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Amelioration of mutagenic effects of ethyl methanesulfonate by diterpenoid (14, 15-dihydroajugapitin): Histopathological and molecular approach

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Our studies investigated the antimutagenic and anti-apoptotic properties of 14, 15-dihydroajugapitin isolated from methanolic extract of Ajuga bracteosa by transmission electron microscopic studies against ethyl methane sulphonate (EMS) induced mutagenicity in mice. The antimutagenic property was confirmed by direct sequencing of p53 gene of EMS treated mice. The ultra-structural details of various organs revealed the signs of apoptosis, necrosis, chromatin loss and damage to various organelles. However, mice treated with 100 mg/kgbw of 14, 15-dihydroajugapitin depicted the signs of recovery. Present studies revealed that EMS caused three transition mutations in p53 gene: one T to C transition at nucleotide position 32 of exon 5, two G to A transitions at position 63 and 126 of exon 7. However, interestingly we found that one mutation got reversed in group of mice treated with 100 mg/kgbw of 14, 15-dihydroajugapitin. Hence the isolated compound could be a source of new drugs that could save the lives of the patients suffering from various cancers.