

Heat-Cured Methyl Methacrylate Induces Increased Expression of HSP70 and iNOS in the Liver

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Abstract: Introduction: Exposure to methyl methacrylate (MMA), which is a widely used monomer in dental and medical fields, has been shown to be associated with adverse health effects on liver. Aim: This study aims to evaluate the mechanism toxic effect of MMA on liver, via investigating alterations in the expression levels of inducible nitric oxide synthase (iNOS) and heat shock protein70 (HSP70) in the liver, subsequent to the oral administration of MMA in rats. Methods: 20 Sprague-Dawley female rats were randomly selected and divided into two groups: control group, and experimental group. The experimental group was orally administered 120 mg/kg of MMA daily 5 times per week for four weeks. Changes in the expression of HSP70 and iNOS in the liver tissue was investigated using Immunohistochemistry technique. Results: Exp group had statistically higher hepatic expression of iNOS ($p < 0.01$) in comparison to the control group, by approximately three folds. Similarly, rat hepatocytes in the experimental group showed statistically significant ($p < 0.01$) increase, by approximately 15 folds, in the expression of HSP70 compared to that in the control group. Conclusion: The presented data suggest that exposure to MMA might cause liver injury as indicated by the prominent elevation of the oxidative stress biomarker iNOS and the biological stress biomarker HSP70. 141/2014