyi izah edebilmek için analiz olarak; İzoterm, Kinetik, Termodinamik ve FT-IR hesaplamalarıda yapılarak deney sırasında gerçekleşen olaylar izah edilmeye çalışılmıştır. Ayrıca biyosorbentlerin toprakta ve laboratuvarsa petri kaplarında funguslarca biyodegradasyonları araştırılmıştır.

Biyosorpsiyon deneylerinde Temas süresinin etkisi 300. dakikaya kadar yapılmış olup ilk dakikalardan itibaren yüksek değerlere ulaştığı sonrasında deney devam etmesine rağmen boyarmaddenin maya yüzeyinden sulu ortama geçmediği gözlenmiştir. Bu süre uzatılmasının amacı Biyosorpsiyonun ters yönde olup olmadığını taspiti için yapılmıştır.

SC tarafından sulu ortamdan SF boyar maddesinin biyosorpsiyon deneylerinde boyar madde konsantrasyonunun etkisi 10, 20, 50, 75, 100 ve 150 mg/l olarak belirlenerek çalışılmıştır
En yüksek yüzde biyosorpsiyon değeri 50 mg/L çözelti ortamında %95 olarak, en yüksek miktar 150 mg/L çözelti ortamında 61.51 mg /g olarak bulunmuştur.

Biyosorpsiyona pH etkisinin gözlendiği deneyler pH 3, 5, 7, 9 koşullarında gerçekleştirilmiştir. En yüksek değer pH 9 % 94,78 olarak gerçekleşmiştir.

Biyosorpsiyona sıcaklık etkisini incelemek için yapılan deneysel çalışmalar; 20, 30, 40, 50 ve 60 °C sıcaklık koşullarında çalışılmıştır. En iyi sonuç 60 °C'de 10. dakikada % 90,46 olarak gerçekleşmiş olup sonraki sürelerde bir azalma gözlenmemiştir.

Deneylerin sonrasında yapılan izoterm incelemerinde gerçekleşen biyosorpsiyonun Freundlich izoterminde uyum gösterdiği tespit edilmiştir. Freundlich'e uyum boyar maddenin biyosorbentin yüzeyinde lokal olarak adsorplandığına işaret etmektedir.

Kinetik incelemeler Yalancı Birinci Dereceden Kinetik Model(YBDK), Yalancı İkinci Dereceden Kinetik Model (YİDK) ve Partikül İçi Difüzyon Kinetiği (PİDK) modellerine uyumu incelenmiştir. SF'in SC üzerine biyosorpsiyonunun kinetiği 60 °C'de ve pH 3'te incelenmiş ve her üç kinetik modelede uyumun varlığı gözlemlenmiştir.

Termodinamik incelemeleri parametreleri serbest enerji değişimi (ΔG^o), standart entalpi (ΔH^o) ve standart entropi (ΔS^o) kullanılarak hesaplandı. Sıcaklık deneylerinin değerleriyle hesaplanan ΔG^o değerleri tüm sıcaklıklar için negatiftir. ΔG^o'nin negatif olması adsorpsiyonun istemli olduğuna işaret etmektedir. ΔH^o değerleri tüm sıcaklıklar için negatiftir. ΔH değerinin pozitif olması adsorpsiyonun endotermik, negatif olması ekzotermik olduğunun göstergesidir.

Standart entropi değerleri (ΔS^o) ise tüm sıcaklıklar için pozitif olarak bulunmuştur. ΔS^o değerinin pozitif çıkması ise adsorbent ile boyar madde arasında yapısal bir değişimin olabileceğini göstermektedir.

Biyosorbentin biyodegradasyonunun incelendiği deneyler toprakta ve laboratuvar ortamında çürükçül funguslarca (A. wentii, A. alternata, P. digitatum, R. oryzae ve F. generoum) gerçekleştirilmiştir. Biyosorbentin biyodegradasyonu gözleme süresi 6 (altı) ay olarak belirlenmiştir. Biyodegradasyon oranı biyosorpsiyon deneyi öncesi ve deney sonrası alınan SC numuneleri kullanılarak yapılmış, ağırlık kayıpları dikkate alınarak hesaplanmıştır. Topraktaki deneyde biyosorbent neredeyse tamamen biyodegrade olmuştur. Laboratuvarda deney öncesi doğal biyosrbentle yapılan biyodegradasyon deneyinde ölçülen ağırlık kayıpları A. wentii, A. alternata, P. digitatum, R. oryzae ve F. generoum funguslarında sırasıyla % 72.55, % 73.85, % 89.50, % 83,25, ve % 79,64 olarak gerçekleştir. Boyalı biyosorbentlerle yapılan biyodegradasyon deneyinin sonunda yapılan tartımda ölçülen ağırlık kayıplarının sırasıyla % 31,66, % 33,46, % 43,59, % 59,79 ve % 54,16 olduğu görülmüştür.

FT-IR incelemerinde biyosorbentin hücre duvarında karboksil, hidroksil, sülfat, fosfat, amid ve amino grupları gibi çok sayıda fonksiyonel, fenolik bileşiklerle etkileşimi yukarıda bahsedilen gruplar sağlamaktadır. IR grafiğinin incelenmesiyle bazı pikler dikkat çekmektedir. Bunlar; 3270-90 cm-1 arası amid ve hidroksil, 2924-34 cm-1 arası alifatik C-H ve amin, 1626-39 cm-1 arası karbonil ve 1518-48 cm-1 arası amid pikleri yüzeye boyar madde adsorplanmasıyla kısmi olarak değişim göstermiştir.

Anahtar Kelimeler: Safranin, Biyosorpsiyon, S. cerevisiae, Biyodegradasyon

Generalized Power Pompeiu type Inequalities for Local Fractional Integrals and Its Applications

Samet Erden
Department of Mathematics, Faculty of Science, Bartın University

Mehmet Zeki Sarikaya
Department of Mathematics, Faculty of Science and Arts, Düzce University

Sever S. Dragomir
Mathematics,, School of Engineering & Science, Victoria University,

ABSTRACT

In this study, some generalized power Pompeiu's type inequalities involving local fractional integrals are established and also some new generalized Ostrowski's type inequalities are obtained. Finally, applications of these inequalities for special means are also given.

Keywords: Ostrowski's inequality, Pompeiu's mean value theorem, Local fractional integral, Fractal space, Special Means.

REFERENCES

[1] Ahmad F., Mir N.A. Sarikaya M.Z. An inequality of Ostrowski type via variant of Pompeiu's mean value theorem, J. Basic. Appl. Sci. Res. 2014; 4(4): 204-211.

