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An Update on Phytochemicals Revealing Acetylcholinesterase Enzyme Inhibitory Potential against Alzheimer's Disease
Alzheimer Hastalığına Karşı Asetilkolinesteraz Enzim İnhibisyonu Potansiyali Gösteren Fitokimyasallara Güncel Bir Bakış
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Alzheimer's disease (AD) is a progressive neurological disorder characterized by memory deficit and behavioral abnormalities and incidence of the disease is much higher in elder population over the age of 60, in particular. It has been a major health problem especially in industrialized countries depending on higher quality of life standards. Although pathogenesis of AD has not been entirely elucidated, "cholinergic hypothesis" has been proposed for AD as acetylcholine, a neurotransmitter found at synaptic gaps, has been found to be in rather lower levels in the brains of AD patients. Acetylcholinesterase (AChE) is the enzyme responsible to break down of acetylcholine and, consequently, AChE enzyme inhibitors have emerged in order to treat mild to moderate types of AD symptomatically. However, there is no cure to seize severe type of this deadly disease, yet. Therefore, it is definitely needed to develop new anti-Alzheimer agents of either natural or synthetic origins.

On the other hand, medicinal and aromatic plants constitute a rich source of secondary metabolites and it is a modern approach in drug discovery to use plants in finding new compounds with desired biological activities for human health. In our ongoing search to ascertain new anti-AChE compounds since the year of 2000, we have screened a good number of natural compounds towards AChE of electric eel origin by spectrophotometric method of Ellman using ELISA microplate reader as compared to galanthamine, the reference compound, which is an alkaloid isolated from *Galanthus* sp. (snowdrop plant) and also a drug currently used in AD treatment under the trade name of "Reminyl®". The diverse classes of alkaloids, flavonoids, coumarins, anthocyanins, stilbenes, and phenolic acids were screened in our laboratory and some of them exerted promising inhibition on AChE. In this presentation, *in vitro* data will be updated about the screened compounds by means of percentage inhibitions obtained from high-throughput screening by ELISA microplate reader.

Key Words: Alzheimer's Disease, phytochemicals, acetylcholinesterase inhibitors, natural compounds

S-2

The Role of Protein Oxidation in Photo-Aging & Intrinsic Skin Aging
Foto-Aging ve İntrinsik Deri Yaşlanmasında Protein Oksidasyonunun Rolü

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Photoaging is the result of chronic damage to the skin caused by intense and chronic exposure to sunlight. It is also known as a premature aging phenomenon of the skin with regard to the formed wrinkles and pigments. Photoaging is characterized by a remodeling of the extracellular matrix, catalyzed at least partially by the matrix metalloprotease 1 (MMP-1).

In the present study we investigated the similarities in between photoaging caused by chronic UVA irradiation and intrinsic skin aging in an *in vitro* model using human dermal fibroblasts. Also we tested the effects following acute and chronic exposure of UVA irradiation. For this purpose we used different aged fibroblasts as passage number 25 and 51 and as acute exposure we irradiated them for one time with 30J/cm² and as chronic exposure irradiated them for 2x5 days with 10J/cm².

We determined protein carbonyls as an indicator of protein oxidation, proteasome inhibition and MMP-1, TIMP-1 expressions after UVA irradiation in human dermal fibroblast cells. As result, we found that protein carbonyls and MMP-1 expression were increased, proteasome activity and TIMP-1 expression were decreased following UVA treatments in all cells. Additionally these changes were higher in chronic irradiation and in aged cells. Our results demonstrate that protein oxidation is an indicator of photoaging and intrinsic skin aging. Also chronic UVA-induced photoaging of the skin can be equaled to intrinsic skin aging in this process.

Key Words: Photoaging, skin aging, protein oxidation

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S-3

The Use of Dietary Antioxidants in Functional Foods

Fonksiyonel Gıdalarda Diyetle Alınan Antioksidanların Kullanımı

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Functional foods are the foods that form some physiological functions, which does improve human health or decrease the possibility of getting some illnesses. The objective of dietary antioxidants, which is an important component of functional foods, is to neutralize the free radicals that appear during normal human physiological activities or by nutrition. The aim of this neutralization is to prevent body from these radicals because they cause most of the illnesses. Vitamin A, C and E, phenolic compounds (phenolic acid, flavonoids), carotenoids, peptides (glutation and sistin) form the neutral antioxidants, such as carnosine, anserine, ofidine that makes the free radicals ineffective and can form chelate with metals, which have property of dipeptide and contain histidine, . Also, the some enzymes, such as superoxide dismutase, peroxide dismutase, glutathione peroxidase, ascorbate peroxidase, peroxidase, glutathione reductase and catalase, and the melatonin hormone, which come from foods, are the neutral biochemical antioxidants and they can reduce the free radicals in digestive system. There are some elements, such as selenium, zinc, manganese, magnesium and copper, which behave as antioxidants by being activator and catalyzing the enzymes which come from foods or formed by body. Antioxidant compounds have special effect system and this system basically works in two ways: The first way is to remove the metals, which catalyze the reactions that form the free radicals, such as iron, and starting reactive compounds, such as hydrogen peroxide, and decreasing the oxygen concentration as long as possible. The other way is to get the free radicals and adding them proton in order to reduce their activities and to renew the biomolecules or radical antioxidants.

Key Words: Functional foods, antioxidant, free radical

S-4

Importance of Food-Based Antioxidant Coenzyme Q10

Gıda Temelli Antioksidan Koenzim Q10'in Önemi

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Coenzyme Q10 (CoQ10) is a vitamin-like antioxidant substance which takes part in the enzymatic phases of cellular energy generation and can be found in all cells. CoQ10 converts the carbohydrates and lipids into the form of ATP which is usable by cells for energy. At the same time, by acting as a component in the mitochondrial electron transport chain, it functions as an antioxidant agent for the cell membrane and the lipoproteins, through capturing the electrons released during the metabolism of glucose and fatty acids. CoQ10, which is a protective cellular lipid with bioenergetic and antioxidative effects, is a strong antioxidant. The antioxidant effect is especially important for aging and diseases related to aging, along with cancer. CoQ10 not only protects the heart from the hazards of high cholesterol, but it also prevents the heart cells from being damaged by the effects of aging. In the recent years, CoQ10 is also being used in especially the skin care industry. Aging leads to a decline in the production of CoQ10, which normally exists in the skin's structure. The most significant factor enabling CoQ10 to find uses in the skin industry is the fact that the mentioned compound is a strong antioxidant. CoQ10 can be synthesized by humans and is also found in food in natural forms. Rich sources of CoQ10 are mackerel and sardines, meat and chicken, whereas the secondary sources are peanuts, soy oil and canola oil. Fruits, vegetables, eggs and dairy products constitute the middle level sources of CoQ10. It is emphasized that free radicals are unavoidable for all people, especially under the circumstances of this century, and that maintaining and sustaining the balance between the free radicals and the antioxidant molecules are very crucial. In these respects, the intake of CoQ10 through food is becoming increasingly important.

