

Lindane-induced oxidative stress. I. Time course of changes in hepatic microsomal parameters, antioxidant enzymes, lipid peroxidative indices and morphological characteristics

Junqueira, Virginia B.C.

Simizu, Kiyoko

Van Halsema, Leonardo

Koch, Osvaldo R.

Barros, Silvia B.M.

Videla, Luis A.

1. Lindane (60 mg/kg) administered orally to rats increased liver cytochrome P-450 content and superoxide radical (O_2^-) generation 24 h after treatment, while formation of thiobarbituric acid reactants and NADPH/ADP-supported microsomal chemiluminescence were significantly increased 4 h after treatment. 2. Hepatic superoxide dismutase (SOD) and catalase decreased 6h after lindane treatment and SOD/ O_2^- ratio progressively decreased during 4 to 24 h after lindane treatment. 3. Morphological evidence of hepatic cell injury after lindane treatment was seen at all times studied, and appeared to increase with time. 4. Lindane administration results in time-dependent oxidative stress in liver which involves an early component (4-6 h) related to the reductive metabolism of lindane, and a late component (24 h) associated with the induction of cytochrome P-450; the biochemical changes correlated with the observed morphological lesions. ©

1988 Informa UK Ltd All rights reserved: reproduction in