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Protective effects of caffeic acid on Acrylamide induced toxicity in rats

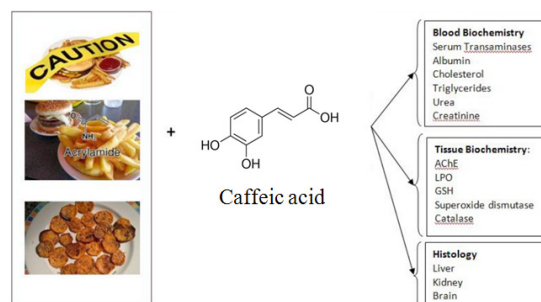
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Statement of Problem: Studies concerning toxicity of Acrylamide and its metabolite - glycidamide showed neurotoxic and genotoxic effect. Acrylamide (AA) is a synthetic chemical compound which is used in industry plastics, paints, cellulose-paper, cosmetic industries and its forms in some starchy foods during high-temperature cooking. Caffeic acid is a hydroxycinnamic acid found in barley grain and is an active antioxidant which scavenges free radicals. The present investigation was planned to investigate the therapeutic effect by caffeic acid against AA.

Methodology & Theoretical Orientation: AA was administered at the dose of 19.13 mg/kg, p.o. for 28 days to albino rats followed by therapy with 20 mg/kg, p.o. of caffeic acid for 7 days.

Findings: Significant increase in serum albumin, bilirubin, triglyceride, cholesterol, SALP, LDH, GGT, ALAD, ALAS was noted, as compared to the control group. Urea and creatinine was also increased, which indicated renal damage. Activity of acetylcholinesterase and antioxidant defense system enzymes such as glutathione reductase (GR), glutathione peroxidase (GPx) and glutathione-S-transferase (GST) were decreased in all tissues significantly after AA administration. Histopathological observation also supported biochemical studies as AA caused degeneration in the hepatocytes, hypercellularity in glomeruli and hypertrophy in epithelial cells and disorganization in the neurons.

Conclusion & Significance: This study has shown that caffeic acid protects against AA toxicity.



Biography

Sadhana Shrivastava has completed her PhD and Post-doctoral studies from Jiwaji University. She is currently working as a Scientist in DHR funded project. She has published more than 45 papers in reputed journals and books. She has been awarded many national awards and fellowships.

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