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SHC 19. ASSESSMENT OF THE PROTECTIVE EFFECTS OF ANTIOXIDANTS ON ACRYLAMIDE INDUCED TOXICITY IN RATS

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Acrylamide is a chemical that may occurs in certain foods through Maillard reaction between amino acids and certain reducing sugars during high-temperature cooking, such as fried foods and bakery products. ACR is used in preparing polymers and copolymers containing polar functional groups, manufacturing of cosmetics, glues and paper. ACR has the potential to be neurotoxic, hepatotoxic, genotoxic effects and lead to lipid peroxidation by decreasing oxidative defense system. Moreover, the International Agency for Research on Cancer has classified acrylamide as “probably carcinogenic to humans, 2A” in 1994. ACR can be metabolize to form epoxide derivative glycidamide that can react with thiol and hydroxyl groups of macromolecules such as proteins, DNA and lipids in living organism.

Reactive oxygen species (ROS) mediated oxidative stress is related in some of diseases and it is also induced by most of reactive chemicals. ROS are formed as a natural byproduct of the normal metabolism of oxygen endogenously and can be produced by exogenous xenobiotics. ACR is also known to increase ROS levels and cause to oxidative damages in the body. There are number of protective antioxidants and antioxidant enzymes for dealing with the reactive metabolites. The role of the antioxidants in ACR mediated oxidative damages in living organism has a great importance and studies on antioxidants are important for revealing the protective effect on oxidative stress. The aim of this study is to show the significance of the acrylamide toxicity and ameliorative effects of antioxidants against oxidative organ injury due to ACR toxicity in rats.

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