



Marine Invertebrates as Potential Source of MNPs

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Editorial

Marine invertebrates comprise of several different phyla viz. *Mollusca*, *Porifera*, *Cnidaria*, *Annelida*, *Bryozoa*, *Arthropoda*, *Echinodermata* and each phylum comprises of various number of species. Marine natural products are basically the secondary metabolites that evolve majorly as a result of defence reaction of the species especially when in danger, against the predators [1]. Marine invertebrates such as sponges, soft corals or shell-fewer molluscs usually lack physical defences like protective shells or spines, thus necessitating chemical defence mechanisms such as the ability to synthesize toxic and/or deterrent compounds which deter predators by keeping competitors at bay or by paralyzing their prey. Examples of fish deterrent natural products from marine invertebrates include the pyridocrinin alkaloids kuanoniamine C and D from the sponge *Oceanapia* sp., the furanocembranolide 11 β , 12 β -epoxy-pukalide produced by Brazilian octocoral *Phyllogorgia dilatata* or the furanosesterpene variabelin of the Caribbean sponge *Ircinia strobilina*.

Several secondary metabolites from marine species have been extracted and have been reported to possess immense pharmacological actions till date. However, the secondary metabolites from marine sources are being searched upon for finding newer drugs with higher potency and efficacy by the researcher's world over. A scientific survey conducted in 2011 described that nearly 20000 MNPs have been isolated from all marine organisms till date and around 75% of them are from marine invertebrates. As marine invertebrates comprise of various number of unexplored marine species, therefore, this group is being looked upon potentially for the search of newer secondary metabolites with pharmacological efficacies and therefore, from marine toxins that impact public health concerns to the search for new drugs from the sea, the study of biologically active MNPs has profoundly influenced the course of discovery in fields ranging from pharmacology to cancer medicine.

Drugs from marine source have been traditionally used worldwide since ancient times and include examples like sponges that have been used to treat dysentery and diarrhea, essences from gastropod were used in perfume and incense, snails were a source of blue and purple dyes etc. Pearl oysters are considered to possess antacid and tonic properties and in combination with other medicines, they are prescribed in treating tuberculosis, jaundice, dyspepsia and urinary complaints [2]. Also, the molluscan species have been strongly recommended nutraceutically as dietary supplements containing natural taurine that developed from Pacific oyster *Crassostrea gigas* powder for treating liver disorders, arthritis and skin problems.

Till date, among all the species belonging to marine invertebrates, maximum numbers of pharmacologically potent MNPs have been obtained from sponges which belong to the phyla *Porifera* and the entire range of MNPs reported from the marine invertebrate group have shown profound pharmacological and biological effects with activities ranging from antimicrobial, antioxidant, antihypertensive, anticoagulant, anticancer, anti-inflammatory, wound healing to immunomodulators and other medicinal benefits. These MNPs are found as secondary metabolites of marine invertebrates, particularly sponges, bryozoans, tunicates and ascidians. Therefore, the interest in the marine environment has been stimulated by the array of biological activities observed with the MNPs from marine invertebrates, pressing need for their detailed chemical, biological and pharmacological investigations.

References

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