Anticarcinogenic activity of Labisia pumila against 7, 12- dimethylbenz (a) anthracene (DMBA)/croton oil-induced mouse skin carcinogenesis.

ABSTRACT

Labisia pumila or locally known as Kacip Fatimah, is one of the most popular medicinal herb in Malaysia. Anticarcinogenic activity of this medicinal herb however, has not been reported until today. In this paper, the in vivo anticarcinogenic activity of L. pumilaethanol extract on two-stage mouse skin carcinogenesis model is reported. In the present study, we investigated whether L. pumila ethanol extract have an effect on tumor growth in vivo. Therefore, varying doses (25, 50 and 100 mg/kg bwt) of L. pumilaethanol extract were tested on 7, 12-dimethylbenz(a)anthracene (DMBA)/croton oil-induced mouse skin carcinogenesis. At the end of the experiment of 20 weeks, animals in carcinogen control group developed a mean number of 5.70 ± 1.3 skin tumors per tumor-bearing mouse and on the 16th week prompted a tumor incidence of 100%. Animals that have been treated with 25, 50 and 100 mg/kg bwt of L. pumila extract topically for 30 min developed a mean number of 3.60 ± 1.1, 3.20 ± 0.8 and 2.40 ± 0.7 skin tumors per tumor-bearing mouse with tumor incidence of 90, 60 and 50%, respectively. The tumor volume per tumor-bearing mice of carcinogen control animals was 121.03 ± 3.46 mm3, which was significantly ($p<0.05$) reduced to 92.27 ± 2.68, 69.24 ± 3.93 and 54.24 ± 4.38 mm3 for the animals treated with 25, 50 and 100 mg/kg bwt of L. pumila extract, respectively. In terms of tumor incidence and tumor burden, the highest dose (100 mg/kg bwt) of L. pumila ethanol extract was almost equipotent with curcumin (10 mg/kg bwt). The extract of L. pumila not only decreased the tumor incidence, tumor burden and tumor volume in DMBA/croton oil-induced mice but also delayed the skin tumor growth as compared to carcinogen control group. Further histopathological examination revealed that tumors from animals that have been treated with L. pumila showed intact basement membrane as compared to the tumors from the untreated animals. This finding suggested that L. pumila extract was able to suppress the progression of benign tumors to malignant stage in DMBA/croton oil-induced mice. Further studies should be carried out in order to identify the active compound responsible for the anticarcinogenic activities and the mechanism of action of L. pumilaat the molecular level.

Keyword: Chemoprevention; Chemical carcinogenesis; Labisia pumila.