Ácido alfa-eleosteárico e seus derivados dihidroxi são os principais indutores de apoptose da Momordica charantia

Alpha-eleostearic acid and its dihydroxy derivative are major apoptosis-inducing components of bitter gourd.

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Abstract

Bitter gourd (Momordica charantia L.) pericarp, placenta, and seed extracts were previously shown to induce apoptosis in HL60 human leukemia cells. To determine the active component that induces apoptosis in cancer cells, bitter gourd ethanol extract was fractionated by liquid-liquid partition and silica gel column chromatography. Several fractions obtained by silica gel column chromatography inhibited growth and induced apoptosis in HL60 cells. Among them, fraction 7 had the strongest activity in inhibiting growth and inducing apoptosis in HL60 cells. A component that induced apoptosis in HL60 cells was then isolated from fraction 7 by another silica gel column chromatography and high-performance liquid chromatography (HPLC) using a C18 column and was identified as (9Z,11E,13E)-15,16-dihydroxy-9,11,13-octadecatrienoic acid (15,16-dihydroxy alpha-eleostearic acid). 15,16-Dihydroxy alpha-eleostearic acid induced apoptosis in HL60 cells within 5 h at a concentration of 160 microM (50 microg/mL). (9Z,11E,13E)-9,11,13-Octadecatrienoic acid (alpha-eleostearic acid) is known to be the major conjugated linolenic acid in bitter gourd seeds. Therefore, the effect of alpha-eleostearic acid on the growth of some cancer and normal cell lines was examined. alpha-Eleostearic acid strongly inhibited the growth of some cancer and fibroblast cell lines, including those of HL60 leukemia and HT29 colon carcinoma. alpha-Eleostearic acid induced apoptosis in HL60 cells after a 24 h incubation at a concentration of 5 microM. Thus, alpha-eleostearic acid and the dihydroxy derivative from bitter gourd were suggested to be the major inducers of apoptosis in HL60 cells.

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