Anti-inflammatory and analgesic effects of the marine-derived compound isolated from the crinoids

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Keywords：crinoids, anti-inflammatory, analgesic, NF-κB, inducible nitric oxide synthase (iNOS)

Abstract

The secondary metabolites, especially from marine organisms, are a novel source of anti-inflammatory drugs. Recent research indicated that the compounds from crinoids inhibit the activation of the transcription factor NF-κB. These compounds play an important role in inflammation. Our preliminary screening for anti-inflammatory drugs revealed that the crude extract of crinoids significantly inhibited the expression of proinflammatory proteins in lipopolysaccharide (LPS)-stimulated murine macrophages. Again, we isolated two chemical compounds (CD1 and CD2) form the crinoids extract that significantly decreased inducible nitric oxide synthase (iNOS) in lipopolysaccharide (LPS)-stimulated macrophages. Conversely, CD1 significantly attenuated the iNOS mRNA expression. This present study was carried out to assess both pre- versus post-treatment of the compounds in carrageenan-induced inflammatory and hyperalgesic rats. Our results showed that CD1 significantly inhibit mechanical allodynia, thermal hyperalgesia and weight-bearing deficits. However, CD1 did not attenuated carrageena- induced paw swelling. Finally, we concluded that CD1 attenuated the expression of pro-inflammatory protein and decreased the inflammatory pain in carrageenan-injected rats.

Key words：crinoids, anti-inflammatory, analgesic, NF-κB, inducible nitric oxide synthase (iNOS).

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