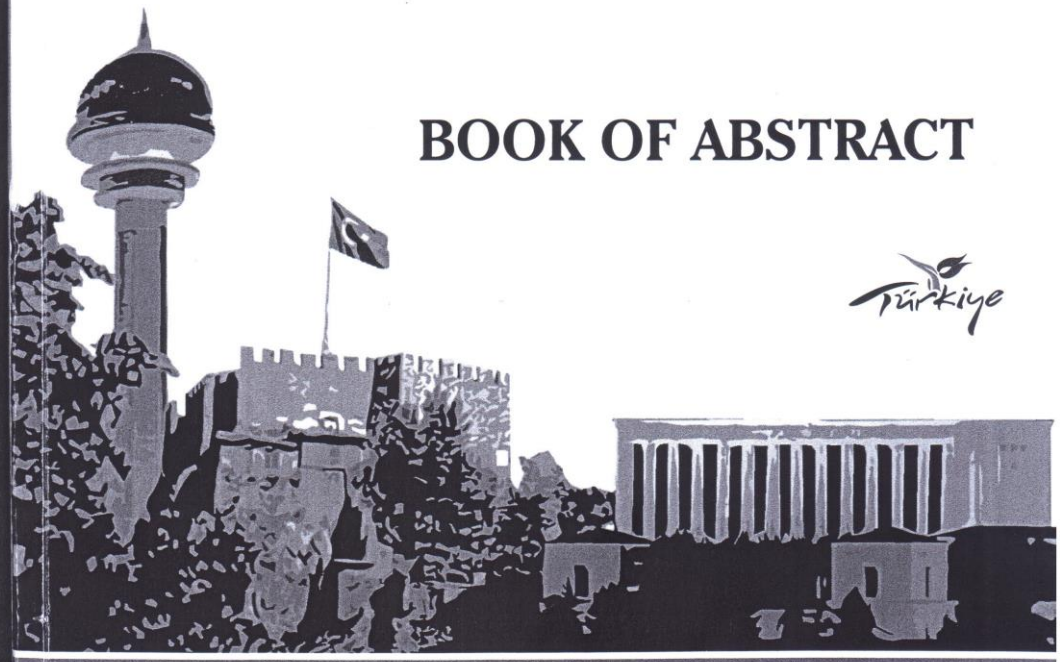
ANKARA UNIVERSITY
FACULTY OF PHARMACY

ISOPS 11th International SYMPOSIUM ON PHARMACEUTICAL SCIENCES

BOOK OF ABSTRACT



JUNE 09-12, 2015
ANKARA, TURKEY

vels were measured by
glucose monitor with
which is suitable for
Superoxide dismutase
nione (GSH) and
DA) from each sample
commercial ELISA kit
's instructions. Serum
T), alkaline phosphatase
transferase (AST) levels
ical and immune-enzyme
990 (USA) with respective

was expressed as mean
Differences among the
y Fisher's least significant
values less than 0.05 w
ng SPSS 20.0 software.

SSION
C at the dose of 600 mg
ease in blood glucose le

ced serum AST, ALT
groups (Table 2).
I level were found to
level were found to
n MC administration gr
up ($p<0.05$). This antioxi
lent and found to be highe
IC aqueous extract. MC
DD activity measured
t the dose of 600 mg/kg
ne normal control group

MC administration
tic rats

od glucose level MC administration (mg/dL)	
80.200 ± 4.438	
62.600 ± 10.358**	
89.200 ± 9.284	
250.000 ± 8.860**	
260.400 ± 9.813**	
264.200 ± 11.344**	

SD. MC: My
: Rats with dia
rol *vs* other
s other groups

able 2. Effects of *Myrtus communis* L. dministration on serum ALT, AST and ALP levels in abetic rats

roups	ALT (IU/L)	AST (IU/L)	ALP (IU/L)
ontrol (n=5)	28.43 ± 1.554**	69.86 ±5.859**	93.73 ± 6.558**
abetic Control (n=5)	44.75 ± 0.482	98.85 ± 8.312	151.31 ± 10.107
C 600 mg/kg (n=5)	25.74 ± 0.922**	45.03 ± 6.434**	80.10 ± 4.440**
+MC 150 mg/kg (n=5)	42.18 ± 1.906*	88.16 ± 0.914*	141.53 ± 5.995*
+MC 300 mg/kg (n=5)	36.41 ± 2.146**	82.84 ± 4.596*	132.38 ± 7.435**
+MC 600 mg/kg (n=5)	29.21 ± 1.571**	72.42 ±15.108**	106.23 ± 5.450**

sults are means±SD. MC: Myrtus communis L eous extract, DM: Rats with diabetes mellitus, mparisons: diabetic control group *vs* other groups, $p<0.05$, **: $p<0.001$

able 3. Effects of *Myrtus communis* L. dministration on liver tissue SOD activity and GSH, DA levels in diabetic rats

