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Protective effect of diterpene manool on genotoxicity induced by doxorubicin in Swiss mice

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Manool is a diterpene isolated from *Salvia officinalis L.*, with antimicrobial activity against cariogenic microorganisms and chemo-preventive effect against methyl methanesulfonate in human hepatocellular carcinoma line cells. In this sense, the present study aimed to evaluate the anti-genotoxic potential of manool in Swiss mice using the peripheral blood micronucleus test. Additionally, the hepatotoxicity was assessed through dosing of aspartate aminotransferase (AST) and alanine aminotransferase (ALT). Therefore, the animals were treated simultaneously with different doses of diterpene (1.25; 5.0 and 20.0 mg/kg b.w.) and chemotherapeutic agent doxorubicin (DXR; 10 mg/kg b.w.). The negative (no treatment), solvent (dimethyl sulfoxide- DMSO, 5 %) and positive (DXR) controls were also included. The treatments were carried out on two consecutive days, and euthanasia was performed 24 hours after the last treatment. The results revealed that animals treated with the lowest dose evaluated of manool (1.25 mg /kg b.w.) plus DXR showed frequencies of chromosomal damage significantly lower (4 micronucleus/1000 PCE) when compared with those observed in animals treated only with DXR (13 micronucleus/1000P CE). The ratio of polychromatic erythrocytes to total erythrocytes did not differ significantly between treated groups and negative control, revealing absence of cytotoxicity. The AST and ALT doses were not significantly different between the different groups. Therefore, manool showed no cytotoxicity and no hepatotoxicity, but revealed chemo-preventive effect on genotoxicity induced by DXR.

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