

Chemical Synthesis of Marine Saponins

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Marine saponins are characteristic metabolites of the slow-moving starfish and sea cucumbers. These complex glycosides of steroids or triterpenes are believed to be the defense chemicals against parasites and predators, therefore are expected to exhibit a wide range of biological and pharmacological properties.

Isolation of sufficient amounts of homogeneous marine saponins from the natural sources is a formidable task, such hampering in depth studies on their activities.

Here I present our long efforts on the chemical synthesis of the major types of these marine natural products, including asterosaponins (e.g., astrosteroside A), polyhydroxysteroid saponins (e.g., linckosides A), cyclic saponins (e.g., luzoncoside A), and sea cucumber saponins (e.g., echinoside A). Highlighted are the stereoselective glycosylation reactions employed in the successful synthesis.