[2] Chen G-S. Generalizations of Hölder's and some related integral inequalities on fractal space, Journal of Function Spaces and Applications. 2013; Article ID 198405; 9 pages.

[3] Dragomir S.S. An inequality of Ostrowski type via Pompeiu's mean value theorem. J. of Inequal. in Pure and Appl. Math. 2005; 6(3): Art. 83.

[4] Dragomir SS. Power Pompeiu's type inequalities for absolutely continuous functions with applications to Ostrowski's inequality. RGMIA Research Report Collection. 2013; 16 (Article 68): 8 pp.

[5] Erden S. and Sarikaya M.Z. Generalized Pompeiu type inequalities for local fractional integrals and Its Applications, Apllied Math. and Computations, 274 (2016) 282-291.

[6] Mo H., Sui X. and Yu D. Generalized convex functions on fractal sets and two related inequalities, Abstract and Applied Analysis, 2014; Article ID 636751: 7 pages.

[7] Sarikaya M.Z. and Budak H. On an inequality of Ostrowski type via variant of Pompeiu's mean value theorem. RGMIA Research Report Collection, 2014; 17(Article 78): 11 pp.

[8] Sarikaya M.Z. On an inequality of Grüss type via variant of Pompeiu's mean value theorem. RGMIA Research Report Collection, 2014; 17(Article 77): 9 pp.

[9] Sarikaya MZ. Some new integral inequalities via variant of Pompeiu's mean value theorem, RGMIA Research Report Collection, 2014; 17(Article 76): 7 pp.

[10] Sarikaya M.Z. and Budak H. Generalized Ostrowski type inequalities for local fractional integrals, RGMIA Research Report Collection, 2015; 17(Article 62): 11 pp.

[11] Yang X.J. Advanced Local Fractional Calculus and Its Applications, World Science Publisher, New York, 2012.

[12] Yang XJ. Local Fractional Functional Analysis and Its Applications. Asian Academic publisher Limited, Hong Kong, 2011.

Antioxidant activity of water extract from *Pseudevernia furfuracea**

Cigdem Ocal
Süleyman Demirel University, Faculty of Science and Literature, Department of Chemistry, 32260 Çünür-Isparta, Turkey

Cengiz Sarikurkcu
Süleyman Demirel University, Faculty of Pharmacy, Department of Analytical Chemistry, 32260 Çünür-Isparta, Turkey

Mustafa Calapoğlu
Süleyman Demirel University, Faculty of Science and Literature, Department of Chemistry, 32260 Çünür-Isparta, Turkey

ABSTRACT

The aim of this study is to evaluate the in vitro antioxidant activity of the water extract from *Pseudevernia furfuracea* (L) Zopf. Antioxidant activity of the water extract of *P. furfuracea* was evaluated by using five different complementary test systems named as phosphomolybdenum, DPPH free radical scavenging, reducing power (CUPRAC and FRAP), and metal chelating assays in order to compare the results with each other. Amounts of phenolic and flavonoid compounds of the extract were also determined.

Antioxidant activity by phosphomolybdenum assay of the water extract was measured as 0.80 mmol TEs/g extract. Free radical scavenging activity on DPPH of water extract was found as 21.45 mg TEs/g extract. In CUPRAC assay, the water extract showed moderate activity (95.83 mg TEs/g extract). Water extract contained considerable amount of phenolic compound (28.18 mg GAEs/g extract). On the other hand, flavonoid compounds were found in negligible amount in water extract (0.15 mg REs/g extract).

Keywords: *Pseudevernia furfuracea;* Antioxidant activity; DPPH, Reducing power

* The authors would like to thank to the Scientific Research Council of Suleyman Demirel University, Isparta-Turkey for the financial support (Project Number: 4484-YL2-15).

Phytochemical composition of *Salvia cadmica**

Serpil Kocak
Süleyman Demirel University, Faculty of Science and Literature,
Department of Chemistry, 32260 Çünür-Isparta, Turkey

Cengiz Sarikurkcu
Süleyman Demirel University, Faculty of Pharmacy,
Department of Analytical Chemistry, 32260 Çünür-Isparta, Turkey

Mustafa Cengiz
Süleyman Demirel University, Faculty of Science and Literature,
Department of Chemistry, 32260 Çünür-Isparta, Turkey

ABSTRACT

In this study, we aimed to determine the phenolic content from the ethyl acetate, methanol and water extracts of *Salvia cadmica* Boiss. Phenolic composition of the extract was determined by Reversed Phase High Performance Liquid Chromatography (RP-HPLC). Amounts of twenty-three individual compounds were quantitatively screened. The methanol extract was found rich in the most of the phytochemicals. The meth nol extract had considerable amounts of apigenin, caffeic acid, chlorogenic acid, ferulic acid, hesperidin, kaempferol, luteolin, p-coumaric acid, protocatechuic acid, and rosmarinic acid. Among these compounds, rosmarinic acid found as the most abundant one (6544.0 µg/g dry plant). Amount of this compound was also found quite high in ethyl acetate and water extracts. On the other hand, the extracts did not contain (-)-epicatechin, (+)-catechin, gallic acid, p-hydroxybenzoic acid, rutin, syringic acid, trans-cinnamic acid, vanillin, sinapic acid, quercetin, o-coumaric acid, and eriodictyol..

Keywords: *Salvia cadmica*, Phenolics, Rosmarinic acid, HPLC

* The authors would like to thank to the Scientific Research Council of Suleyman Demirel University, Isparta-Turkey for the financial support (Project Number: 4482-YL2-15).

Enzyme inhibition activity of *Bituminaria bituminosa* extracts*

Tuba Orenc
Süleyman Demirel University, Faculty of Science and Literature,
Department of Chemistry, 32260 Çünür-Isparta, Turkey

Cengiz Sarikurkcu
Süleyman Demirel University, Faculty of Pharmacy,
Department of Analytical Chemistry, 32260 Çünür-Isparta, Turkey

Mustafa Cengiz
Süleyman Demirel University, Faculty of Science and Literature,
Department of Chemistry, 32260 Çünür-Isparta, Turkey

ABSTRACT

In this study, in vitro antioxidant and enzyme inhibitory activities of ethyl acetate, methanol and water extracts of *Bituminaria bituminosa* were evaluated.

Inhibitory activities of *B. bituminosa* extracts were analyzed on cholinesterases (AChE and BChE), α-amylase, α-glucosidase, and tyrosinase. The extracts exhibited no activity on cholinesterases and tyrosinase. The extracts showed various degrees of inhibitory activity on α-amylase and α-glucosidase. Inhibitory activity of the extracts on α-glucosidase was found greater than those of their inhibitory activity on α-amylase. α-Glucosidase inhibitory assay was resulted in the superiority of water extract (1233.86 µmol ACEs/g dry plant). In α-amylase inhibition assay, ethyl acetate extract showed the highest activity (53.65 µmol ACEs/g dry plant). It is followed by methanol and water extracts, respectively.

