Annona muricata leaves extracts prevent DMBA/TPA-induced skin tumorigenesis via modulating antioxidants enzyme system in ICR mice

ABSTRACT

Annona muricata, locally known as soursop has been reported to exhibit antiproliferative activities against various cancer cell lines. In this current study, we have investigated the antitumor promotion of various fractions of Annona muricata leaves (AML); hexane (AMLH), dichloromethane (AMLD) and methanol (AMLM) fraction respectively on 7, 12-dimethylbenz[α]anthracene (DMBA) induced and 12-0-tetradecaboylphorbol-13-acetate (TPA) promoted skin tumorigenesis in mice via morphological assessment, biochemical analysis and histopathological evaluation. The results of the study revealed significant inhibition in tumor incidence, tumor burden and tumor volume in the groups received AMLH and AMLD, respectively, and suppressive effects in group received AMLM compared with carcinogen control group at week 21. Superoxide dismutase, catalase, and lipid peroxidation levels were returned to near normal by administration of AML to DMBA/TPA-induced mice. The above findings were supported by histopathological studies, in which the extensive epidermal hyperplasia in carcinogen control group was restored to normal in AML treated groups. Whilst, annonacin, a major annaonaceous acetogenin was found to be the highest in AMLH and AMLD. From the present study, it can be inferred that AML supressed DMBA/TPA-induced skin tumor and this antitumor-promoting activity may be linked to the antioxidant/free radical-scavenging constituents of the extract and annonacin contained in the extracts.

Keyword: Annona muricata; Annonacin; Antioxidant enzymes; Tumorigenesis