Key Words: Coenzyme Q10, food, antioxidant

S-5

Cocoa Polyphenols & Cardiovascular Health

Kakao Polifenoller ve Kardiyovasküler Sağlık

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Cocoa, the powder prepared from *Theobroma cacao* seeds attracted more interest among researchers in recent years due to its high polyphenolic content. There are a number of epidemiologic and dietary intervention studies on flavonoids, a group of plant polyphenols, and their beneficial health effects especially on the cardiovascular system. Positive health effects of flavonoids, in particular interest flavan-3-ols, are usually attributed to their antioxidant activities. They can exert their effects in many steps at the cellular level. Cocoa is one of the richest sources of (-)-epicatechin (EC), the monomer of procyanidin units. Cocoa samples are analyzed for total phenolics content (2.94±0.25 mmoles GAE/g cocoa) and for the EC content (34.07±1.56 µmol/g) by using HPLC. The EC itself (0.2 – 4 g/kg of diet) has been studied for its blood pressure lowering effects on L-NAME induced hypertensive rats (BP = 140-150 mm Hg). EC could effectively reduce the blood pressures of hypertensive rats. Further research is carried out to show the antioxidant capacity of EC. Possible molecular mechanisms of this effect in view of antioxidant activities will be discussed. As an antioxidant ingredient of cocoa powder, EC is considered as a promising compound for cardiovascular disease prevention and treatment.

Keywords: Cocoa, (-)-epicatechin, hypertension

*Dr. Celep was a post-doctoral fellow at UCDavis, supported by TUBITAK.

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Evidence for the Presence of full-length PARK2 mRNA & Parkin Protein in Human Blood.

İnsan Kanında tam-uzunluktaki PARK2 mRNA ve Parkin Proteini Varlığının Kanıtı

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Research on Parkinson's disease fails to pinpoint a single gene or a gene product as the causative factor. However, the early onset form of the disease may be caused by mutations in PARK2 gene. Some studies related to the biochemistry or other aspects of the PARK2 gene or its product mostly used cDNA generated from substantia nigra of the mid-brain. This is essentially because the presence of the 1.4kb full-length PARK2 cDNA in human leukocytes is, so far, not demonstrated although some splice variants and short RT-PCR products were reported. In this study, we synthesized a 1.4kb full-length PARK2 cDNA from human leukocytes, cloned and expressed it both in *Escherichia coli* and in HeLa cells. The presence of Parkin protein was also demonstrated in human serum using Western blotting and MALDI-TOF analysis. The results of this study showed a simple way for routine amplification of PARK2 cDNA from human blood and may become a useful diagnostic tool in the future.

Kasap M, Akpınar G, Sazci A, İdrisoglu HA, Vahaboğlu H. Evidence for the presence of full-length PARK2 mRNA and Parkin protein in human blood. *Neurosci Lett.* 2009 Sep 4;460(3):196-200. Epub 2009 Jun 6. PMID: 19501131 [PubMed - indexed for MEDLINE]

S-7

Comparison of severity of DNA-damage in gastric tissue, levels of Nitric Oxide and oxidative stress in gastric juice of smoker and non-smoker patients with dyspepsia.

Sigara İçen ve İçmeyen Dispepsili Hastaların Mide Suyunda Nitrik Oksit ve Oksidatif Stres Düzeyleri, Gastrik Dokuda DNA-Hasarnın Şiddetinin Karşılaştırılması

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Background: Cigarette smoking is associated with a increase in risk of peptic ulcer and Gastro-Intestinal cancer. Oxidative and nitrosative stress accompanied by toxic materials in smoke and tar has a significant role in production of carcinogenic complexes and injury to DNA and cellular proliferation in gastric cancer. The study designed to compare the rate of injury to DNA in gastric tissue, the levels of nitric oxide (NO⁰) and severity of oxidative stress in gastric juice of smoker and non-smoker patients with active peptic ulcer. **Materials & Methods:** In this study 43 smoker patients with active peptic ulcer (14 female & 29 male) referring to gastroenterology clinic with mean age of 45.30±13.16 as case group, 43 non-smokers without peptic ulcer (13 female & 30 male) with mean age of 42.67±16.04, 43 smoker without peptic ulcer (16 female & 27 male) with mean age of 44.58±12.07 and 43 non-smoker patients with active peptic ulcer (20 female & 23 male) with mean age of 45.37±13.39 were selected as control groups of 1, 2 and 3 respectively. Rate of gastric mucosa DNA damage in the four groups were measured colorimetrically method, the levels of Nitric oxide in gastric juice using Greiss colorimetric method and activities of Superoxide Dismutase and Gluthation Peroxidase and level of Total Antioxidant Capacity in gastric juice were determined by colorimetrically method. **Results:** The DNA damage in gastric mucosa of smoker patients with active peptic ulcer was higher than those of the three control groups (p<0.0001 in all case). Comparing with the control groups 1 and 2 significant elevation in the mean level of Nitric Oxide in the case group was noticed (p<0.0001 in both cases). In the gastric juice of the case group the activities of Superoxide Dismutase and Gluthation Peroxidase were higher than those of the control groups (p<0.0001 in all cases), while the levels of Total Antioxidant Capacity in the case group were lower than those of the three control groups (p=0.0001, p= 0.0001 and p= 0.049 respectively). **Conclusions:** Results of this study approve the direct relation between increase in DNA damage and toxic complexes existing in smoke and tar of cigarette, especially NO⁰ radicals. It seems that reactive species of oxygen and nitrogen such as peroxide, peroxinitrit and new unknown complexes that forms mediating the reaction between tar and nitric oxide, have an important role in DNA damage and diseases related to tobacco products such as gastric cancer and results of this study based upon increase in superoxide dismutase and glutathion peroxidase activities and reduction in total anti-oxidant capacity in gastric juice indicates the increase in oxidative stress in smoker's gastric juice. **Key Words:** Cigarette smoking, DNA damage, nitric oxide, oxidative and nitrosative stress, active peptic ulcer

S-8

Immaturity of brain energy metabolism may explain relative resistance of newborns to cerebral hypoxia-ischemia
Beyin Enerji Metabolizmasının İmmatüritesi, Yenidoğanların serebral hipoksi-iskemiye göreceli Direncini Açıklayabilir

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Our common understanding about the neonatal brain of mammals is that it is quite susceptible to hypoxic-ischemic insult. However, some data from animal studies suggest that the brain of newborns may be rather resistant to hypoxia-ischemia. This controversy may result from experimental models used, i.e. from intensity of resulting brain hypoxia, its duration, from species used, age and maturity of neonates, etc. In the present study, we tested our original hypothesis that susceptibility of the neonatal brain to hypoxia-ischemia may be related to cerebral energy metabolism maturity. We used newborn rats of various age (1, 4, 7, 10 days) and applied *in vivo* phosphorus magnetic resonance spectroscopy (³¹P-MRS) to follow a process of postnatal maturation of cerebral energy metabolism. Survival rate of rat pups exposed to zero-oxygen conditions was inversely related to maturity of their cerebral energy metabolism. Pups of various ages were then challenged by 10-min anoxia, and immediate alterations in cerebral energy metabolism were recorded. A decrease of adenosine triphosphate and phosphocreatine as well as an increase of inorganic phosphate reflected acute cerebral energy failure due to anoxia. Both degree of the anoxic energy failure and deficit of cerebral energy metabolism after brain reoxygenation depended inversely on the maturity of cerebral energy metabolism. Our findings suggest that susceptibility of the neonatal brain to hypoxia-ischemia may be at least in part a determinant of the maturity of cerebral energy metabolism.

Acknowledgement: The study was in part supported by the EU COST Program (Action B35), the Slovak State Program for Research & Development (2003SP200280203) & the Grant Agency (VE-GA 2/0083/09).

Key Words: Brain, hypoxia-ischemia, cerebral energy metabolism

S-9

Can Olive Extracts Protect Insulinoma Cells Against Cytokines-Induced Cytotoxicity?

Zeytin Ekstraktları Sitokinle İndüklenen Sitotoksiteye Karşı İnsülinoma Hücrelerini Korumayabilir mi?