Keywords: *Bituminaria bituminosa;* Enzyme inhibitory activity; α-amylase; α-glucosidase; tyrosinase

* The authors would like to thank to the Scientific Research Council of Suleyman Demirel University, Isparta-Turkey for the financial support (Project Number: 4483-YL2-15).

Stachys annua subsp. *Annua* var. *Annua* as a source of alternative multifunctional agents: a phytochemical investigation

Mehmet Sefa Kocak
Süleyman Demirel University, Atabey Vocational School,
Department of Medicinal and Aromatic Plants, 32260 Çünür-Isparta, Turkey

ABSTRACT

This study aimed to determine the in vitro antioxidant and enzyme inhibitory activities of the water, methanol and ethyl acetate extracts of *Stachys annua* (L.) subsp. *annua* var. *annua*. In addition to its biological activity potential, amounts of total bioactive constituents and some phenolics were also determined. Methanol extract was found rich in phenolic and flavonoid compounds (35.36 mg GAEs/g extract and 51.38 mg REs/g extract, respectively). Ethyl acetate extract had considerable amounts of flavonols (3.91 mg CEs/g extract) and saponins (429.94 mg QAEs/g extract). Antioxidant activity of the extracts was determined by using nine complementary test systems named as phosphomolybdenum, β-carotene bleaching, radical scavenging activity, reducing power, and metal chelating effect. Methanol extract exhibited remarkable activity in phosphomolybdenum, DPPH, ABTS, CUPRAC, and FRAP assays. Inhibitory activities of the extracts on acetyl cholinesterase, butyryl cholinesterase, tyrosinase, α-amylase, and α-glucosidase were also investigated. Ethyl acetate extract was found superior to the others especially in terms of its inhibitory activity on butyryl cholinesterase, tyrosinase, and α-glucosidase (6.320 mg GALAEs/g extract, 23.952 mg KAEs/g extract, 6.181 mmol ACEs/g extract, respectively) whereas the water extract exhibited the weakest activity.

Keywords: *Stachys annua* subsp. *annua* var. *annua*; Antioxidant, Phenolics, DPPH

Determination of the Appropriate Quantity of Sowing *Dichondra repens* in the Green Field Plant

İbrahim Hosaflıoğlu
Iğdır Üniversitesi, Ziraat Fakültesi

Hakkı Akdeniz
Iğdır Üniversitesi, Ziraat Fakültesi

ABSTRACT

This study; Iğdır in ecology was tried in 2014. We researched the amount of sowing seed (coated)of *Dichondra repens* species. Sowing amounts; 1-2-3-4-5-10-15-20-25-30 g/m^2 was used. For *Dichondra repens* species; covering percent is determined by the spring, summer and autumn.

The highest percentage of covering in spring; sowing amounts 30 g/m^2 – covering percent %43,13. The highest percentage of covering in summer; sowing amounts 30 g/m^2 – covering percent %80,47. The highest percentage of covering in autumn; sowing amounts 30 g/m^2 -25 g/m^2 – covering percent % 96,50 - %94,33.

After the summer; covering percents in the planting plots (30 g/m^2 and 25 g/m^2) began to rise.

Study On Chemical Composition of the Essential Oils of Three *Phlomis* Species as Well as Their Fatty Acid Contents

Mehmet Cemil Uren
Süleyman Demirel University, Atabey Vocational School,
Department of Medicinal and Aromatic Plants, Isparta, Turkey

ABSTRACT

This study aimed to investigate the chemical composition of the essential oils of *Phlomis armeniaca* WILLD., *P. nissolii* L., and *P. pungens* WILLD. var. *pungens* as well as their fatty acid contents. 21, 24, and 15 compounds were identified representing 98.4%, 98.3%, and 91.8% of *P. armeniaca*, *P. nissolii* and *P. pungens* var. *pungens* essential oils, respectively. In *P. armeniaca* oil, germacrene D (24.1%), n-hexadecanoic acid (21.8%), and hexahydrofarnesyl acetone (13.7%) were found as the major compounds. In the case of *P. nissolii*, major compounds were determined as germacrene D (15.1%), β-caryophyllene (12.7%), hexahydrofarnesyl acetone (11.9%), and linalool (11.3%). On the other hand, *P. pungens* var. *pungens* showed a different oil profile due to its interesting chemical composition. Major compounds of the oil were determined as n-hexadecanoic acid (68.1%) and germacrene D (7.2%).

As well as the essential oil composition, fatty acid contents of *P. armeniaca*, *P. nissolii* and *P. pungens* var. *pungens* were also studied. For the each samples, saturated (SFA), monounsaturated (MUFA), and polyunsaturated fatty acids (PUFA) were determined quantitatively. The highest SFA amount was determined in *P. armeniaca* (45.52%). Amounts of SFA in *P. nissolii* and *P. pungens* var. *pungens* were found almost equal. Among the saturated fatty acids, C16:0 represented with the highest amount in all samples. This is followed by C14:0 and C12:0 for the all species.

Keywords: *Phlomis armeniaca, Phlomis nissolii, Phlomis pungens* var. *pungens,* β-Caryophyllene; Palmitic acid

Biological activity of aqueous extract from *Ononis ornithopodioides* *

Zafer Comak
Süleyman Demirel University, Faculty of Science and Literature,
Department of Chemistry, 32260 Çünür-Isparta, Turkey

Cengiz Sarikurkcu
Süleyman Demirel University, Faculty of Pharmacy,
Department of Analytical Chemistry, 32260 Çünür-Isparta, Turkey

Mustafa Cengiz
Süleyman Demirel University, Faculty of Science and Literature,
Department of Chemistry, 32260 Çünür-Isparta, Turkey

ABSTRACT

This work deals with antioxidant activity of aqueous extract from *Ononis ornithopodioides*. The antioxidant potency was evaluated using different established methods, specifically free radical scavenging (DPPH radical), reducing power, total antioxidant capacity by β-carotene bleaching assay, and metal chelating activity. Total antioxidant components (phenolics and flavonoids) of the extract were also determined spectrophotometrically. The scavenging ability of aqueous extract showed a concentration-dependent activity profile.Using the β-carotene/linoleic acid method, antioxidant activity of the water extract were, at 2.0 mg/ml concentration, measured as 96.21%. Synthetic antioxidant BHT exhibited as 95.367% activity in this system. The water extracts are found highly rich-in phenolics and flavonoids (35.46 mg pyrocatechol equivalents/g extract and 12.26 mg quercetin equivalents/g extract, respectively).

