

Chemopreventive potential of methanol extract of *Dicranopteris linearis* leaf on DMBA/croton oil-induced mouse skin carcinogenesis.

ABSTRACT

The present study was carried out to elucidate the chemopreventive potential of methanol extract of *Dicranopteris linearis* (MEDL) in a two-stage mouse skin carcinogenesis model due to the interrelated inflammation, oxidative stress and tumor promotion pathways. MEDL was prepared in a dose range of 30 to 300 mg/kg body weight. A total of 48 imprinting control region (ICR) female mice (6 to 8 weeks old) were randomly assorted into six groups. To induce skin tumor formation, a single topical application of 7,12-dimethylbenz[a]anthracene (DMBA) at 100 µg/100 µl was applied to the shaved dorsal region of mice, followed by repetitive administration of 1% croton oil, twice weekly for 15 weeks. Topical application of MEDL, 30 min prior to the croton oil application significantly reduced the tumor incidence to 12.5% in 300 mg/kg MEDL-treated group as compared to 87.5% in carcinogen control. The latency period of tumor formation was increased from sixth week in the carcinogen control to ninth and fifteenth weeks in 100 and 300 mg/kg MEDL-treated groups, respectively. The tumor burden of MEDL-treated groups (30, 100, and 300 mg/kg) were significantly lessen (5.67 ± 1.28 , 5.00 ± 1.13 , and 1.00 ± 0.13), as compared to carcinogen control (7.86 ± 2.37). The tumor volume was also significantly reduced from 9.00 ± 2.27 mm³ in carcinogen control to 3.70 ± 0.96 , 2.39 ± 0.54 and 0.26 ± 0.03 mm³ in 30, 100 and 300 mg/kg MEDL-treated groups, respectively. In conclusion, the MEDL exhibited anti-carcinogenic effect in a dose-dependent manner, indicating its chemopreventive potential, which worth further study.

Keyword: *Dicranopteris linearis*; Leaves; Methanol extract; Anti-carcinogenic effect