Studies in Natural Products Chemistry

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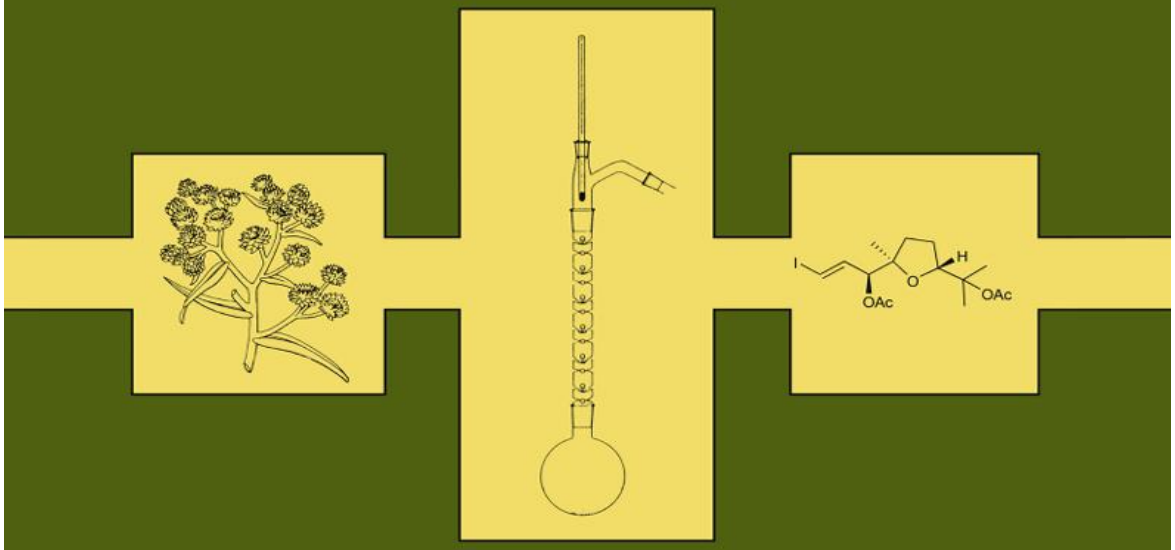

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Chapter 10

Pyrrole-Derived Alkaloids of Marine Sponges and Their Biological Properties

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Chapter Outline

INTRODUCTION

Marine sponges are found in oceanic waters throughout the tropical and subtropical regions. There are more than 5000 species of marine sponges [1], many of which have been investigated for their chemical and biological properties. In the marine environment, sponges remain the largest producer of secondary metabolites with various chemical diversity and biological properties. Secondary metabolites of marine sponges are comprised of alkaloids, peptides, terpenes, sterols, ceramides, and several derivatives of sphingolipids. Alkaloids constitute one of the most important metabolites isolated from marine sponges. Over the past years, a number of reviews have documented the chemistry and bioactivities of alkaloids found in marine sponges [2,3]. Among the alkaloids of marine sponges, pyrrole and its derivatives form a unique and diverse class. The metabolites produced by sponges have played an important ecological role, particularly as a chemical defense against predators and protection against stresses that exist in the depths of the ocean. The metabolites contained in marine sponges also vary according to the geographical locations of collection points, and as a

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