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Introduction and objectives: Cytokines contribute to accelerated β cell apoptosis and death; they are not only part of the primary pathogenesis of type 1 diabetes but also a potential contributor to the progressive decline in β cell function characteristic of type 2 diabetes. The aim of our study to investigate the protective effects of oleuropein and olive extract against cytokines-induced cytotoxicity in pancreatic β -cell line, INS-1E. Cells were separately preincubated(24h.) with oleuropein (Ole,0.1mmol/L), oliveleaves extract (OLE,0.1mg/mL) and olive polyphenolic fruit extracts (OFE,0.1mg/mL). Cytotoxicity was induced by incubation(6 h.) with 0.15ng/mL-IL-1 β +1ng/mL-TNF- α +1ng/mL-IFN- γ . **Methods:** Cell viability was measured with MTT assay. Intracellular reactive oxygen species(ROS) was observed with DCF-DA assay. Living, necrotic and apoptotic cell numbers was detected with Acridine orange/ethidium bromide staining under flourescent microscopy. Insulin release was measured with ELISA and caspase activity with flourometric assay kit, glutathione(GSH) levels and antioxidant enzymes such as superoxide dismutase(SOD) and catalase(CAT) was measured with colorimetric kits. **Results:** Ole, OLE and OFE were shown to be non-toxic below the concentration of 0.1mmol/L, 0.1mg/mL, 0.1 mg/mL respectively and shown maximal protective effects at these concentrations according to MTT assay results. Only incubation with cytokines were significantly decreased cell viability(51.26%), living cell number, insulin release(41.9%) glutathione levels(17.87%) and SOD activity(22.1%) and also increased ROS production(52.36%) apoptotic and necrotic cell number, caspase activity(45.23%). Ole was demonstrated protective effects via increased living cell number and SOD activity and decreased apoptotic cell number and caspase activity. Insulin release was significantly increased with preincubation with OLE. Glutathione levels were significantly increased with preincubation all olive samples. **In conclusions:** cytokines decreased cell viability and caused to apoptotic cell death in insulinoma cells. Oleuropein and olive extracts protect INS-1E cells against cytokines-induced molecular damage via ameliorating insulin release and decreasing apoptotic and necrotic death. *Supported by TUBITAK (106S025) and by COSTAction-B35*

Key Words: Olive extract, insulinoma cells, cytokine, apoptosis

S-10

Cosmetic Properties of Whey Minerals

Whey Minerallerinin Kozmetik Özellikleri

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The constituents with lower molecular weight in cow's milk whey were similar to the natural moisturizing factor in the surface of normal human skin. The low molecular weight fraction of whey available for cosmetics could be prepared from a by-product of the manufacture of whey protein concentrates (WPC) or whey protein isolates (WPI) from sweet whey. The whey minerals obtained from whey protein isolates (MWS) contained many glycoproteins or glycopeptides, which were expected to have functional characteristics for cosmetics similar to those from whey protein, concentrates; therefore, we studied the applications of the whey protein concentrates to skin care products. Two types of whey protein concentrate, namely, S- and SP- MWS for cosmetics. The SP-MWS was much more soluble than the s-MWS and was accordingly suitable for clear lotions. Concerning the functional properties of both MWSs for cosmetics, the water-binding ability, water absorbing ability and cell proliferation ability were examined. The water binding and absorbing abilities of both MWSs corresponded to those of hyaluronic acids which are used as effective humectants in the cosmetic industry. The cellular proliferating activity of s-MWS was actually higher than that of SP-MWS. The S-MWS was added to a series of basic cosmetics for women. Furthermore, some company developed cosmetic products for infant, including soap and lotion containing sp-MWS. These cosmetics were applied to pediatric patients with atopic dermatitis. As a result, these products were recognized as a safe and useful for pediatric patients with atopic dermatitis was clinically examined. As a result, these products were recognized as safe and useful for pediatric patients with atopic dermatitis.

Key words: Cosmetic, whey protein isolates, whey protein concentrates, atopic dermatitis

**Melatonin Ameliorates Tacrolimus (Fk-506)-Induced
Immunosuppressive Effect in Rat Liver****Melatoninin, Sıçan Karaciğerinde Takrolimus(Fk-506)'un
İmmunosupresif Etkisini İyileştirir**

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Tacrolimus (FK-506) is a powerful immunosuppressive agent and it modulates neutrophil infiltration during inflammation. In this study we aimed to investigate the effects of melatonin on MDA, NO, IL-6 ve TNF-alfa against the negative effects of immunosuppressive FK-506. Group A, sham, Group B received Tacrolimus 1 mg/kg/day subcutaneously and Group C received Tacrolimus 1 mg/kg/day and melatonin. All were obtained for histopathologic examination. IL-6, TNF α , NO, MDA levels was studied. MDA level in Group B increased 53 % in comparison to Sham Group ($p<0,001$), in Group C, MDA level decreased 16 % in comparison to Group B . ($p>0,05$). While TNF- α in group B increased 68,8 % in comparison to Sham Group ($p<0,001$), in Group C it decreased 63,5 % in comparison to Sham Group. IL-6 level in Group B increased 81 % , in Group C it decreased 13 % in comparison to Group B . While NO levels in Group B increased 48 % in comparison to Sham Group, an increase of 15 % in Group B in comparison to Group C was observed. As a result, intraperitoneal administration of melatonin might protect the liver FK506 induced rats by reducing the severity of oxidative stress and increasing the levels of antioxidant enzymes. We think that melatonin may be used as a protective agent in this agent; however, further clinical and experimental studies are needed to verify its antioxidative and hepatoprotective effects.

Key Words: FK-506, liver MDA, NO,IL-6, TNF-alpha

P-1

The Association of Interleukin (IL)-6 Gene Polymorphism with Aging in Turkish Population

Türk Popülasyonunun Yaşlanmasında Interleukin-6 Gen Polimorfizmi

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Introduction and objectives: Ageing is characterized by a pro-inflammatory status and genetic variations in pro or anti-inflammatory cytokines might influence successful ageing and longevity. IL-6 gene is one of the appropriate candidate genes because interleukin-6 is a prototypical inflammatory cytokine. C allele at position -174 in the promoter region of the gene has been associated with reduced gene expression resulting in decreased plasma levels of IL-6. The aim of the present study was to investigate the IL-6 promoter polymorphism among different age groups of Turkish population. **Methods:** Blood samples were collected from 298 volunteers (138 female, 160 male) between 18 and 95 years of age. Volunteers were classified into two groups according to their ages as <60 and >60. Total DNAs from blood sample were isolated by “Qiagen DNA Mini Kit” following the manufacturer’s protocol. The IL-6 promoter region of the isolated DNAs, were amplified with the Polymerase Chain Reaction-Restriction Fragment Length Polymorphism (PCR-RFLP) technique and 303 bp oligonucleotide was produced. The amplified oligonucleotides were cut with NlaII-I restriction enzyme. Digested products were separated on a 2% agarose gel electrophoresis, visualized by ethidium bromide staining under an ultraviolet illuminator. **Results:** Mean ages of individuals with homozygote typical (n=126), heterozygote (n=146) and homozygote atypical genotype (n=26) were 48.29±17.76, 56.92±14.81 and 63.88±12.76 respectively. The allele frequencies in all subjects were consistent with Hardy-Weinberg equilibrium. It is found that the genotypes of individuals below 60 years of age (<60) were 45.5% homozygote typical, 48.5% heterozygote and 6.0% homozygote atypical whereas they were 35.7%, 50.0% and 14.3% respectively for individuals above 60. **Conclusion:** A statistically significant association between the IL-6 -174G/C polymorphism and aging was found (p<0.05). There was no statistically significant difference between male and female groups regarding IL-6 polymorphism (p=0.297).

