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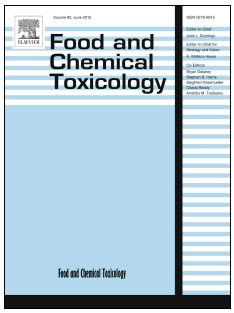

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Protection of Cyanidin-3-*O*-Glucoside against Acrylamide- and Glycidamide-Induced Reproductive Toxicity in Leydig Cells

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Abstract

Acrylamide (AA) occurs in many cooked carbohydrate-rich foods and has caused widespread concern as a possible carcinogen. Glycidamide (GA) is the ultimate genotoxic metabolite of AA. The present study was to investigate the protective effect of Cyanidin-3-*O*-glucoside (C3G) against AA- and GA-induced reproductive toxicity in R2C Leydig cells. The results demonstrated that C3G inhibited AA- and GA-induced cytotoxicity and mitochondria-mediated cell apoptosis, the effective doses of C3G were ranging from 10-50 μM. Besides, AA (1.925 mM) and GA (0.872 mM) exposure increased ROS level and decreased mitochondrial membrane potential, which led to a decrease in progesterone production, while C3G ranging from 10-50 μM reduced ROS immediately, and increased progesterone production after 24 h treatment. Furthermore, C3G up-regulated expression of Bcl-2 protein and