

Response of hepatic metabolizing enzymes and oxidative stress in orally administrated zerumbone against MIA-induced osteoarthritis in rats.

ABSTRACT

The main objective of this study was to elucidate the extent of hepatic oxidative stress following oral administration of zerumbone against monosodium iodoacetate induced Osteoarthritis (OA) in rats by monitoring microsomal cytochrome P450 and glutathione S-transferase enzymes as well as determination of oxidative stress biomarkers i.e., glutathione and malondialdehyde. Forty rats were randomly assigned into five groups. Rats in the first and second groups were treated with two different doses of zerumbone. Rats in the third group (positive control) were given celecoxib whereas the fourth group (negative control) was given corn oil. Rats of the fifth group were untreated not induced with OA and were used as a basal group. Results showed significant induction of cytochrome P450 and glutathione S-transferase and insignificant changes in both glutathione and lipid peroxidation levels in zerumbone treated groups compared to corn oil and basal groups. Levels of ALT and AST in zerumbone treated groups were comparable to the level in the basal group indicating absence of liver damage. Prostaglandin E2 level significantly reduced following zerumbone administration. Safety profile of zerumbone in this study, attract new investigation to explore its advantageous effect on using higher dosage regimen and/or longer duration against OA or other disease.

Keyword: Zerumbone; Oxidative stress; Cytochrome P450; Glutathione; Glutathione S-transferase.