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Isolation, characterization and HPLC quantification of compounds from *Ajuga bracteosa* Wall ex. Benth: *in vivo* antimutagenic activity against EMS induced mutagenicity in mice

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Introduction: *Ajuga bracteosa* Wall ex. Benth. (Lamiaceae) has been reported to possess many biological activities including antibacterial, antifungal, antispasmodic, and antioxidant but there is no report on its mutagenic and antimutagenic activity.

Aim: The aim was to isolate compounds from the methanol extract of the aerial parts of *Ajuga bracteosa* and determine their antimutagenic activity against EMS induced mutagenicity in mice.

Methods: The study was undertaken in order to scientifically validate the traditional use of Ajuga bracteosa. Four compounds were isolated from the methanol extract of the aerial parts of *Ajuga bracteosa* using silica gel column chromatography. Structural elucidation of the isolated compounds was done using spectral data analysis and comparison with literature. High performance liquid chromatography (HPLC) was used for the qualitative and quantitative determination of isolated compounds in the crude methanol extract. The isolated compounds and standard drug were evaluated *in vivo* for antimutagenic activity against EMS induced mutagenicity in mice by micronucleus and chromosomal aberration tests.

Results: The four isolated compounds were identified as (1) 14, 15-dihydroajugapitin; (2) β- Sitosterol; (3) Stigmasterol and (4) 8-o-acetylharpagide. A quick and sensitive HPLC method was developed for qualitative and quantitative determination of three isolated marker compounds from Ajuga bracteosa. Compound (4) exhibited weak antimutagenic activity against EMS induced mutagenicity in mice. The above results showed that the crude methanol extract and compound (4) showed weak antimutagenic activity as compared with other three compounds. It is evident from the study that the plant contains rich source of anticancer and antimutagenic drugs.

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