Key Words: Interleukin (IL)-6, aging, gene polymorphism

P-2

Design, Synthesis & Evaluation Of Some Novel 6-Substituted-3(2H)-Pyridazinone-2-Propyl-3-(P-Substituted/Nonsubstituted Benzal)Hydrazone Derivatves as Acetylcholinesterase & Butyrylcholinesterase Inhibitors

Asetilkolinesteraz ve Butirikolinesteraz İnhibitörleri Olarak Bazı Yeni 6-Substitüe-3 (2H)-Piridazinon-2-Propil-3- (p-Substitüe/ Nonsubstitüe Benzal) Hidrazon Türevlerinin Tasarımı, Sentezi ve Değerlendirilmesi

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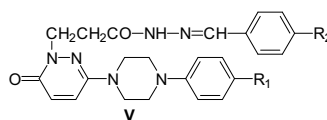
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Alzheimer’s disease (AD) is a neurodegenerative disorder of the central nervous system, characterized by loss of cognitive ability and severe behavior abnormalities, which ultimately results in degradation of intellectual and mental activities [1]. Studies of brain tissue indicate that intracellular neurofibrillary tangles and extracellular senile plaques accompany AD [2]. Despite an enormous amount of work, many aspects of both the etiology and physiological pathways of the disease still remain unclear. To date, the majority of current drug therapeutic approaches to AD follow the cholinergic hypothesis [3-5]. Therefore, acetylcholinesterase (AChE) and butyrylcholinesterase (BChE) inhibitors have gained a great popularity for the treatment of AD. As part of a program aimed at developing simple and efficient syntheses of pharmacologically useful pyridazinones[6-10], in current study we synthesized some novel 6-substituted-3(2H)-pyridazinone-2-propyl-3-(p-substituted/ nonsubstituted benzal)hydrazone **V** derivatives as acetylcholinesterase and butyrylcholinesterase inhibitors. All the targets compounds were identified by spectroscopic data and confirmed by elemental analysis.

Acetylcholinesterase and butyrylcholinesterase inhibitory activity of synthesized 6-substituted-3(2H)-pyridazinone-2-propyl-3-(p-substituted/ nonsubstituted benzal)hydrazone **V** derivatives were tested by the spectrophotometric method of Ellman using an ELISA microplate-reader at 1 mg/ml concentration. Some of the **V** derivatives have been shown significant acetylcholinesterase (AChE) and butyrylcholinesterase (BChE) inhibitors activity.



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P-3

Cardiomyocyte-Specific Endothelin A Receptor Knockout Alleviates Aging-Induced Cardiac Remodeling & Myocardial Contractile Dysfunction

Kardiyomiyosit Spesifik Endotelin Reseptör A Nakavt, Yaşlanmanın İndüklediği Miyokardiyal Kontraktıl Disfonksiyonu ve Yeniden Modellenmeyi Azaltır

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Cardiac aging is associated with compromised myocardial function and morphology although the underlying mechanism has not been well elucidated. Endothelin 1 (ET-1), a potent vasoconstrictor peptide expressed by endothelium, is also produced in the heart in response to a variety of stresses. ET-1, through its membrane receptors, is known to contribute to cardiac hypertrophy and contractile dysfunction. To understand the role of ET-1 signaling cascade in aging-associated myocardial functional and morphological change, this study was designed to examine the role of cardiomyocyte-specific ET-A receptor knockout (ETAKO) in aging-associated myocardial morphological and contractile dysfunction. Young (4-6 mo) and old (26-28 mo) C57 wild-type (WT) and ETAKO mice, which display in approximately 80% loss in cardiac ETA mRNA level compared to wild-type controls, were used. Echocardiograph and cardiomyocyte contractile function were assessed. DCF fluorescence was employed to quantify reactive oxygen species (ROS). Myocardial contractile function (fractional shortening, cardiomyocyte peak shortening, maximal velocity of shortening/relengthening and duration of relengthening) and intracellular Ca²⁺ handling (intracellular Ca²⁺ decay rate) were compromised in aged WT mice, the effects of which was significantly attenuated by ETAKO. Echocardiographic analysis revealed myocyte hypertrophy with greater echocardiographic left ventricular mass and wall thickness in aged WT mice, which were also alleviated in ETAKO mice. Aging enhanced ROS production and reduced eNOS phosphorylation, the effects of which were attenuated by ETAKO. Taken together, our data suggest that cardiomyocyte-specific knockout of ET A receptor may rescue aging-associated myocardial remodeling and contractile dysfunction and through a mechanism, at least in part, attributed to ROS production and eNOS phosphorylation (supported by NIH P20RR016474).

Key Words: Endothelin A receptor, myocardial, cardiomyocytes, contractile function, reactive oxygen species

P-4

(±)-8-Methoxy-1,3,4,4A,5,9B-Hexahydro-pyrido[4,3-B]indole-2-carboxylic Acid Ethyl Ester as a Protective Agent Against H₂O₂ Induced Oxidative Damage in Pancreas β Cell Lines

Pancreas Beta Hücre Dizilerinde Hidrojen Peroksitle İndüklenen Oksidatif Hasara Karşı Koruyucu bir Ajan Olarak (±)-8-Metoksi-1,3,4,4A,5,9B-Hexahidro-prido[4,3-B]indol 2-Karboksilik Asid Etil Ester

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Apoptosis is the main cause of β-cell death in both types of diabetes. The purpose of our study was to compare the effects of Stobadine (Compound 1) and (±)-8-methoxy-1,3,4,4a,5,9b-hexahydro-pyrido[4,3-b]indole-2-carboxylic acid ethyl ester (Compound 2), a structural congener of stobadine on cell dysfunction and apoptosis induced by H₂O₂ in insulinoma INS-1E cell line. Cytotoxicity of compounds with H₂O₂ was quantified with MTT reduction assay. Caspase 9 and 3 activities were measured with colorimetric assay kits. 35 μmol/l H₂O₂ causing a decrease of viability (LD₅₀ value (50.8±9.6% of control cells)) was used for further experiments. 24 hour pre incubation with compound 2 provided better protection against H₂O₂ cytotoxicity (68.9±4.3 p<0.05, 75.9±2.5 p<0.05, 72.5±4.2% p<0.05 of control for three respective concentrations tested 0.1, 0.01, 0.001 mmol/l) than preincubation with compound 1 (48.4±3.6, 55.0±4.5, 63.3±3.7% p<0.05 of control respective at the same concentrations with compound 2). Caspase 9 (204.3±10%) and caspase 3 (182.8±9%) activities were statistically significant increased in only H₂O₂ treated cell when compared with control cells. Preincubation with compound 2 (0.001 mmol/l) decreased caspase 9 (143.7±6.8% of control) p<0.05 and caspase 3 (136.8±13.4) activities more effectively than compound 1 (0.001 mmol/l) (153.5±2.9% p<0.05, 149.3±14.7% of control for caspase 9 and -3 respectively). The results of the study demonstrate that compound 2 may serve as a protective tool against oxidative stress triggered apoptosis and secretory dysfunction of insulinoma cells.

