

EFFECT OF SUBCHRONIC DIBUTYL PHTHALATE TREATMENT ON ACTIVITY OF LIVER ENZYMES IN FEMALE WISTAR RATS

Ivana Ivelja, Jelena Karan, Nebojša Andrić, Jelena Marković Filipović

Department of Biology and Ecology, Faculty of Sciences, University of Novi Sad, Novi Sad, Serbia

e-mail: ivana.ivelja@dbe.uns.ac.rs

Abstract

Di-n-butyl phthalate (DBP) is an organic compound used as plasticizer, often found in numerous consumer products such as food packaging, cosmetics, adhesives and toys. Since DBP bonds non-covalently to final products, leaching and evaporation may occur. DBP released in the environment can thus be deposited or taken up by water and crops intended for livestock and human consumption. It has been shown that the main route of exposure is through oral intake. Aim of our study was to investigate whether exposure to DBP can cause liver damage by affecting the activity of aspartate transaminase (AST), alanine transaminase (ALT) and alkaline phosphatase (ALP) in female Wistar rats. Twenty-four female Wistar rats were divided into 4 groups (6 per group) and treated subchronically (3 months) with 0, 100, 500 and 5000 mg DBP/kg diet, that corresponded to 6.69, 33.73 and 344.49 mg/kg BW/day. Activities of ALT, AST and ALP in plasma were determined by Dialab Autolyser. Statistical analysis of obtained data was performed using STATISTICA[®] version 13.0 (StatSoft, Inc). Data from control and treated rats were compared using One-way analysis of variance (ANOVA) for multiple comparisons, followed by Tukey post-hoc tests. Statistical analysis revealed no significant difference between control and DBP-treated rats. Our results indicate that DBP subchronic treatment in applied doses does not affect activity of liver enzymes.