

Marine Pharmacognosy and its Classification

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Commentary

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DESCRIPTION

Investigating and identifying marine-based plants and animals that are significant from a medicinal standpoint is known as marine pharmacognosy. It falls under the category of terrestrial Pharmacogenetics. Drugs are generally extracted from marine bacteria, viruses, algae, fungi, and sponge species. Although many marine species were used in Traditional Chinese Medicine, it is still a relatively new subject of study in western medicine. The first medication that gained FDA approval came from the water is ziconotide, which was derived from a marine cone snail in 2004.

Research into the chemistry of marine animals is mostly unexplored regardless of the fact that 79% of the earth's surface is covered in water. This represents a vast source for developing new medications to treat serious illnesses like cancer, AIDS, or malaria. Because they inherently require chemical defences, assessment data focuses on sessile creatures or animals that move slowly.

An organism is first drained in a suitable solvent, and then either its crude extract is tested for a particular illness target or standard chromatography techniques are used to rationally separate unique chemical components.

Oceans cover over 70% of the planet's surface, and they are home to 95% of the biosphere. The first living creatures in the sea originally arose and over 3500 million years ago. They have developed a variety of defences over time to withstand numerous severe environments, including high salinity, pressure, varying amounts of aeration, radiation, and alterations, as well as infections, fouling, and overgrowth by other species.

Physical or chemical adaptations could be used to adapt to the various environments. Sessile organisms and other species without obvious physical barriers are believed to have evolved chemical barriers to protect themselves. The diluting effect of seawater is thought to require the chemicals to be exceedingly powerful. According to some

descriptions, they are comparable to pheromones but are meant to repel rather than attract. Additionally, predators have created chemical weapons to kill or immobilize prey. *Cortex magus* is an illustration of a cone snail that employs a poisoned projectile similar to a harpoon to freeze prey such as tiny fish. It's thought that some organisms, like the viperfish, use their photophores to entice small fish or other prey.

Bioactive compounds have been looked for in a wide variety of marine organisms. Snakes, fish, and other vertebrate animals are a few examples. Sponge, coelenterate, tunicate, echinoderm, coral, algae, mollusk, and bryozoan are a few types of invertebrates. Cyanobacteria, fungus, and bacteria are some examples of microorganisms.

The species richness of marine settings is thought to be greater than that of terrestrial ones. The 33 known phyla of mammals are represented in the waters by 32 different animal phyla. Solely one phylum is exclusively terrestrial, whereas fifteen different phyla are only found in marine environments. There are other species in marine phyla that are functionally distinct from those on lands, such as filter feeders and sessile organisms. Moreover, there is a huge range of marine autotrophs than there are terrestrial ones. While it is thought that at least eight ancient clades gave rise to marine autotrophs, Embryophyta is the principal clade from which terrestrial creatures descend. More than 80% of the plant and animal species in the world may be found in marine habitats. The species variety of corals can approach 1000 species per square meter, which is extraordinary diversity. The Indo-Pacific Ocean is reportedly inhabited to the most marine tropical biodiversity.