Supported by TUBITAK (Project No: 106S239) and by COSTAction-B35

Key Words: Apoptosis, oxidative damage, pyridoindole, antioxidant, pancreas

P-5

Ameliorative Effects of Grape Seed Extract on Oxidative Stress Parameters in Aged Rat Liver

Yaşlı Fare Karaciğerinde Oksidatif Stres Parametreleri Üzerinde, Üzüm Çekirdeği Ekstresinin İyileştirici Etkileri

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Aging is the accumulation of diverse deleterious changes in the cells and tissues leading to increased risk of diseases. Oxidative stress has been shown to play a major role in aging. The levels of oxidative stress should increase with age and it also predicts that levels of antioxidants should reduce oxidative stress and extend the life span. Grape seed extract, one of the bioflavonoid, is a potent antioxidant. In the present study, we aimed to investigate the role of grape seed extract on lipid peroxidation and antioxidant status in the liver of young and aged rats. 48 male Wistar albino rats were divided randomly into four groups: Group I-control young rats, Group II-young rats treated with grape seed extract (100 mg/kg body weight) for 30 days, Group III-aged control rats and Group IV-aged rats supplemented with grape seed extract (100 mg/kg body weight) for 30 days. Age-associated increase in lipid peroxidation was observed in the liver aged rats (Group III). Activities of antioxidant enzymes like superoxide dismutase, catalase, glutathione peroxidase were found to be significantly decreased in the liver tissues studied in aged rats when compared to young rats. However, normalized lipid peroxidation and antioxidant defenses were reported in the grape seed extract-supplemented aged rats. In the light of these results we can say that grape seed extract enhanced the antioxidant status and decreased lipid peroxidation in the liver tissues of aged rats.

Key Words: Aged rat liver, grape seed extract, ameliorative effects

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P-6

Effect of Functional Foods on Chronic Diseases of Aging Yaşlanmaya Bağlı Kronik Hastalıklar Üzerinde Fonksiyonel Gıdaların Etkileri

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Physiological and biochemical properties of foods have a great role prevention of chronic diseases of aging. One or more substances of this foods that as a discribed functional foods have useful affect of benefit human health. Over many years, effect of functional foods on the artherosclerosis, cataract, cancers, diabetes, neurological diseases, immune-inflammatory disorders are investigated. Especially preventive role of nutraceutical and antioxidant substances, which have functional properties on the free radicals related with radiation, toxic substances, stress, air pollution, are investigated by researcher. Free radicals that are ensure according to air pollution, toxic substances, stress are destroyed by nutraceutical and antioxidant substances which improve to prevention cancer, artherosclerosis, cell dissolution because of free radicals. Free radicals could occur because of during other metabolic proesses in the organism or external factors. Free radicals, produced during mitochondrial respiration and also released by peroxisomes, catalyse several redox reaction of various compound in living tissues and cells and in foods. Furthermore there are many substances, which are discribed antioxidant, to getting free radicals. Antioxidants provide to be ineffective of free radicals. Enzym activities of our body decreases related with aging. This reason there is not enough antioxidant defense mechanisms. Nutrition is the best source for antioxidant intake our bodies. A lot of scientific investigations have been performed to discover possible functional properties, antioxidant. Distiniciton should be given to more than 40 limonoids and ascorbic acid in citric fruits; to soy isoflavonoids, tocotrienols of cereals, grains and vegetables; phenolics of ginger and tea; lycopene of tomato, watermelon and guava, red grape, apple, cherry, onion and some creals.

Key Words: Functional Foods, chronic diseases, aging, free radicals

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P-7

Antioxidant Capacities of Some Endemic Plants Used in Turkey Folk Medicine

Türk Geleneksel Tıbbında Kullanılan Bazı Endemik Bitkilerin Antioksidan Kapasiteleri

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Introduction and objectives: The research is focused on the determination of new potential plant sources of antioxidants that used as folk medicine. Antioxidants are vital substances that possess the ability to protect the body from damage caused by reactive oxygen species induced oxidative stress. **Methods:** *Sideritis sipylea* and *Origanum sipyleum* L. extracts were prepared in different solvents such as water (WE), ethanol (EE), methanol (ME), acetone (AE) and only in water extract for *Sideritis leptoclada*. Total phenolic contents in extracts were measured by using the Prussian Blue Assay. Scavenging capacities of ·OH and 2,2-diphenyl-1-picrylhydrazyl radical (DPPH) were determined by Deoxyribose and Shimada Methods, respectively. The reducing powers of the extracts and vitamin C as a positive control were quantified by the Method of Oyaizu. Total antioxidant capacities of the extracts and butylated hydroxyanisole (BHA) as a positive control were determined according to Thiocyanate Method. **Results:** The highest total phenolic contents of *S. sipylea*, *O. sipyleum* and *S. leptoclada* in ME, AE and WE were found as 0.089, 0.156 The best IC₅₀ values for hydroxyl radical scavenging were determined as 1.1 µg/mL in ME of *S. sipylea*, 3.6 µg/mL in AE of *O. sipyleum* and 21 µg/mL in WE extracts of *S. leptoclada*. IC₅₀ values for DPPH scavenging were determined as 0.05 mg/mL for ME of *S. sipylea*, 0.09 mg/mL for EE of *O. sipyleum* and 0.15 mg/mL in extract of *S. leptoclada*. Total antioxidant capacity of *S. sipylea* was similar with BHA and higher than *S. leptoclada* and *O. sipyleum*. **Conclusions:** The result of this study suggests that extracts of *Sideritis sipylea*, *Sideritis leptoclada* and *Origanum sipyleum* L can be used as potential source of natural antioxidants, as a possible food supplement or in the pharmaceutical industry for delaying of ageing.

Key Words: Total phenolic content, antioxidant capacity, scavenging capacities of ·OH and DPPH

P-8

Antioxidant Effect of Conjugated Linoleic Acid in Dairy Product Süt Ürünlerinde Konjuge Linoleik Asidin Antioksidan Etkisi

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Conjugated linoleic acid (natural polyunsaturated fatty acid) refers to a class of positional and geometric conjugated isomers of then omega-6 essential fatty acid, linoleic acid. The cis-9, trans-11, isomer of conjugated linoleic acid is produced in the rumen of cattle and other ruminant animals during the microbial biohydrogenation of linoleic and linolenic acids. Conjugated linoleic acid (CLA) isomers (cis-9, trans-11 isomer) are naturally found in foods in the lipid fractions. Eventhough, CLA could be found in most of foods, meat and dairy products from ruminant animals are the principal source of CLA in the human diet. CLA content in dairy product (mg /milk fat); Homogenized milk 5,5, concentrated milk 7,0, yoghurt 4,8, butter 4,7, ice cream 3,6, cheddar cheese 4,1, white cheese 4,5 mg/ milk fat. CLA have a variety of biological major effects on health such as reduced body fat, enhanced immunity and anti-cancer, anti-oxidation, anti atherosclerosis, anti-adipogenic. Many researches bring up that CLA as antioxidant prevent cell-damage neutralizing free radicals. In different studies it has been demonstrated that CLA is a potent antioxidant and that c-9, t-11 isomer is selectively incorporated into cellular phospholipids, which may, at least, in part, explain the anticarcinogenic activity of CLA as antioxidant mechanism. Administration of CLA to animal models of carcinogenesis has been shown to delay and reduce the onset of chemically induced tumors at various sites such as skin, breast, colon, and stomach.

Key Words: Dairy product, linoleic acid, antioxidant

P-9

Functional Bioactive Peptides Sourced from Milk Proteins

Süt Proteinlerinden Elde Edilen Bioaktif Fonksiyonel Peptidler

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Milk is considered as a healthful beverage and consumption of dairy products is associated with overall diet quality. Milk and milk based products are nutritious food items containing numerous essential nutrients such as lipids, proteins, amino acids, vitamins and minerals and numerous bioactive substances which comprise original ingredients of milk. The milk protein that one of the most important components has a high biological value and, milk is therefore a good source for essential amino acids. Milk proteins are currently the main source of a range of biologically active peptides, even though other animal or plant proteins contain potential bioactive substance. These peptides have been defined as specific protein fragments and obtained from casein, as well as whey proteins. Bioactive peptides can be released by enzymatic hydrolysis either during gastrointestinal digestion or during food processing. Milk borne bioactive peptides are regarded as potential active ingredient for preparation of various functional foods, nutraceuticals and pharmaceutical drugs. Opioid, anti-thrombotic, mineral-binding, anti-microbial, immuno-modulatory, cyto-modulatory, hypotensive, hypo-cholesterolemic, antioxidant, and anti-inflammatory peptides are bioactive peptides from milk proteins. Also the naturally occurring biologically active peptides are primarily hormones and releasing factors. These substances then enter the milk as original active ingredients from blood plasma, or are synthesized in the lactiferous gland. Regarding their physiological significance, one should take into account that milk is the only natural food for mammals and humans which provides proteins exclusively for nutrition and beyond that, provides various peptides having regulating effect for the development of the newborn. These peptides can also have healthy benefits an adult's diet as a functional food ingredients.

