Genotoxic and cytotoxic effects of Artemisia herba-alba on mammalian cells

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Artemisia herba-alba is a medicinal plant that is commonly used in folk remedies in the Middle East. Despite its wide use, little is known about whether or not it is genotoxic and/or cytotoxic to mammalian cells. Here we investigated the genotoxic and cytotoxic effects of the ethanolic plant extract on mice cells at different dose concentrations (125, 250, 375, and 500 \( \mu \text{g ml}^{-1} \)) and for different exposure times (12, 24, 48, and 72 h). We found that at all exposure times, treatment with high dose concentrations (375 and 500 \( \mu \text{g ml}^{-1} \)) of A. herba-alba extract significantly reduced cell division in mice bone marrow cells compared to that in the control cells. Also, it induced sister chromatid exchanges and micronuclei formation in bone marrow and peripheral blood cells, respectively. Moreover, high dose concentrations significantly reduced cell viability in bone marrow cell cultures compared to that in the controls. The IC\(_{50}\) values were 484.38, 513.33, and 490.39 \( \mu \text{g ml}^{-1} \) after 24, 48, and 72 h of exposure, respectively. Our findings reveal that A. herba-alba extract has both genotoxic and cytotoxic effects on mammalian cells, particularly at high concentrations. Therefore, we suggest that the plant extract should not be used at high concentrations in folk medicine.