

Modulation of cytochrome P450 activity in the kidney of rats following long-term red wine exposure

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Cytochrome P450 (CYP)-dependent oxidation of lauric acid, p-nitrophenol and ethanol by microsomal fractions of kidney were studied in control rats and in animals given either ethanol, red wine, or alcohol-free red wine for 10 weeks. Ethanol increased the total CYP content and specifically CYP 2E1, as well as p-nitrophenol and ethanol oxidation. The effects of ethanol treatment on the content and activity of CYP 2E1 were attenuated when red wine was administered, while the alcohol-free red wine values were similar to those of the control group. Although lauric acid hydroxylation was decreased by red wine treatment, the content of CYP 4A1 was not influenced by drinking fluids. We conclude that red wine administration attenuates the ethanol-induced enhancement of microsomal activities dependent on CYP 2E1 of rat kidney. Our results suggest that the non-alcoholic constituents of red wine could account for this modulation. © 2002 Elsevier Science Inc. All rights reserved.