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SOME TOXIC EFFECTS OF BUTYLATED HYDROXYTOLUENE AND GALLIC ACID

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Abstract

Some toxic effects of the synthetic antioxidant butylated hydroxytoluene and the natural plant phenol gallic acid were studied in rats by feeding the animals diets containing 0, 0.3 and 0.6% of each of the compounds investigated for three weeks. The toxicological parameters included body weight gain, hematology, some parameters of kidney function and histopathological examination of the kidney. Body weight gains in the Butylated hydroxytoluene treated animals were significantly lower than controls. The group fed 0.6% butylated hydroxytoluene showed reduction in hemoglobin concentration, hematocrit and red blood cell count. Butylated hydroxytoluene in either concentrations caused significant increases in platelet count. This may be an adaptive response to platelet dysfunction. In addition , serum total protein and serum albumin were decreased and some histopathological changes in the kidney were noticed in the same groups. the only toxic effect of gallic acid was a decreased white blood cell count in the 0.6% treated group. Accordingly gallic acid and galates are suggested to be better food additives than butylated hydroxytoluene. Based on the present results 0.3% gallic acid is determined to be a no-observed-adverse-effect level (NOAEL) in rats. This level is translated into 178mg/kg/day.

Introduction

Butylated hydroxytoluenc (2, 6-di-tert-p-cresol; BHT) is one of the antioxidants used extensively in the food industry. It is also widely used in combination with other antioxidants as butylated hydroxanisole, propyl galate and