

Rat kidney antioxidant response to long-term exposure to flavonol rich red wine

Rodrigo, Ramón

Rivera, Gonzalo

Orellana, Myriam

Araya, Julia

Bosco, Cleofina

This study evaluated the antioxidant defense system of the rat kidney following chronic exposure to red wine rich in flavonols. Both ethanol and antioxidant non-alcoholic wine components, mainly polyphenols, could contribute to the antioxidant status of kidney. Adult rats were given separately, water, ethanol (12.5%), red wine or alcohol-free red wine. After ten weeks of treatment, blood samples were obtained to determine plasma antioxidant capacity (FRAP, ferric reducing ability of plasma), uric acid and ethanol levels. Kidney tissues (cortex and papilla) were separated to perform measurements of reduced glutathione (GSH), glutathione disulfide (GSSG), lipid peroxidation (malondialdehyde, MDA) and the antioxidant enzymes catalase (CAT), superoxide dismutase (SOD) and glutathione peroxidase (GSH-Px). The activity of (Na + K)-ATPase, a membrane-bound enzyme, was also assessed. Red wine in plasma, elevated the FRAP without changing the concentration of uric acid; in kidney, it diminished