Keywords: *Ononis ornithopodioides;* β-carotene/linoleic acid method; Antioxidant activity; Radical scavenging

* The authors would like to thank to the Scientific Research Council of Suleyman Demirel University, Isparta-Turkey for the financial support (Project Number: 4485-YL1-15).

Useful Product Recovery from the Olive Oil Wastewater: An Experimental Design Approach

M. Yunus Pamukoğlu
Süleyman Demirel Üniversitesi, Mühendislik Fakültesi, Çevre Müh. Bölümü, Isparta, 32100

Mehmet Gönen
Süleyman Demirel Üniversitesi, Mühendislik Fakültesi, Kimya Müh. Bölümü, Isparta, 32100

Bülent Kırkan
Süleyman Demirel Üniversitesi, Su Enstitüsü, Isparta, 32100

Damla Can
Süleyman Demirel Üniversitesi, Mühendislik Fakültesi, Çevre Müh. Bölümü, Isparta, 32100

Müge Nur Köse
Süleyman Demirel Üniversitesi, Mühendislik Fakültesi, Çevre Müh. Bölümü, Isparta, 32100

Damla Akkoca
Süleyman Demirel Üniversitesi, Mühendislik Fakültesi, Çevre Müh. Bölümü, Isparta, 32100

Gizem Yeni
Süleyman Demirel Üniversitesi, Mühendislik Fakültesi, Çevre Müh. Bölümü, Isparta, 32100

Züleyha Pamukoğlu
Kilis İl Gıda Tarım ve Hayvancılık Müdürlüğü, Kilis, 79000

ABSTRACT

Olive fleshy fruit of the olive oil, to which is obtained by compression together with the core, unlike other edible oil derived from the seeds; in fact it emerges as a juice. Olive oil is different from vegetable oils such as sunflower, soybean, cotton seed and corn oil both that it obtained from natural way and it contains useful products. In this study, it was intented to obtain useful product from olive oil wasteter (blackwater) which causes serious environmental problems. For this purpose the gathered olive oil wastewaters were passed through pretreatment to remove suspended solids (SS), dissolved colloidal and oils. Then the extraction of phenolic compounds operations were carried out from the obtained blackwater samples. At this stage, an experimental optimization program were used and it was stated that the parameters are disclosed in relationship with each other. To reach nearly a 52% phenol adsorption value, the pH and zeolite concentration should keep at nearly 10 and 5 g / L, respectively. It is recommended that the phenolic compounds taken from the liquid phase can be used as fish feed additives by using zeolite adsorption experiments

Blackwater resulting from olive oil production; oil and the smell of spring and this blackwater to be unconsciously discharge around the lake, rivers and the sea is extremely harmful to the environment. Gerçekleştirilen bu çalışma sayesinde doğaya zarar veren bu atıkların balık yemi sektöründe değerlendirilmesinin önü açılacak ve ülkemiz ekonomisine katma değer yaratarak oldukça önemli bir değer

kazanacaktır. In front of the carried out this work thanks to the damaging environment of the waste will be opened to evaluate to the fish feed sector the and it will gain a quite significant value creating added value to the economy of our country

Keywords: Olive oil, useful product, blackwater, phenolics, recovery

Zeytinyağı Atık Suyundan Yararlı Ürün Elde Etme; Deneysel Bir Dizayn Yaklaşımı

ÖZET

Zeytinyağı zeytinin etli meyvesinin, çekirdeğiyle birlikte sıkılmasıyla elde edildiği için, tohumlardan elde edilen diğer yemeklik yağların aksine; aslında bir meyve suyu olarak karşımıza çıkmaktadır. Ayçiçeği, soya, pamuk çekirdeği, mısırözü gibi bitkisel yağlardan farkı ise hem doğal yollardan üretilmesi hem de içerdiği zengin yararlı ürünlerdir. Bu çalışmada, çok ciddi çevresel problemlere yol açan zeytinyağı atıksuları (karasu) yararlı ürün elde edilmesi amaçlanmıştır. Bu amaçla temin edilen zeytinyağı atıksuları ön işlemlerden geçirilerek içerisinde bulunan askıda katı madde (AKM), çözünmüş kollaidal ve yağlar uzaklaştırılmıştır. Daha sonra elde edilen karasu örneklerinden fenolik bileşiklerin ekstraksiyonu işlemleri yapılmıştır. Bu aşamada bir deneysel optimizasyon programı kullanılmış ve parametrelerin birbirleri ile ilişkileri ortaya konulmuştur. %52'ye yakın bir fenol adsorplama değerine ulaşabilmek için pH değerini 10' da ve zeolit miktarını 5 g/L civarlarında tutmak gerekmektedir. Sıvı faza alınan fenolik bileşikler ise balık katkı yemi amacı ile zeolite adsorplanması çalışmaları önerilmektedir.

Zeytinyağı üretimi sonucunda oluşan karasu; yağ ve etrafa yaydığı koku ve bu karasuyun göl akarsu ve denize bilinçsizce deşarj edilmesi çevreye son derece zararlıdır. Gerçekleştirilen bu çalışma sayesinde doğaya zarar veren bu atıkların balık yemi sektöründe değerlendirilmesinin önü açılacak ve ülkemiz ekonomisine katma değer yaratarak oldukça önemli bir değer kazanacaktır.

Anahtar Kelimeler: Zeytinyağı, karasu, yararlı ürün, fenolik maddeler, geri kazanm

TEŞEKKÜR BÖLÜMÜ

Bu çalışma, TÜBİTAK - 2241/A Sanayi Odaklı Lisans Bitirme Tezi Destekleme Programı ile desteklenmiştir.

REFERANSLAR

[1] Al Malah K., Azzam M.O.J., Abu Lail N.I., "Olive mill effluent (OME) wastewater post-treatment using activated clay" Separation and Purification Technology, 20, (2000) 225- 234.

[2] Bates, D. M., Watts, D. G., 1997, Nonlinear regression analysis and its applications, John Wiley & Sons, Inc. New York.

[3] Borsani R., Ferrando B., "Ultrafiltration plant for olive vegetation waters by polymeric membrane batteries" Desalination 108, (1996) 281-286.

[4] Israilides C.J., Vlyssides A.G., Mourafeti V. N., Karvouni G., "Olive oil wastewater treatment with the use of an electrolysis system" Bioresource Technology 61, (1997) 163-170.

