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Bioactive C15 acetogenins from the red alga *Laurencia obtusa*

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Abstract

The petroleum ether extract of the red alga *Laurencia obtusa* afforded three new C15 acetogenins (cyclic ether enyne): (12Z)-cis-maneonene-D (1), (12E)-cis-maneonene-E (2), and (12Z)-trans-maneonene-C (3), along with one known cis-maneonene-A (4). Blood neutrophils were prepared, cultured, and incubated for 24, 48, and 72 h in medium with and without isolated compounds. Blood neutrophils were prepared, cultured, and incubated for 24, 48 and 72 h in medium with and without the isolated compounds. Both morphology and DNA fragmentation methods assessed the percentage of neutrophils apoptosis in each culture. In the present study, several observations have been made concerning the apoptosis-inducing or inhibiting effect of 1 and 2. Both compounds had no inhibition of apoptosis but apoptosis was enhanced significantly by aging. However, 1 stimulated apoptosis of normal only at the initial 24 h. After that there was no significant difference in apoptosis with or without compound 1, while 2 stimulated apoptosis at all the times. The apoptosis induced by these two compounds was demonstrated by DNA fragmentation assay and microscopic observation. These observations suggest that compounds 1 and 2 may be involved in regulation of programmed death in the initiation and propagation of inflammatory responses. © 2011 Pharmaceutical Society of Japan.

Author Keywords

Apoptosis; C15 nonterpenoid halo ether; *Laurencia obtusa*; Maneonene; Red algae

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