

Inhibition of Sea Urchin and Starfish Embryonic Development by Hexane Extracts from Five Philippine Marine Sponges

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Abstract : The marine environment is undoubtedly a rich source of diverse organisms that possess bioactive secondary metabolites with important pharmacological activities. Marine sponges have since been contributing a wide array of compounds of biomedical and pharmaceutical importance. This study is an attempt to contribute to the growing and advancing marine natural products research. It aims to evaluate the cytotoxicity of the hexane extract (H) from the Philippine marine sponges, *Rhabdastrella globostellata* (Rg), *Callyspongia* sp. (Calsp), *Callyspongia aerizusa* (Ca), *Carteriospongia* sp. (Carsp), and *Cinachyrella* sp. (Cisp) using the eggs of starfish, *Asterina pectinifera*, and sea urchin, *Hemicentrotus pulcherrimus*. Specifically, the cytotoxicity of the marine sponge hexane extract was determined through its inhibition of starfish and sea urchin embryonic development. After 24 hours, CarspH and RgH inhibited early gastrulation of sea urchin at a minimum concentration of 15.63 and 31.25 $\mu\text{g/mL}$, respectively. CalspH inhibited the early gastrulation of both sea urchin and starfish at 125 $\mu\text{g/mL}$, whereas CaH halted the morula of sea urchin and early gastrulation of starfish at 250 $\mu\text{g/mL}$. CispH exhibited relatively weak inhibitory activity on starfish embryogenesis but inhibited the early gastrulation of sea urchin at 250 $\mu\text{g/mL}$. The results obtained from this study were used as basis for the separation, isolation and purification of the component(s) of the hexane extracts from the five Philippine marine sponges.

Keywords : embryonic development, marine sponge cytotoxicity, Philippine marine sponges, sea urchin and starfish embryogenesis

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