[5] Kasırga E., (1998) Zeytinyağı Endüstrisi Atıksularının Anaerobik Biyolojik Stabilizasyon Yöntemi ile Arıtılması ve Kinetik Model Geliştirilmesi, Doktora Tezi, Dokuz Eylül Üniersitesi, Fen Bilimleri Enstitüsü, İzmir.

[6] Kestioğlu, K., Yonar, T., Azbar, N., "Feasibility of physico-chemical treatment and advanced oxidation processes (AOPs) as a means of pretreatment of olive mill effluent (OME)" Process Biochemistry, 40, (2005) 2409-2416.

[7] Kuehl, R.O., 2000, Design of Experiments: Statistical Principles of Research Design and analysis, 2nd Edition, Duxbury, New York.

[8] Myers, R. H., Montgomery, D. C., (1995). Response Surface Methodology, process and product optimisation using designed experiments, John Wiley & Sons, Inc. New York.

[9] Neter, J., Wassermann, W., Whitemore, G.A., 1999,Applied Statistics, Allyn and Bacon.

[10] Oktav E., Şengül F., Özer A., "Zeytinyağı Endüstrisi Atıksularının Fizikokimyasal ve Kimyasal Yöntemler ile Arıtımı" Ulusal Sanayi ve Çevre Sempozyumu, Bildiriler kitabı, (2001) ss. 111-117, Mersin.

[11] Taptık, Y., Keleş, Ö., (1998), Kalite Savaşı Araçları, Kalder Kalite Yayınları No: 23, İstanbul.

Poultry Meat Quality in Relation to Consumers

Hakan Benli
Cukurova University, Department of Food Engineering, Adana

ABSTRACT

Consumers` perceptions, goals and personal preferences are important while defining the quality. However, concept of the quality has both subjective and objective components recognized as quality cues and quality attributes in the literature. The quality cues are observed by the consumers at the point of sale to predict quality performance of the food during consumption. For instance, the reputation of the place of purchase and products from free range or organically produced birds are among the quality cues. The quality attributes describe consumer's expectations in relation to product quality including the characteristics of color and appearance, texture (involving juiciness and tenderness) and flavor. The color of poultry meat is critical for the marketing of fresh whole birds and cuts since consumers relate the color with the product's freshness. There are several factors affecting poultry meat color such as bird age, sex, strain, diet, intramuscular fat, meat moisture content, perslaughter conditions and processing variables. After buying a poultry product consumers associate the quality of the product to its texture and flavor during consumption. The rate and extent of the chemical and physical changes in the muscle following the slaughter have significant effects on the tenderness of the poultry meat. Another quality attribute is the flavor that is used by the consumer to decide the acceptability of the poultry meat. However, only a few factors may affect the poultry meat flavor during the production and processing. As a result, eating quality is defined as the most important aspect of the poultry meat for the consumers and it is a function of the combined effects of color and appearance, texture and flavor.

Keywords: Consumer, Poultry, Meat, Quality

Multilayer Feed-Forward Neural Networks for Predicting the Average Network Latency of a 2-Dimensional Distributed Shared Memory Multiprocessor

Mehmet Fatih Akay
Department of Computer Engineering, Adana, Turkey

Elrasheed Ismail Mohommoud Zayid
University of Bisha, Saudi Arabia

ABSTRACT

2-dimensional Simultaneous Optical Multiprocessor Exchange Bus (2D SOME-Bus) is a reliable, robust implementation of petaflops-performance computer architecture. In this paper, we develop multilayer feed-forward neural network models to predict the average network latency of a distributed shared memory (DSM) architecture interconnected by the 2D SOME-Bus. OPNET Modeler is used to statistically simulate the DSM 2D SOME-Bus multiprocessor architecture and to create the training and testing datasets. Different neural network models have been created by varying the number of neurons in the hidden layer. Using 10-fold cross validation, the performance of the prediction models are evaluated by calculating their multiple correlation coefficients (*R*'s), root mean square errors (*RMSE*'s), mean absolute errors (*MAE*'s), root absolute errors (*RAE*'s) and relative root square errors (*RRSE*'s). The *RMSE*'s related to prediction of average network latency change between 82.2489 and 440.9524. In general, increasing the number of neurons in the hidden layer of the neural network increases the performance of prediction. In summary, multilayer feed-forward neural network is a viable tool for predicting the average network latency of a broadcast-based DSM 2D multiprocessor architecture.

Keywords: neural networks, multiprocessors, distributed shared memory, simulation

Taguchi Optimization Approach for Adsorption of the Hexavalent Chromium onto Cotton (*gossypium* sp.) Stalks

Bulent Kirkan
Süleyman Demirel University, Water Institute,Isparta, Turkey

Cengiz Sarikurkcu
Süleyman Demirel University, Faculty of Pharmacy,
Department of Analytical Chemistry, Isparta, Turkey

ABSTRACT

The conditions for the adsorption of the hexavalent chromium, Cr (VI), onto cotton (*Gossypium* sp.) stalk were optimized using the Taguchi method. To achieve maximum Cr(VI) removal, the effects of temperature (20–50 °C), Agitation time (15-120 min), initial concentration (10–75 mg/L), pH (1–4), and the mass–volume ratio (2–10 g/L) were studied using an L_{16} orthogonal array. The percent Cr(VI) removal was transformed into an accurate S/N ratio for a "high is better" response. A temperature of 40 °C, a Agitation time of 30 min, an initial concentration of 10 mg /L, pH 1, and a mass/volume ratio of 4 g/L were the best conditions determined by the Taguchi method. Under optimum conditions, the Cr(VI) removal efficiency was 99.95%.

Keywords: Hexavalent chromium, cotton stalk, adsorption, Taguchi method

Determination of Antioxidant Activity of an Endemic Plant: *Phlomis leucophracta* *

Ahmet Kucukyumru
Süleyman Demirel University, Faculty of Science and Literature, Department of Chemistry, 32260 Çünür-Isparta, Turkey

Cengiz Sarikurkcu
Süleyman Demirel University, Faculty of Pharmacy, Department of Analytical Chemistry, 32260 Çünür-Isparta, Turkey

Mustafa Cengiz
Süleyman Demirel University, Faculty of Science and Literature, Department of Chemistry, 32260 Çünür-Isparta, Turkey

ABSTRACT

This study is designed to examine the antioxidant activity of the different solvent extracts (n-hexane and methanol) from *Phlomis leucophracta*. The n-hexane and methanol extracts were analyzed for their antioxidant activities in different test systems namely β-carotene/linoleic acid, DPPH free radical scavenging, reducing power and metal chelating activities in addition to their total phenolic and flavonoid contents. The methanol extract exhibited excellent activity potential than that of n-hexane for DPPH free radical scavenging and reducing power. As expected, amount of total phenolics and flavonoids was very high in this extract (43.54 mg gallic acid equivalent/g extract and 9.65 mg quercetin equivalent/g extract, respectively).

