

Isolation of New C₁₅ Acetogenins from the Red Alga *Laurencia obtusa*

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Abstract : With regard to the uniqueness of the red algae of the genus *Laurencia* as the source of C₁₅-acetogenins, along with the diversity of biological applications; the acetogenin content of the Red Sea *L. obtusa* was investigated. Fractionation and purification of the CH₂Cl₂/MeOH extract were done by applying several chromatographic techniques, including column and preparative thin-layer chromatography; followed by a series of ¹H nuclear magnetic resonance measurements to give rise of some interesting notes. A new rare chloroallene-based C₁₅ acetogenin, laurentusenin (1) along with a new furan ring containing C₁₅ acetogenin, laurenfuresenin (2), were isolated from the red alga *L. obtusa*. Comparing 1D and 2D NMR, MS, UV and IR spectral data for the new isolated compounds with the reported bromoallene containing acetogenins spectral data was played the crucial role for characterization of their hemical structures. The apoptosis induced by these two compounds was demonstrated by DNA fragmentation assay and microscopic observation. These observations suggest that (1) and (2) may be involved in regulation of programmed death in the initiation and propagation of inflammatory responses. The isolated metabolite (1) showed unusual substituted allene side chain, while (2) inserted furan ring as a new acetogenin nucleus.

Keywords : cyclic enyne, anti-inflammatory, fatty acids, marine algae, halogenations

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