Key words: Milk proteins, bioactive peptides

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P-10

Anti-Aging Foods

Anti-Aging Gıdalar

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Anti-Aging; çeşitli organlardaki hücre fonksiyonuna zarar veren etmenlere karşı alınan önlemlerin tümüdür. Yaşlanma önlenemeyeceğine göre bunun yavaşlatılması ve önlem alınması gerekmektedir. Yaşlanmanın olumsuz etkilerini azaltmak, bilince dayalı sağlıklı bir yaşam tarzını benimseyerek olabilmektedir. Anti-Aging; düzenli sağlık kontrolleri, uygun bir beslenme, kişiye uygun egzersiz programlarının yanı sıra serbest radikallerle mücadele amacıyla vitamin, mineral ve antioksidan destekler ile stresle başa çıkmaya ilgilendir. Fındık, ceviz, tavuk eti ve bazı deniz mahsullerinde selenyum bulunmaktadır. Vitamin E'nin etkenliğini artıran bağışıklık sistemini güçlendiren selenyum, kansere karşı koruyucu olabilmektedir. Ispanak, karaciğer ve bira mayası gibi besin kaynaklarında bulunan alfa lipoik asit, doğada bulunan en güçlü antioksidan ve yaşlanmayı geciktirici maddelerden biridir. Hücrelerin içindeki tüm yapıları serbest radikallerden korur ve enerji üretimi artırır. Hücrelerin kendilerini yenilemesine katkı verir. Kuşburnu, yeşilbiber, maydanoz, kivi ve karalahanada bulunan C vitamini, enfeksiyonlara karşı vücut direncini artırmasının yanı sıra kötü kolesterolü düşürür ve kanser oluşumunu yavaşlatır. Fındık, ayçiçeği, yeşil yapraklı sebzelerde bulunan E vitamini LDL kolesterolü düşürdüğü, damarları koruduğu ve cildi beslediği bilinmektedir. Havuç, ıspanak, kayısı, domates ve koyu yeşil yaprağı olan sebzelerde bulunan Vitamin A bağışıklığı artırır, deriyi, tırnakları ve saçları güçlendirir. Kolesterolü azaltır, kalbi, karaciğeri ve kemikleri korur. Gingko biloba, kalp ve beyin dolaşımında güçlü etkisi olan bir antioksidan olup Alzheimer hastalığında kullanılır. Felç ve kalp krizi geçirme olasılığını, katarakt oluşmasını azaltır. Güçlü bir antioksidan kaynağı olan yeşil çayın değişik kanser risklerini azalttığı kan kolesterol seviyesini düşürdüğü, yaşlanmayı geciktirdiği belirtilmiştir. Yaşlılıkta görülen Alzheimer, Parkinson ve Amyotropik Lateral Skleroz hastalıklarının tedavisi için çoklu antioksidanların tüketimi önerilmektedir. Anti aging beslenme meyve, sebze ve içeceklerden özellikle kırmızı şarap ve yeşil çayın çoklu antioksidan içermesi nedeniyle tüketilmesi önerilmektedir (1,2).

Key Words:Antiaging, yaşlanma, beslenme, antioksidanlar

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P-11

The Relationship of p53 Positivity between Age & Tumor Type in 100 Mama Carcinoma Cases

100 Meme Kanseri Olgusunda p53 Pozitifliğinin Yaş ve Tümör Tipi ile İlişkisi

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Amaç: p53 tümör supresör gen mutasyonları insan tümörlerinde en yaygın genetik değişikliktir ve sporadik meme kanserlerinin yaklaşık %25'inde görülmektedir. Biz bu çalışmamızda meme kanserli kadınlarda mutant p53 geninin yaş grupları, bu gruplar içinde tümör tipi ile ilişkisini değerlendirmeyi amaçladık. **Yöntem:** Bu çalışmada toplam 100 meme kanserli hastada immunohistokimyasal yöntemle mutant p53 genine ait protein ürününün varlığını araştırdık ve yaş grupları yanı sıra tümör tipi ile arasındaki ilişkiyi değerlendirdik. **Sonuçlar:** 100 hasta içerisinde p53 (+) toplam hastaların sayısı 35(%35) olup 50 yaş ve üzeri, p53 (+) hasta sayısı 25 (%25), 50 yaş altı, p53 (+) hasta sayısı 10(%10) iken 50 yaş ve üzeri, p53 (-) 43 hasta (%43) 50 yaş altı, p53 (-) 22 hasta (%22) , toplam 65 hastada (%65) p53 (-) olarak saptandı. 50 yaş ve üzeri hasta grubunda 68 hasta mevcut olup bu hastaların 25 (%36,76)inde p53 (+) idi. 50 yaş altı hasta grubunda ise 32 hasta mevcut olup bu hastaların 10 (% 31,25)unda p53 (+)liği saptandı. Tüm gruplarda en sık görülen tümör tipi invaziv duktal karsinom (İDK) (%83) olarak bulunmuştur. p53 (+) İDK hastalarının 23'ü 50 yaş ve üzerinde iken 6'sı 50 yaşın altındaydı. p53 (-) hastaların 37'si 50 yaş ve üzerinde iken 17'si 50 yaşın altındaydı. **Tartışma:** Bu çalışmada meme kanserli hastaların çoğunluğunun 50 yaş ve üzerinde olması ve bu grupta 50 yaş altındakilere göre p53(+)liğinin daha yüksek bulunması meme kanseri gelişiminde p53 gibi tümör supresör genlerinin etkili olduğunu, ancak 50 yaş altında da p53(-) meme kanserli hastaların bulunması bu sürecin multifaktöryel olduğunu düşündürmüştür.

Key Words: Meme kanseri, mutant P53 geni, tümör

P-12

The Effects of Low Dose Statin Treatment on Ventricular Myocyte Dysfunction Occured in Diabetic Rats Diyabetik Farelerde Gelişen Ventriküler Miyosit Disfonksiyonu Üzerine Düşük Doz Statin Tedavisinin Etkileri