Keywords: *Phlomis leucophracta*, β-carotene/linoleic acid assay, Reducing power, DPPH

* The authors would like to thank to the Scientific Research Council of Suleyman Demirel University, Isparta-Turkey for the financial support.

Detector Performance of Calorimeters with Scintillators

Güral Aydın
Mustafa Kemal University

ABSTRACT

Hadronic calorimeters used in high energy physics experiments consist of absorbers, active materials such as scintillation plates and electronics for readout. Such calorimeters are constructed as replicas of absorber and active material pairs. Scintillation detectors could be simulated with their characteristic properties such as scintillation yield rate, excitation range and emission range. For good performance it is asked that linearity and resolution of a calorimeter should be fairly enough. In this study, such calorimeter were simulated by using GEANT4 simulation package with several layers. Here, detector performance of such calorimeter is reported with incident hadron beams whose energies are in the order of hundred GeV's.

Keywords: Calorimeter, linearity, resolution, scintillation.

Karyological İnvestigation on *Gossypium hirsutum* (Stoneville 453) and *Gossypium barbadense* (Askabat 100)

Osman Gedik
Kahramanmaras Sutcu Imam University, Faculty of Agricultural, Crop Science, Kahramanmaras, 46100

Yüksel Bölek
Kahramanmaras Sutcu Imam University, Faculty of Agricultural, Departmant of Agriculturel Biotechnolgy, Kahramanmaras, 46100

Adem Bardak
Kahramanmaras Sutcu Imam University, Faculty of Agricultural, Departmant of Agriculturel Biotechnolgy, Kahramanmaras, 46100

Ali Can Sever
Kahramanmaras Sutcu Imam University, Faculty of Agricultural, Departmant of Agriculturel Biotechnolgy, Kahramanmaras, 46100

Halil Tekerek
Kahramanmaras Sutcu Imam University, Faculty of Agricultural, Departmant of Agriculturel Biotechnolgy, Kahramanmaras, 46100

Rıdvan Uçar
Kahramanmaras Sutcu Imam University, Faculty of Agricultural, Departmant of Agriculturel Biotechnolgy, Kahramanmaras, 46100

Mikail İnce
Kahramanmaras Sutcu Imam University, Faculty of Agricultural, Departmant of Agriculturel Biotechnolgy, Kahramanmaras, 46100

Şeyma Alğaç
Kahramanmaras Sutcu Imam University, Faculty of Agricultural, Departmant of Agriculturel Biotechnolgy, Kahramanmaras, 46100

Döne Parlak
Kahramanmaras Sutcu Imam University, Faculty of Agricultural, Departmant of Agriculturel Biotechnolgy, Kahramanmaras, 46100

Sümeyye Adalı
Kahramanmaras Sutcu Imam University, Faculty of Agricultural, Departmant of Agriculturel Biotechnolgy, Kahramanmaras, 46100

Ebru Çardaklı
Kahramanmaras Sutcu Imam University, Faculty of Agricultural, Departmant of Agriculturel Biotechnolgy, Kahramanmaras, 46100

Sadettin Çelik
Kahramanmaras Sutcu Imam University, Faculty of Agricultural, Departmant Of Agriculturel Biotechnolgy, Kahramanmaras, 46100

Ali Rahmi Kaya
Kahramanmaras Sutcu Imam University, Faculty of Agricultural, Crop Science, Kahramanmaras, 46100

Abstract

Cotton is major crop mainly grown for its fiber textile industry, cotton seed oil and protein for animal consumption. *Gossypium L* genus belongs to *Malvaceae* family, including *G. hirsutum*, *G. barbadense*, *G.tomentosum*, *G. mustelinum* species having AD genomic group tetraploid (2n=4x=52). In this study, we used *Gossypium hirsutum* (Stoneville 453) and *Gossypium barbadense* (Askabat 100) which prior to commercial species. The study aimed to determine *Gossypium hirsutum* (Stoneville 453) and *Gossypium barbadense* (Askabat 100) taxa, analysing caryological chromosome number .

Integral Boundary Value Problems for Fractional Differential Equations with Impulse Effects

Hilmi Ergören
Department of Mathematics, Faculty of Science, Yuzuncu Yil University, Van/Turkey

ABSTRACT

In this work, we will found some sufficient conditions for the existence and uniqueness of solutions to an integral boundary value problem for impulsive fractional differential equations with fixed moments by using Banach's fixed point theorem, Schauder's fixed point theorem and non-linear alternative of Leray-Schauder type.

Keywords: Caputo fractional derivative, impulsive differential equation, fixed moment, fixed point theorem.

Using Solar and Geothermal Energy Sources for Agricultural Greenhouses

İsmail Güvenç
Kilis 7 Aralik University, Kilis 79000, Turkey

In this study, using solar and geothermal energy sources for agricultural greenhouses is realized and discussed. Solar and geothermal energy is renewable energy source. Solar energy can be easily used in order to obtain generation of heat and electricity power. Geothermal energy source is not depending on weather circumstances and suitable for local applications like agricultural greenhouses. Agricultural greenhouses need energy for cooling, heating, and electricity for operation of various equipments. These sources can cover all of the energy needs of agricultural greenhouses as heating and electricity. Also, these are cost effective sources and provides zero CO_2 emissions due to having environmental-friendly. As a result, using solar and geothermal energy sources for agricultural greenhouses is cost-effective and reliable. This combine system can be adopted for other agricultural greenhouses applications.

Keywords: Solar Energy, Geothermal Energy, Agricultural Greenhouses, Zero CO_2 emission

Craniometric Measurements of New Zealand Rabbits Skull from Three- dimensional Reconstruction Images

Sema Özkadif
Department of Anatomy, Faculty of Ceyhan Veterinary Medicine,
Çukurova University, Adana, Turkey

Emrullah Eken
Department of Anatomy, Faculty of Veterinary Medicine,
Selçuk University, Konya, Turkey

Abstract

This study aims to find out the differences between sexes on basis of craniometric measurements obtained from 3-dimensional (3D) reconstruction of multidetector computed tomography (MDCT) images in New Zealand rabbits. For this purpose, 12 adult healthy New Zealand rabbits of both sexes were used as materials. After MDCT images of the skulls were taken, they evaluated in a personel computer and reconstructed 3-dimensionally with the 3D translator component of the (Mimics) computer. A set of craniometric measurements over these reconstruction images is taken to bring out some skull indexes. This study revealed that that there were statistical differences ($P < 0.05$) among sex related-measurements such as skull length, nasal length, cranial length, skull width, nasal width, cranial width and skull index. Moreover, the rates were compared with other studies in the literature and were brought out the morphologic diversities among species. Specially, it has been thought that the skull indexes recorded in this work can shed light on further craniometric studies.