roups	SOD (U /mg tissue)	GSH (µM/mg tissue)	MDA (µM/mg tissu
ontrol (n=5)	0.248 ± 0.015 **	115.303± 7.501 **	6.115 ± 1.168
abetic Control (n=5)	0.132 ± 0.005	84.964 ± 6.832	11.119 ± 1.13
600 mg/kg (n=5)	0.250 ± 0.016 **	116.782 ± 5.439**	7.123 ± 1.525
+MC 150 mg/kg (n=5)	0.121 ± 0.012	94.440 ± 8.756*	9.579 ± 0.737
+MC 300 mg/kg (n=5)	0.176 ± 0.009 **	120.166 ± 5.519**	9.149 ± 0.685
+MC 600 mg/kg (n=5)	0.204 ± 0.012 **	126.613 ± 7.175**	8.294 ± 1.267

sults are means±SD, MC: *Myrtus communis* L eous extract, DM: Rats with diabetes mellitus, mparisons: diabetic control group *vs* other groups, $p<0.05$, **: $p<0.001$

CLUSIONS
sults of this study suggest that aqueous extracts leaves at the doses of 150, 300 and 600 mg/kg blood glucose, serum ALT, AST and ALP Besides, all extracts have antioxidant effects hest at 600 mg/kg dose.

WLEDGMENTS
was supported by Scientific Research of Ataturk University (grant number:

rik toplulukta yüksek diyabet prevelansı. **2000-2001**, *16*: 103-6.
aya, M.; Villar, A.; A review of natural nts as potential antidiabetic drugs. *J* 989, *27*(3):243-75.
Akhter, M.H.; Khan, M.T.; Anti- ct of an extract of Myrtus communis in ed diabetes in mice. *J Ethnopharmacol*

bouz, I.; Cevik, C.; Yesilada, E.; s of myrtle oil in normal and alloxan- *opharmacol* **2004**, *93*(2-3):311-8.
Lazo, M.; Ndumele, C.E.; Liver and diabetes risk: the Atherosclerosis (ARIC) Study. *Diabet Med* **2013**,

P-150: ELECTROMAGNETIC FIELD EFFECTS OXIDATIVE STRESS PARAMETERS IN RAT LIVER AND KIDNEY TISSUES

B.A. Mamur[1], N. Aras[1], M. Berkoz[2], Ü. Comelekoglu[3], M. Yildirim[4], S. Yalin[4]

Mersin University, Faculty of Medicine, [1]Department of Medical Biology, [3] Department of Biophysics, Faculty of Pharmacy, [4]Department of Biochemistry, Mersin, TURKEY Yuzuncu Yıl University, Faculty of Pharmacy, [2]Department of Pharmaceutical Biotechnology, Van, TURKEY

INTRODUCTION

Extremely low frequency electromagnetic fields (ELF-EMF) have been common in daily life all over the world. EMF represents one of the environment factor that influence animal organism that that conduct the organism to stress. It is known that a powerful stress is associated with metabolic modifications, including the entire complex of redox processes which facilitate the adaptable processes of the living organisms. An important link in oxide-reducing homeostasis maintenance is due to cell antioxidant enzymes. In this study we determined the oxidative stress parameters from rat liver and kidney tissues that were exposed to the Global System for Mobile Communication (GSM) cell phone rated at a frequency of 1800MHz.

MATERIALS AND METHODS

We divided female mature albino rats of wistar strain in three groups two of which were control (Group I) and sham (Group II). Third group was exposed to the RF-EMF for 2 h/day for 8 weeks (Group III). At the end of the study, the rats in all groups were sacrificed by cardiac punction under ketamine and xylazine anesthesia. Liver and kidney tissues were separated and kept at −80 °C until superoxide dismutase (SOD) and catalase (CAT) activities and glutathione (GSH) malondialdehyde (MDA) levels were measured. The CAT activities of tissues were determined in accordance with the method introduced by Aebi. SOD activity was measured by the inhibition of nitroblue tetrazolium (NBT) reduction due to O_2 generated by the xanthine/xanthine oxidase system. The reduction in NBT levels by superoxide anion to blue formazan was measured at 560 nm. Virtually all of the nonprotein sulfhydryl compounds of tissue were existing in the form of GSH. 5,5′ Dithiobis (2-nitro benzoic acid) (DTND) is a disulfide compound readily reduced by sulfhydryl compounds that form a highly colored yellow anion by the method described by Beutler *et al.* The levels of MDA as an index of LPO were determined in tissue homoginate by thiobarbituric acid reaction by using the method of Yagi.

Tissue protein contents were measured according to the method developed by Lowry et al. using bovine

serum albumin as standard. Statistical analysis was performed using SPSS 10.0 for windows software. The obtained data were presented as mean ± SE (standard error) unless otherwise specified. The differences were considered as statistically significant when $p<0.05$.

