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Gastrointestinal protective effect of dietary spices during ethanol-induced oxidant stress in experimental rats.

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Abstract

Spices are traditionally known to have digestive stimulant action and to cure digestive disorders. In this study, the protective effect of dietary spices with respect to activities of antioxidant enzymes in gastric and intestinal mucosa was examined. Groups of Wistar rats were fed for 8 weeks with diets containing black pepper (0.5%), piperine (0.02%), red pepper (3.0%), capsaicin (0.01%), and ginger (0.05%). All these spices significantly enhanced the activities of antioxidant enzymes--superoxide dismutase, catalase, glutathione reductase, and glutathione-S-transferase--in both gastric and intestinal mucosa, suggesting a gastrointestinal protective role for these spices. In a separate study, these dietary spices were found to alleviate the diminished activities of antioxidant enzymes in gastric and intestinal mucosa under conditions of ethanol-induced oxidative stress. The gastroprotective effect of the spices was also reflected in their positive effect on mucosal glycoproteins, thereby lowering mucosal injury. The amelioration of the ethanol-induced decrease in the activities of antioxidant enzymes in gastric and intestinal mucosa by dietary spices suggests their beneficial gastrointestinal protective role. This is the first report on the gastrointestinal protective potential of dietary spices.

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