Key words: 3-dimensional reconstruction, rabbit, skull, craniometry

Yeni Zelanda Tavşanlarının Kafatasının Üç-Boyutlu Rekonstrüksiyon Görüntülerden Kraniometrik Ölçümler

Özet

Bu çalışma, Yeni Zelanda tavşanlarında kafatasının multidetektör bilgisayarlı tomografi (MDBT) görüntülerinden 3-boyutlu (3B) rekonstrüksiyonunu yaparak, kraniometrik ölçümler almak ve cinsiyetler arasındaki farklılıkları ortaya koymak amacıyla gerçekleştirilmiştir. Bu amaçla her iki cinsiyetten toplam 12 adet yetişkin Yeni Zelanda tavşanı kullanılmıştır. Kafataslarının MDBT görüntüleri elde edildikten sonra, veriler bilgisayara aktarılmış ve (Mimics) bilgisayar programının üç boyutlu çevirici bileşeni ile Yeni Zelanda tavşanlarının kafataslarının 3B rekonstrüksiyonu yapılmıştır. Bu rekonstrüksiyon görüntüleri üzerinden bir takım kraniometrik ölçümler alınmıştır ve indeksler çıkartılmıştır. Erkek ve dişi Yeni Zelanda tavşanlarında kafatası uzunluğu, burun uzunluğu, kranial uzunluk, kafatası genişliği, kranial genişlik, burun genişliği ve kafatası indeksi değerleri arasında istatistiki olarak farklılık tespit edilmiştir ($P < 0.05$). Ayrıca değerler literatürdeki diğer çalışmalarla karşılaştırılarak, türler arasındaki morfolojik farklılıklar da ortaya konulmuştur. Özellikle kafatasına ait bu indekslerin daha sonra yapılacak kraniometrik çalışmalara ışık tutabileceği düşünülmektedir.

Anahtar sözcükler: 3-boyutlu rekonstrüksiyon, tavşan, kafatası, kraniometri

The Horses Viral Infections and Detection of *EHV-1* DNA in organs of neonatal dead foals and *EHV-4* DNA from nasal swabs in Turkey

Bilge Kaan Tekelioğlu
University of Cukurova, Faculty of Ceyhan Veterinary Medicine, Department of Virology, Ceyhan-Adana/Türkiye

The purpose of this study is to describe main viral infections of horse population and the detection and differentiation of equine herpesvirus type-1 and equine herpesvirus type-4 by polymerase chain reaction (PCR). The sensibility of PCR has also been studied. For this aim it has been used suspicious samples which of them obtained from different breeding farms and race horse hospitals. During this study, organ tissue samples of 36 aborted fetuses and 98 nasal swab samples of race horses at 2 years old and up and which of those has shown the respiratory symptoms of *EHV* infections had been collected and detected by PCR. This study started up with the optimization of PCR by DNA's of reference strains, *EHV-1* (89c25p) and *EHV-4* (TH20p). It has been observed that the gB common oligonucleotid primers and type spesific gC primers used at optimization, matched the viral DNA which were spesific for them. Finally 7 *EHV-1* positives at tisues of aborted fetuses of 26 and 1 *EHV-1* and 2 *EHV-4* at nazal svab samples of 98 has been detected and differentiated by PCR.

The results indicated that, *EHV-1* and *EHV-4* infections occures in Turkey. The genomic DNA's of *EHV-1* and *EHV-4* has been dedected first time in Turkey by PCR. We agree that the PCR is a sensitive, economic and time saving test at the detection and differentiation of *EHV-1* and *EHV-4* infections.

Anahtar Kelimeler: *Horse, Neonatal, Viral, Infection, PCR, EHV-1*

At Viral Hastalıkları ve Türkiye'de Neonatal Ölen Tayların Organlarında EHV-1 DNA'sı ile burun sürüntülerinde EHV-4 DNA'sının saptanması

Bu çalışmanın amacı atlarda görülen viral hastalıkların tanımlanması, equine herpesvirus tip-1 ve equine herpesvirus tip-4 (EHV-1 ve EHV-4) virüsünün polymerase chain reaction (PCR) ile saptanması ve ayrımının yapılmasıdır. PCR yönteminin hassasiyeti ayrıca çalışılmıştır. Hastalık şüpheli hayvanlardan alınan örnekler farklı At hastaneleri ile yetiştirme çiftliklerinden toplanmıştır. Bu çalışma süresince 36 aborte fetus ile 98 burun sürüntüsü toplanmıştır. Burun sürüntüsü örnekleri 2 yaş ve üzeri yaşta olan ve üst solunum yolu hastalıkları belirtileri gösteren atlardan alınmış ve PCR yöntemi kullanılarak analizleri yapılmıştır. Bu çalışma , *EHV-1* (89c25p) ve *EHV-4* (TH20p) referans suşları kullanılarak izole edilen DNA lardan PCR yönteminin optimizasyonu yapılarak başlamıştır. Optimizasyonda kullanılan ortak gB oligonükleotid pirimerleri ile spesifik tip gC primerleri kendileri için spesifik lan viral DNA la rile eşleşdiği gözlemlenmiştir. Sonuç olarak PCR yöntemi ile 36 aborte fetuslara ait incelenen doku ve organlardan 7 fetusda *EHV-1* positifliği ile 98 nasal burun sürüntüsü örneklerinden 2 ata ait örneklerde *EHV-4* pozitifliği saptanmıştır.

Sonuçlar *EHV-1* ve *EHV-4* enfeksiyonlarının Türkiye'de varlığını ortaya koymuştur. *EHV-1* ve *EHV-4* virüsünün genomik DNA'sı Türkiye'de ilk defa PCR yöntemi ile saptanmıştır. PCR yönteminin başta *EHV-1* ve *EHV-4* enfeksiyonları olmak üzere at sağlığını tehdit eden diğer viral hastalıkların saptanmasında hızlı ve ekonomik bir yöntem olduğu sonucuna varılmıştır.