RESULTS AND DISCUSSION

SOD activities were found in Group I, Group II and Group III as 86.62±10.81 U/mg protein, 81.92±11.54 U/mg protein and 51.93±8.46 U/mg protein in liver tissue and 53.27±6.49 U/mg protein, 49.27±6.06 U/mg protein and 34.2±5.88 U/mg protein in kidney tissue, respectively. Catalase activities were found in Group I, Group II and Group III as 56.22±6.27 U/mg protein, 51.07±7.42 U/mg protein and 24.01±4.31 U/mg protein in liver tissue and 44.02±7.81 U/mg protein, 45.91±8.11 U/mg protein and 22.2±4.06 U/mg protein in kidney tissue, respectively. GSH levels were found in Group I, Group II and Group III as 0.81±0.06 µmol/mg protein, 0.84±0.06 µmol/mg protein and 0.53±0.04 µmol/mg protein in liver tissue and 0.67±0.08 µmol/mg protein, 0.66±0.09 µmol/mg protein and 0.41±0.06 µmol/mg protein in kidney tissue, respectively. MDA levels were found in Group I, Group II and Group III as 91.06±10.04 nmol/mg protein, 94.04±10.47 nmol/mg protein and 147.83±19.61 nmol/mg protein in liver tissue and 78.71±12.63 nmol/mg protein, 76.81±11.87 nmol/mg protein and 106.93±8.08 U/mg protein in kidney tissue, respectively. The electromagnetic field led to a significant increase in malondialdehyde (MDA) levels and significant decrease in SOD and CAT levels in the liver and kidneys tissue of rats ($p<0.05$). There was no significant difference in GSH levels in the same tissues ($p>0.05$).

CONCLUSIONS

In conclusion, electromagnetic field emitting from mobile phone might produce impairments in some oxidative stress parameters in the liver and renal tissue of albino rats.

REFERENCES

1. Li L, Xiong F, Liu JW, Li ZX, Zeng GC, Li HL. A cross-sectional study on oxidative stress in workers exposed to extremely low frequency electromagnetic fields. *Int J Radiat Biol* **2015**, 4, 1-23.
2. Ellman GL, Courtney KD, Andres V Jr, Feather-Stone RM. A new and rapid colorimetric determination of acetylcholinesterase activity. *Biochem Pharmacol* **1961**, 7, 88-95.
3. Yagi K. Lipid peroxides and related radicals in clinical medicine. *Adv Exp Med Biol* **1994**, 366, 1-15.

P-151: INFLUENCE OF SUBLETHAL CHLORPYRIFOS EXPOSURE ON OXIDATIVE STRESS AND ACETYLCHOLINESTERASE ACTIVITY IN CARP (*CYPRINUS CARPIO*)

M. Berkoz[1], S.G. Gunduz[2], F.Ö. Yilmaz[2], S. Yalin[3], A.O. Hunt[4], M. Yildirim[3]

Yuzuncu Yıl University, Faculty of Pharmacy, [1]Department of Pharmaceutical Biotechnology, Van, Turkey, Mersin University, Faculty of Fisheries, [2]Department of Basic Sciences, [4]Department of Aquaculture, Faculty of Pharmacy, [3]Department of Biochemistry, Mersin, Turkey

INTRODUCTION

The commonly used pesticides in agriculture may react with macromolecules and may cause enzyme inactivation and DNA damage. Furthermore, they may also initiate peroxidation of poly-unsaturated fatty acids (PUFA) due to their deposition in fatty tissues by the generation of reactive oxygen species (ROS) as by-products. In the course of these events they can lead to oxidative stress. The objective of our study was to determine the oxidative and neurotoxic potential of sub-lethal concentrations (0.26 ppm and 0.52 ppm) of chlorpyrifos which is extensively used as a pesticide in Turkish agriculture in brain tissue at the 96th and 240th hours.

MATERIALS AND METHODS

In order to detect the levels of oxidative stress in brain tissue, glutathion levels were detected by using superoxide dismutase possessing antioxidant features. Moreover, malondialdehyde (MDA) levels and acetylcholine esterase (AChE) levels were examined for the determination of levels of lipid prexodiatio and neurotoxic effect, respectively. Acetylcholi esterase activity in cerebral cortex was performed utilizng the spectrophotometric method of describ by Ellman, Courteney, Andres, and Featherstone. levels of tissue lipid peroxidation products such thiobarbituric acid (TBA)-malondialdehyde (MD adducts were measured spectrophotometrically by method described by Yagi. Virtually, all of nonprotein sulfhydryl compounds of tissue existing in the form of GSH. 5,5′ Dithiobis (2-benzoic acid) (DTND) is a disulfide compound re which is reduced by sulfhydryl compounds that a highly colored yellow anion by the method desc by Beutler *et al.* The optical density of this substance is measured at 412 nm. SOD activit measured by the inhibition of nitroblue tetraz (NBT) reduction due to O_2 generated b xanthine/xanthine oxidase system.

The contents of tissue protein were measu accordance with the method developed by Lowr by using bovine serum albumin as st

Statistical analysis was performed using 10.0 for windows software. The obtained da