

Role of Marine Sponges in Drug Design

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From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018.

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American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): PP23

ABSTRACT

Marine sponges have been considered as a drug treasure house with respect to great potential regarding their metabolites. Most of the studies have been conducted on sponge's derived compounds proved to have antibacterial, antiviral, antifungal, antimalarial, antitumor, immunosuppressive and cardiovascular activity. Sponges produced different kinds of chemical substances with numerous carbon skeletons which have been found to be the main component interfering with human pathogenesis at different sites. The fact that different diseases have the capability to fight at different sites inside the body can increase the chances to produce targeted medicines. First natural marine human synovial phospholipase A2 inhibitor was isolated from Palauan sponge and was found to have analgesic activity and anti-inflammatory activity. Commercialized products from marine organisms include antibiotic Cephalosporin from marine fungi, cytostatic cytarabine from sponge, anthelmintic insecticide Kanic acid from red alga, anti-viral compound Ara - A (active against Herpes virus) and anti-tumour compound Ara - C (effective in acute lymphoid leukemia) were some of the marine compounds isolated and are in clinical use. Progress has been made in identifying novel drugs from marine sources, great endeavours are still needed to explore these molecules for future clinical applications.