Solar Energy Pumps

Furkan Dincer
Kilis 7 Aralik University, Department of Electrical and Electronics Engineering, Kilis 79000, Turkey

ABSTRACT

Renewable energy has gained great importance due to many problems related with the non-renewable energy sources such as climate change, fossil fuels etc. So, this study focuses on renewable energy application as solar energy pumps. Solar energy pumps useful places which far from electricity grid. Also, this study realize a cost analysis. As a result, this system is cost-effective. This study can be adopted for other solar energy applications.

Keywords: Renewable Energy, Solar, Pumps, Photovoltaic

Metamaterials – A Review

Furkan Dincer
Kilis 7 Aralik University, Department of Electrical and Electronics Engineering, Kilis 79000, Turkey

ABSTRACT

Metamaterials are electromagnetic materials designed as periodically. They show exotic and distinct electromagnetic properties like negative refraction. Metamaterials have many potential applications such as super lenses, electromagnetic signal absorption, sensor, antenna, textile, cloaking etc. There are many studies on metamaterials and its' applications in the recent years. In this study, we discussed and reviewed these studies and advantages of the metamaterials like increasing of the efficiency, minimized electrical dimensions, increasing of the sensitivity according to the traditional applications.

Keywords: Metamaterial, sensor, antenna, absorption

Climate Factors Affect Photovoltaic Panel

Furkan Dincer
Kilis 7 Aralik University,
Department of Electrical and Electronics Engineering, Kilis 79000, Turkey

In order to generate the highest efficiency from photovoltaic panels or plants which converts solar energy directly into electrical energy, there are some methods such as using of sun tracking system, decreasing ambient temperature, increasing the wind etc. As it known that sun is moving during the day. A photovoltaic panel with one- or two-axis tracking system generating electricity generates 20% - 35% more electricity energy than that having no tracking system. Also, ambient temperature negatively affect the electricity energy generation capacity of photovoltaic panels. So, 20-25 ^{0}C is suitable for photovoltaic panels. In addition to this, wind positively affect the electricity energy generation capacity of photovoltaic panels and decrease the photovoltaic panel temperature. This paper presents and examines these parameters as detailed.

Keywords: Solar energy, photovoltaic, tracking system, temperature effect

Bluetooth Smart Technology for Wearable Devices

Cemanur Aydınalp
Kilis 7 Aralik University, Department of Electrical and Electronics Engineering, Kilis 79000, Turkey

ABSTRACT

When one compares the classic Bluetooth to Bluetooth Smart, or formerly known as Bluetooth Low Energy , it becomes apparent why Bluetooth Smart is required for certain applications. In classic Bluetooth, designers focused on increasing Bluetooth bandwidth and adding faster radios to attain a high data rate to manage bandwidth capacity efficiently instead of decreasing energy consumption. Contrary to the purpose of classic Bluetooth, Bluetooth Smart is a pioneer in wireless innovation technology for wearable sensor-based products because it achieves the lowest-power in a short-range. The biggest novelty of Bluetooth Smart is that it is designed by using a connectionless model. To reduce power consumption, the connection interval is shortened from hours to seconds, and data rates are minimized from 54 Mbps to 0.3 Mbps. In this paper, we will detail the Bluetooth Smart Technology and discuss the importance of Bluetooth Smart for the fast-growing wearable market.

Keywords: Wearable device, Bluetooth Smart, power consumption

Semi-Quaternions and Planar Motions

Murat Bekar

Necmettin Erbakan University, Department of Mathematics and Computer Sciences, TURKEY

Yusuf Yayli
Ankara University, Department of Mathematics, TURKEY

ABSTRACT

In this study, firstly the basic structure of semi-quaternions will be considered. Afterwards, the planar motions in Euclidean three-space will be expressed by semi-quaternions. Finally, a one-to-one correspondence between the planar Euclidean motion group and projective three-space will be given.

Keywords: Semi-Quaternions, Quasi-Elliptic Motion, Planar-Motions.

REFERENCES

[1] J. P. Ward, Quaternions and Cayley Numbers Algebra and Applications, Kluwer Academic Publishers,Dordrecht, 1996.

[2] T. A. Ell and S. J. Sangwine, Quaternion involutions and anti-involutions, Computers & Mathematics with Applications 53 (2007), pp. 137–143.

[3] M. Bekar and Y. Yayli, Involutions of Complexified Quaternions and Split Quaternions, Advances in Applied Clifford Algebras 23 (2013), pp. 283–299.

[4] M. Bekar and Y. Yayli, Dual Quaternion Involutions and Anti-Involutions, Advances in Applied Clifford Algebras 23 (2013) , pp. 577–592.

Metamaterial Based Humidity Sensor

Saban Yilmaz
Kilis 7 Aralik University, Department of Electrical and Electronics Engineering, Kilis 79000, Turkey

ABSTRACT

Metamaterials have exotic electromagnetic properties. They have many application areas such as absorber, perfect lens, sensor, antenna etc. In this study, metamaterial based humidity sensor is discussed and realized in microwave frequency regime. Also, electromagnetic properties of the proposed sensor is analysed as detail. Electric field distribution and surface current distribution is extracted in the resonance frequency. According to the results, this sensor can be adopted other frequency regime.

Keywords: Metamaterial, Humidity, Sensor, Electromagnetic

Renewable Energy Sources: Photovoltaic Applications for Solar Energy

Cemanur Aydınalp
Kilis 7 Aralik University, Department of Electrical and Electronics Engineering, Kilis 79000, Turkey

ABSTRACT

For many years, in order to meet the need of manufacturing industry, the energy industries have sought various methods, such as petroleum, gas, nuclear power, electrical power industries and renewable industry. More recently, sharply falling of oil prices alerts the producers to look for more reliable energy supply from every angle. The renewable energy, which is the conversion of energy from the sun, wind, water, plants, and geothermal, can be substituted with others to produce more endurable energy for long periods. Solar energy has become prominent in the energy industry due to the sustainable and indefinitely renewable characteristic. After installation and optimization of solar panels, photovoltaic systems transform solar radiation to usable electricity with environmental friendly method. In this paper, we discuss the impact of photovoltaic systems to solar energy development, and detail the photovoltaic applications.

Keywords: Photovoltaic systems, renewable energy, solar energy

Renewable Energy: Solar Energy

Saban Yilmaz
Kilis 7 Aralik University, Department of Electrical and Electronics Engineering, Kilis 79000, Turkey

ABSTRACT

Energy is very important agenda for all of countries. Especially, developed and developing countries focus on energy demand methods. Among of these methods, renewable energy sources have crucial importance due to having many advantages such as clean, no-depending, environmental friendly etc. Among of these sources, solar energy is very effective and have many application areas. So, this paper focuses on solar energy systems and its applications.

Keywords: Renewable, Energy, Solar