

专论与综述

后鳃亚纲软体动物化学防御物质研究进展

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摘要 海洋后鳃亚纲软体动物(*Opisthobranchia*) 属软体动物门(*Mollusca*) 复足纲软体动物(*Gastropoda*), 其成体体表的被壳或退化或完全消失。由于失去了物理保护, 海洋后鳃亚纲软体动物的生存主要依赖于化学防御机制。大多数海洋后鳃亚纲软体动物通过选择适当的食物, 并将其中有用的代谢物质经过进一步生物转化或积累到身体的特定部位作为化学防御性物质, 以保护自己不受天敌的捕食; 少数动物能够生物合成自身所需要的化学物质, 从而建立其化学防御体系。显然, 研究后鳃亚纲软体动物及其食源生物的化学组成, 可以揭示它们之间的食物链关系, 并进一步阐明这些化学物质的生态学作用。由于相同软体动物在食性上具有统一性, 因此对其体内化学成分的分析也有助于其分类学的研究。同时, 这种进化的化学防御体系为我们提供了一条从自然界寻找生物活性物质的新方法。基于以上原因, 来自生态学、化学以及药理学等不同领域的科学家均对海洋后鳃亚纲软体动物表现出极大的兴趣, 并对其进行了一系列研究; 在过去的20多年中, 发表了大量的相关论文。综述了海洋后鳃亚纲软体动物近5a来的研究概况, 文章涵盖了所有研究的3个大的种群, 旨在向读者介绍有关该类动物的化学研究情况, 并据此讨论其可能的生态作用。

关键词 [后鳃亚纲软体动物](#); [化学防御物质](#); [代谢产物](#)

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Research evelopment on chemically defensive substances of opisthobranch molluscs

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Abstract Opisthobranchs are marine gastropod molluscs, the shell of which is either reduced or completely absent in the adults. Being loss of physical protection, the survival of opisthobranchs mainly relies on a series of chemical strategies. Most of the animals protect themselves from predators by selecting appropriate diet, and consequently transforming and bio-accumulating some useful dietary metabolites into selected body parts as defensive substances. A few of animals are capable of biosynthesizing the necessary substances to establish their chemical defensive systems. Obviously, chemical studies on constituents of molluscs and their preys can reveal the dietary relationship between them, and suggest the ecology role of the metabolite as a consequence. Due to the related uniform dietary for the same kind of mollusc, chemical investigation on the animals would lend a hand to their taxonomy. Furthermore, the evolved chemical defensive strategy provides us a new approach in searching for the potential bioactive molecules from natural sources. These lines of evidences promoted many ecologists, chemists and pharmacologists to conduct a series of studies on opisthobranch molluscs, which resulted in numerous publications in the past two decades. In this paper, we summarize the studies covering three large groups of opisthobranch mollusks in the latest five years, aiming at giving the readers a brief view of the compounds, as well as their biological activities, isolated from these mollusks, and when it is possible, to suggest ecological roles of them.

Key words [Opisthobranch](#) [molluscs](#) [chemical](#) [defensive](#) [substance](#) [metabolite](#)

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