

Abstract

Asiatic acid (AA) is a pentacyclic triterpene found in *Centella asiatica*. In the present study, the mechanism of anticancer effect of AA on skin cancer was investigated. AA decreased viability and induced apoptosis in human melanoma SK-MEL-2 cells in a time- and dose-dependent manner. AA also markedly increased intracellular reactive oxygen species (ROS) level and enhanced the expression of Bax but not Bcl-2 protein in the cells. In addition, AA-induced activation of caspase-3 activity in a dose-dependent manner. Pretreatment with Trolox, an antioxidant, significantly blocked the induction of Bax and activation of caspase-3 in AA-treated cells. Furthermore, Ac-DEVD-CHO, a specific caspase-3 inhibitor, and Trolox prevented the AA-induced apoptosis. AA did not elevate p53 nuclear protein levels that are present in a mutant form in SK-MEL-2 cells. These results suggest that AA-induced apoptosis may be mediated through generation of ROS, alteration of Bax/Bcl-2 ratio and activation of caspase-3, but p53-independent. These results further suggest that AA may be a good candidate for the therapeutic intervention of human skin cancer