



Excellence Centre of Animal and Human Ecology,
University in Presov, Slovak Republic

NEW TRENDS IN THE BIOLOGICAL AND ECOLOGICAL RESEARCH

Scientific conference with international participation on the occasion
of the 15th anniversary of University in Presov, Slovak Republic

Book of Abstracts

November 8 – 10, 2012
Grand Hotel Kempinski
High Tatras, Slovak Republic

Co-organizer:

Faculty of Humanities and Natural Sciences,
Presov University in Presov, Slovak Republic



The scientific event is financially supported by Structural Funds of European Union as a part
of the project „Completion of Excellence Centre of animal and human ecology with emphasis
on improving the quality of scientific research – the 2nd stage“ (ITMS 26220120041)



Agentúra
Ministerstva školstva, vedy, výskumu a športu SR
pre štrukturálne fondy EÚ



Podporujeme výskumnú aktivitu na Slovensku
Projekt je spolufinancovaný zo zdrojov EÚ

New trends in the biological and ecological research

Scientific conference with international participation
on the occasion of the 15th anniversary of University in Presov, Slovak Republic

BOOK OF ABSTRACTS

November 8 – 10, 2012
Grand Hotel Kempinski High Tatras, Slovak Republic

Excellence Centre of Animal and
Human Ecology, University of Presov

University of Presov



The scientific event is financially supported by Structural Funds of European Union as a part of the project „Completion of Excellence Centre of Animal and Human Ecology with emphasis on improving the quality of scientific research – the 2nd stage“, ITMS 26220120041

the
arch
1 of
the

this
and
arch
is.
ility
m. I
er to

nted
it 18
ence:
t for

from
May
nder
orks
t and
ution

and
their
and
and

re of
ntific
and
and
tional
up to
ation
ental
ory of

Oral Sessions

Effect of occupationally phthalate exposure on pulmonary functions Slovakian plastic industry

Pilka T., Petrovičová I., Kolena B.

Constantine The Philosopher University in Nitra/ Faculty of natural sciences, Department of zoology and anthropology, Nábřežie mládeže 91, Nitra, 949 74, Slovakia; tomas.pilka@ukf.sk

Abstract

Phthalates have adverse effect on human endocrine or reproduction system, there is still lot of questions about their potential activity in human physiological functions. Number of papers indicates respiratory symptoms associated with possible phthalate exposure. Especially presence of MBP in human urine has been associated with decrease of FVC and FEV1 values. The aim of this study was to assess, by biological monitoring, worker's exposure to phthalates in the flexible-PVC industry in Slovakia. We provide additional occupational exposure data, which are particularly scarce. Additionally, parameters of pulmonary functions and anthropometric values were obtained and analysed with exposure data. In response to determine human exposure to phthalates, we used high performance liquid chromatography (HPLC) and tandem mass spectrometry (MS/MS) analysis to quantitate trace levels of four phthalate metabolites: monobutyl phthalate (MBP), monoethylhexyl phthalate (MEHP), mono-n-octyl phthalate (MnOP) and monoisooctyl phthalate (MiOP) in human urine. Urine samples and somatometric measures and spirometric values were collected from group of workers in plastic manufacture (n = 15; average age 44.8 ± 11.34). Lower values of FEV1 and FEV1/FVC point to potential airways obstruction in 13.3 % of probands (n = 2, average BMI = 25.5, p/y = 12.5). We also observe overweight in 53.3 % of probands (n=8) indicated by BMI > 25. Phthalate metabolites were detected in all urine samples. We suppose that occupationally increased exposure to phthalates has potential adverse effect on observed pulmonary parameters. However, to prove this assumption, we need more data to be analyzed. This study is the result of implementation of projects: "Environmental aspects of urban area" (ITMS: 26220220110) supported by the Research & Development Operational Programme funded by the ERDF; "Analysis of selected environmental factors in relation to potential health risks" supported by VEGA.

Key words: phthalates, HPLC/MS/MS, pulmonary functions, spirometry, anthropometry,

Poster Sessions

Work environment and health risks in plastic industry

Petrovičová I., Kolena B., Pilka T.

Constantine the Philosopher University in Nitra, Faculty of Natural Science, Department of Zoology and Anthropology, Nabrezie mladeze 91, 949 74, Nitra, Slovakia; ipetrovicova@ukf.sk

Abstract

Study focuses on the impact of specific occupational conditions on human health in plastic industry, because of the potential human toxicities of phthalates particle of plastic material. A cross-sectional study was conducted in an environmentally exposed group ($n = 15$; average age 44.8 ± 11.34) from Nitra; personal questionnaires, spirometry and anthropometry were examined by standard methods. FVC, FEV1, FEV1%, VC%, FEV1/FVC, height and weight, BMI, WHR, FMI, FFMI and visceral fat level of individual, type of residence and pack / year index were analyzed. In a cross-sectional study were detected COPD symptoms in 13.3 % of probands ($n = 2$, average p/y = 10.5). Overweight, based on $BMI \geq 25$, was detected in 53.3 % of subject ($n = 8$; 62.5 % female; 37.5 % of male). The women registered a high WHR value of 0.87 ± 0.07 , while men had moderate to values at 0.96 ± 0.04 . Visceral fat level (10.67 ± 2.08 for men; 7.45 ± 3.05 for women) reached low risk; FMI value was high (6.3 ± 0.9 for men; 10.82 ± 5.0 for women). Meanwhile the FMI for the women was higher their FFMI value than the normal reference values, with 16.35 ± 1.41 . FFMI in men was in the high reference value 19.88 ± 0.65 . We hypothesize that occupational exposure in the manufacturing of plastics materials in specific type of work environment could affect selected parameters of human health. The results show on negative effects of work environment with higher exposure to environmental burdens on the state of human health. To determine possible involvement of phthalates on human health, a 2x2 mL urine sample was collected from each subject and stored at -75°C , which are currently being investigated by HPLC MS/MS.

Key words: *spirometry, anthropometry, airway obstruction, work environment*

Acknowledgement: This study is the result of implementation of projects: "ENVIRONMENTAL ASPECTS OF URBAN AREA" (ITMS: 26220220110) supported by the Research & Development Operational Programme funded by the ERDF; VEGA (V1/0042/12).

Title of publication: New trends in the biological and ecological research
Type of publication: Book of Abstracts
Authors of publication: Group of Authors
Editors: Marta Blaščáková, Dr. Dana Gabriková, Dr. Peter Manko,
Dr. Pavol Labun
Publisher: University of Presov
Number of printed copies: 150
Year of publication: 2012
Press: Grafotlač s.r.o, Presov, Budovateľská Street 35, Presov 080 01
Pages: 99

Texts have not been reviewed by language editor. The publication is issued for needs of conference participants and for their practice.

The scientific event is financially supported by Structural Funds of European Union as a part of the project „Completion of Excellence Centre of Animal and Human Ecology with emphasis on improving the quality of scientific research – the 2nd stage“, ITMS 26220120041

ISBN: 978-80-89561-09-4