Induction of apoptosis by hydrolyzable tannins from Eugenia jambos L. on human leukemia cells

楊玲玲
Yang LL;Lee CY;Yen KY

Abstract

Eugenia jambos L. (Myrtaceae) is an antipyretic and anti-inflammatory herb of Asian folk medicine. A 70% acetone extract exerted the strongest cytotoxic effects on human leukemia cells (HL-60) from a preliminary screening of 15 plants. The cytotoxic principles were separated by bio-assay-guided fractionation to HL-60 cells; two hydrolyzable tannins (1-O-galloyl castalagin and casuarinin) were isolated from the 70% acetone extract. All significantly inhibited human promyelocytic leukemia cell line HL-60 and showed less cytotoxicity to human adenocarcinoma cell line SK-HEP-1 and normal cell lines of human lymphocytes and Chang liver cells. Thus, these compounds were exhibited the dose-dependent manner in HL-60 cells and the IC(50) were 10.8 and 12.5 microM, respectively. Flow cytometric analysis demonstrated the presence of apoptotic cells with low DNA content, a decrease of cell population at G(2)/M phase, and a concomitant increase of cell population at G(1) phase. The apoptosis induced by these two compounds was also demonstrated by DNA fragmentation assay and microscopic observation. These results suggest that the cytotoxic mechanism of both antitumor principle constituents might be the induction of apoptosis in HL-60 cells.