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Diyabetin yol açtığı kardiyovasküler hastalıklar arasında diyabetik kardiyomiopatinin önemli bir yeri bulunmaktadır. Koroner vasküler hastalıktan bağımsız olarak gelişen diyabetik kardiyomiopatinin patogenezinde oksidatif stres önemli bir rol oynamaktadır. Öte yandan, statinlerin kolesterol düşürücü etkinliklerinin yanı sıra kardiyovasküler sistemde hem oksidatif stres hem de Ca²⁺ homeostazisi üzerindeki yararlı *pleiotropik etkileri* bulunmaktadır. Bu çalışmada kolesterol düzeylerini etkilemeyen dozdaki atorvastatin tedavisinin diyabetik fare miyositlerindeki kontraktıl disfonksiyon üzerindeki olası yararlı etkinliğinin araştırılması amaçlanmıştır. Yetişkin erkek fareler dört gruba ayrılmıştır: Kontrol, diyabetik, atorvastatin tedavili kontrol, atorvastatin tedavili diyabetik gruplar (n:10 her bir grup). Diyabet tek doz streptozotosin injeksiyonu ile oluşturulmuştur (200mg/kg, s.c.). Diyabet oluşumundan iki hafta sonra oral olarak uygulamaya başlanılan atorvastatin tedavisi iki hafta sürdürülmüştür (10mg/kg/gün, oral gavaj). Tedavi sonunda *Langendorf* perfüzyon sistemine alınan kalpler kolagenaz ile dijeste edilerek ventriküler miyositler izole edilmiştir. *SoftEdge Myocam* sistemi kullanılarak miyositlerde ölçümlenen mekanik parametreler şunlardır: Dinlenimdeki hücre uzunluğu (CL), maksimum kısalma amplitüdü (PS), maksimum kısalma süresi (TPS), uzamanın kısalma fazının %90' ına inmesi için gerekli süre (TR₉₀), kısalma ve uzamadaki maksimum hız (\pm dL/dt). Öte yandan, kanada glukoz, kolesterol, trigliserit ile kalp dokularında bazı oksidatif stres parametreleri de (KAT: katalaz, SOD: süperoksit dismutaz aktiviteleri ve GSH: glutatyon ile MDA: malondialdehit düzeyleri) ölçümlenmiştir (spektrofotometrik). Atorvastatin tedavisi kan glukoz, kolesterol ve trigliserid düzeylerini etkilemeksizin diyabetik miyositlerde bozulmuş olarak ölçümlenen PS, TPS, TR₉₀ ve \pm dL/dt değerlerini büyük oranda düzeltmiştir (p<.05, ANOVA, n: 5 fare her bir grup). Diyabetik kalp homojenatlarında GSH düzeyi %21 oranında azalmış, KAT ve MDA düzeyleri ise sırasıyla %51 ve %48 oranlarında artmış olarak bulunmuştur (n:5, p<.05). Atorvastatin tedavisi bu değerleri normalize etmiştir. Bulgularımız kolesterol düzeylerini etkilemeyen düşük dozdaki atorvastatin tedavisinin diyabetin indüklediği kardiyak mekanik disfonksiyonu oksidatif stre-si azaltarak düzeltildiğini göstermektedir (Bu çalışma Ankara Üniversitesi tarafından desteklenmiştir-no: B3336003, ve 5th International Congress on Cardiovascular Disease adlı kongrede -Hazaran 2009- Slovakya' da sunulmuştur).

Key Words: Diyabet, ventriküler miyosit, statinler

P-13

Echinacea & Anti-Aging

Ekinazya ve Anti-Aging

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Echinacea türleri (Compositae) Amerika yerlileri tarafından yüzyıllardan beri diş ağrısı, boğaz ağrısı, soğuk algınlığı, kuduz, yılan sokması ile yara ve yanıklara karşı kullanılmıştır. Tıbbi olarak değerlendirilen türler ise *E. pallida*, *E. purpurea* ve *E. angustifolia*'dır (European Pharmacopoeia 6, 2007). Bugün *Echinacea* türlerinin kökleri ve topraküstü kısımlarının tentürü ve ekstresi veya toz halde kapsül içinde Amerika'da ve Avrupa'da kullanılmaktadır. *Echinacea* ürünleri Amerika Birleşik Devletlerinde daha çok nutrasötik olarak, Avrupa'da ise durum farklı olup, örneğin Almanya'da *Echinacea* ürünlerinin çoğu ilaç olarak ruhsatlandırılmıştır ve eczanelerde satılmaktadır. Bitkinin herba ve kökleri kafeik asit türevleri, alkilamidler ve polisakkaritler taşımaktadır (Gruenwald ve ark. 2004). Bu çalışmada, Türkiye'de kültürü yapılan *Echinacea purpurea* ve *E. pallida*'nın kök ve herba kısımlarından hazırlanan farklı polaritedeki ekstraktların antioksidan aktiviteleri 2,2-difenilpikrilhidrazil serbest radikal süpürücü etki ile demir bağlama kapasiteleri yönünden incelenmiştir. Bu çalışmada *Echinacea* türlerinden elde edilen ekstre ve bileşiklerin antiaging açıdan önem taşıyan etkileri (antioksidan, kollajen koruyucu ve antiyalüronidaz etkileri) değerlendirilerek antiaging amaçla kullanım önerileri yapılmıştır.

Anahtar Kelimeler: Anti-Aging, Ekinazya

Kaynaklar:

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Going to the Fitness-Wellness Centre: Evaluation of Health Quality of Individuals

Fitness-Wellness Merkezlerine Giden Bireylerin Sağlık Kalitesinin Değerlendirilmesi

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Amaç: Fitness ve wellness merkezlerine giden kişilerin sağlık kalitesini araştırmak ve değerlendirmek, bu araştırmanın amacını oluşturmaktadır. **Yöntem:** Antalya ilinde bulunan fitness ve wellness merkezlerine giden kişilerden gönüllü olanlara anket yapılmıştır. Veri toplama aracı olarak 55 sorudan oluşan "Likert Tipi" sayısal ölçek (5= Devamlı, 4= Düzenli, 3= Bazen, 2= Nadiren, 1= Asla) anket kullanılmıştır. Fiziksel durum, Zihinsel yada Duygusal durum, stres değerlendirilmesi, Yaşamdan hoşnutluk, Genel yaşam kalitesi, Genel izlenim gibi bölümlerinden oluşmaktadır. Verilerin değerlendirilmesinde SPSS 10.0 istatistik programı kullanılmıştır. Verilerin ortalama, standart sapma, persentil ve frekans dağılımlarının analizi yapılmıştır. **Bulgular:** Araştırmaya 51(% 42,5)'i erkek, 69 (% 57,5)'i bayan olmak üzere toplam 120 kişi katılmıştır. Yaş, boy, ağırlık ortalamaları; erkeklerin yaş 37,5±10,7 yıl, boy 179,4±6,1 cm, ağırlık 82,6±10,5 kg, bayanların yaş 35,5±11,1 yıl, 165,5±7,1 cm, ağırlık 65,4±9,6 kg. olarak bulunmuştur. Bireyler yaş gruplarına göre; 19-23 yaş grubu 14 (%11,4) kişi, 24- 28 yaş grubu 21 (%17,5) kişi, 29-33 yaş grubu 20 (%16,7) kişi, 34-38 yaş grubu 13 (%10,8) kişi, 39- 43 yaş grubu 20 (%16,7) kişi, 44-48 yaş grubu 11 (%9,2) kişi, 49-53 yaş grubu 10 (%8,3) kişi, 54-58 (10 (%8,3) kişi, 59 ve üzeri yaş grubu 1 (%0,8) kişiden oluşmaktadır. Araştırmaya katılan bireyler fitness ve wellness merkezlerine gittikten sonraki görüşlerinden elde edilen sonuçlara göre; 82 (%68,3)'si genel fiziksel durumlarının daha iyi olduğunu, 72 (%60)'si genel zihinsel/duygusal durumlarının daha iyi olduğunu, 73 (%60,8)'ü stresle baş etme becerisinde iyileşme olduğunu, 77 (%64,2)'si genel yaşam sevinçlerinin daha iyi olduğunu, 78 (%65)'i genel yaşam kalitelerinin daha iyi olduğunu belirtmiştir. **Sonuç:** Fitness ve wellness merkezlerine gitmenin ve bu merkezlerin aktivitelerine aktif olarak katılmanın fiziksel, zihinsel ve ruhsal beden üzerinde olumlu etkileri olduğu, dolayısıyla insanların yaşam kalitesinde olumlu yönde iyileşmelerin olduğu sonucuna varılmıştır.

Anahtar Kelimeler: Yaşam kalitesi, fitness, wellness

P-15

The Effect of Hamam on Body Composition & Physiological Parameters

Hamamın Beden Kompozisyonu ve Fizyolojik Parametreler Üzerine Etkisi

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Amaç: Bu çalışmanın amacı, hamamın beden kompozisyonu ve fizyolojik parametreler üzerindeki etkisini araştırmaktır. **Denekler:** Araştırmaya gönüllü olarak katılan üniversiteli bireylerin yaş ortalaması 21,20±2,5, boy ortalaması 178,8±7,4 olan 10 sağlıklı erkek birey üzerinde yapılmıştır. **Yöntem:** Hamamda bekleme süresi 30 dakika olarak belirlenmiştir. Hamamın sıcaklığı 40 C°, nem oranı %80 (%81-78) olarak kaydedilmiştir. Bütün deneklerin dinlenik Kalp Atım Sayısı, vücut ısısı, tansiyon, beden kompozisyonu ölçümleri BIA (Biyoelektrik İmpedans) ile alınmıştır. Bütün ölçümler hamam öncesi ve sonrası tekrar edilmiştir. **İstatistik:** Araştırmada elde edilen veriler, SPSS 10.00 istatistik programda çözümlenmiştir. Ön test ve son test verileri arasındaki Nonparametric test yöntemlerinden Wilcoxon istatistik yöntemi kullanılmıştır. Anlamlılık düzeyi p<0.05 olarak belirlenmiştir. **Sonuç:** Hamam öncesi ve sonrası değerlerin karşılaştırılmasında; vücuttaki akut sıvı değişikliklerine karşı, beden kompozisyonunda değişiklikler gözlenmiştir. Beden ağırlığında, BKİ (önce, 23,8±2,07; sonra, 23,7±2,06), TBS (önce, 50,6±5,19; sonra, 49,8±5,13), BMS (önce, 1869,4±150,9; sonra, 1864,5±149,2) değerleri arasında anlamlı fark olduğu bulunmuştur (p<0,05). Öncesi ve sonrası %yağ (10,1±3,2;10,2±3,19), İmpedans (479,4±24,1; 484,5±26,7), yağ ağırlığı (7,9±3,03; 7,9±3,02), yağsız beden ağırlığı (68,4±7,09; 68,1±6,96) değerleri arasında anlamlı bir fark bulunmamıştır (p>0,05). %yağ ve İmpedans değerlerinde artış, yağsız beden ağırlığı değerinde düşüş gözlenmiştir. Kalp atım sayısı (KAS) (61,50±7,51; 69,60±7,96) hamam sonrasında anlamlı artış göstermiştir (p<0,05). Büyük tansiyonda artış (112,50±9,79; 114,70±6,31), küçük tansiyonda (67,50±3,54; 66,50±11,32) düşüş bulunmuştur. Beden ısısında da artış olmasına karşın istatistiksel açıdan anlamlı değildir.

Anahtar Kelimeler: Beden kompozisyonu, yağ, kalp atım sayısı, beden ısısı, beden sıvısı, hamam

P-16

Effects of Low-dose Chronic Fluvastatine Treatment on Oxidative Stress Parameters in Liver of Diabetic Rats

Diyabetik Sıçan Karaciğerinde Düşük Doz, Kronik Fluvastatin Tedavisinin Oksidatif Stres Parametreleri Üzerine Etkisi

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Statinler (HMG-CoA redüktaz inhibitörleri)'in kolesterol düşürücü etkilerinden bağımsız olarak ortaya çıkan *pleiotropik* etkilerinden biri de antioksidan etkinlikleridir. O nedenle oksidatif stresin artmış olduğu kronik hastalıklardan korunma ya da tedavi için statinlere olan ilgi giderek artmaktadır. Öte yandan, hızlı yaşlanma olarak da tanımlanan diyabette ortaya çıkan komplikasyonlarda oksidatif stresin önemli rolü bulunmaktadır. Bu çalışmada kolesterol düzeylerini etkilemeyen dozda fluvastatin ile kronik tedavi görmüş diyabetik sıçanların karaciğerlerinde ilacın antioksidan etkinliği araştırılmıştır. Diyabet yetişkin erkek Wistar sıçanlarda tek doz streptozotosin (STZ, 55 mg/kg, i.p.) ile oluşturulmuştur. Bir kısmına (D grubu) ve kontrol (C) grubuna altı ay boyunca fluvastatin (2 mg/kg/gün, oral gavaj) verilmiştir (DF ve CF grupları). Fluvastatin STZ enjeksiyonundan bir hafta sonra uygulanmaya başlanmıştır (preventif çalışma). Karaciğer homojenatlarında süperoksit dismutaz (SOD) ve katalaz (KAT) aktiviteleri, malondialdehit (MDA), protein karbonilasyonu (PK), glutatyon (GSH) (spektrofotometrik) ve 3-nitrotirozin (3-NT) düzeyleri (ELISA) ölçümlenmiştir. Beklendiği gibi düşük dozda fluvastatin diyabetik hayvanlarda hiperglisemi ve dislipidemi etkilememiştir (p>0.05, ANOVA, n:8-10). Diyabetik hayvanların karaciğer MDA düzeyi %57, PK % 42, 3-NT düzeyi %32 ve SOD aktivitesi % 28 oranlarında artmış olarak bulunmuştur (ANOVA, p<0.05, n:6), ve değişimler fluvastatin tedavisinden sonra normalize olmuştur. GSH düzeyi ve KAT aktivitesi hiçbir grupta anlamlı olarak değişmemiştir. Bulgularımız diyabetik sıçan karaciğerinde fluvastatinin kolesterol düşürücü etkiden bağımsız olarak ortaya çıkan antioksidan özelliği olduğunu göstermektedir. Düşük dozda bu etki diyabetin yol açtığı organ hasarlanmasından korunma için önemli olabilir. *Bu çalışma Ankara Üniversitesi (no: BAP080306) ve kısmen de COST-B35 tarafından desteklenmiştir.*

Anahtar Kelimeler: Streptozotosin, oksidatif stres, diyabet, fluvastatin, karaciğer

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Anti-Aging Implementations in Health Care Tourism

Sağlık Turizmi Kapsamında Anti-Aging Uygulamalar

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Dünyanın en büyük üç hizmet sektöründen biri olan turizm sektöründe ülkelerin sahip oldukları payı artırmaya yönelik ortaya koydukları rekabet çabaları yeni destinasyonlar, yeni yaklaşımlar ve yeni ürünlerin ortaya çıkması ile sonuçlanmaktadır. Bu çalışmanın amacı alternatif turizm kaynaklarından biri olarak dünyada son 10-15 yıldır batı ülkelerinde yaygınlık kazanan son dönemlerde doğu ve uzak doğu ülkelerinin lider konumda olduğu Türkiye’de ise yeni gelişmekte olan sağlık turizmi ve antiaging turizmi konusunun kuramsal olarak değerlendirilmesidir. Ülke için alternatif gelir kaynağı yaratabilecek bir turizm türü olarak sağlık turizmi ve bir uzantısı olarak antiaging seyahatler konusu irdelenmiştir. Özellikle Türkiye’nin sağlık turizmi konusunda avantaj ve dezavantajları, bu alandaki fırsatlar ve tehditler incelenmekte ve bu bağlamda ülke turizminin çeşitlendirilmesi ve alternatif turizm olanakları irdelenmektedir.

*Anahtar Kelimeler:*Sağlık turizmi, antiaging turizm, alternatif turizm, dış kaynak