Available online at www.ijpab.com

DOI: http://dx.doi.org/10.18782/2320-7051.2181

ISSN: 2320 – 7051

Int. J. Pure App. Biosci. **4 (1):** 166-167 (2016)

International Journal of Pure & Applied Bioscience

Review Article

OPEN ACCESS

Coral Reefs: A Review on its Environmental and Biomedical Prospects with Conservation Efforts

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Received: 19.12.2015 | Revised: 28.12.2015 | Accepted: 10.01.2016

ABSTRACT

Corals are marine animals grouped under the class Anthozoa of phylum Cnidaria which form colonies resembling polyps of different shapes; however some of them may be identical. They are mainly predominant in the deep sea and ocean beds and secrete calcium carbonate forming hard calcareous structures to form exoskeleton.

Key words: *Coral, Conservation, Environment*

INTRODUCTION

Coral reefs are under stress due to human activities and intrusion in the water shores throughout the globe. Mainly agricultural practices including excessive mining, urban runoffs causing water pollution, greenhouse gas emission around the world and increment in temperature at the seas (by 1-2^{o}C) lead to their threatened future due to acidification and unpredictable lowering in the ocean pH causing the mass destruction of the coral reefs. Apart from the mentioned causes, making corals as food source and some tourists activities like scuba diving also is a potential threat to the coral reefs[1,2].

An estimation by the researchers have proved that nearly 10% of the coral population is non-existent in the current world, 60% reefs are at risk due to human infringement, particularly in the Southeast Asia and 80% reef are endangered[3]. A prediction foretells that by the Year 2030, nearly 50% of the world's coral reefs may be destroyed and extinct.

USE IN BIOMEDICAL RESEARCH

Coral reefs are medicinally very important in bio-medical research as they are put to use for treatment of cancer, AIDS, pain and other anomalies. These are also used in bone grafting for human orthopedic surgeries. Corals are also raised for their ornamental and colorful properties in the aquaria. Colored corals are used for preparation of jewellery and many high priced varieties are available as gem stones in jewelleries. Coral reef is a good source of lime for construction and polishing purposes and its rag is a building material in east African coastal places.

Cite this article: Ganguly, S., Coral Reefs: A Review on its Environmental and Biomedical Prospects with Conservation Efforts, *Int. J. Pure App. Biosci.* **4(1):** 166-167 (2016). doi: http://dx.doi.org/10.18782/2320-7051.2181

APPLICATION FOR CLIMATIC RESEARCH

Geologists put these corals to use for climatic and environmental dating purposes by geochemical techniques. Coral reefs, particularly the deep sea bamboo corals during its growth produce growth rings of which are vital for to do the aging of the site and prevailing climate[4]. The fossilized corals are used for radioactive carbon dating to know the changes in sea levels and physical parameters of the water quality[5].

CORAL AQUACULTURE, FARMING AND GARDENING

Increased demand of the corals for human needs has also developed the coral aquaculture for raising them for commercial purposes. The farming and gardening by aquaculture has also shown positive hope for restoration of the lost reefs by their replantation and reef conservation[2]. It has also decreased the chances of early death of the juvenile corals. The aquaculture of the corals is primarily in practice by the researchers, scientists and by the ornament traders and businessmen for ornamental coral trade and by many private organizations for their passion towards aquaria[6].

GLOBAL INITIATIVES FOR PRESEVATION, CONSERVATION AND RESTORATION

In recent times, the government has promulgated many rules and has passed laws by prohibiting human dwellings and establishments near sea coasts for the restoration of habitat of the corals and protection. This has also raised the concern among the human about the maintenance of coral ecology and reef protection. Also, many schemes and conservation projects have also been initiated in non-tropical countries for growing corals.

SUMMARY

Corals are not only the ocean bed dwellers, but also play immense role in the biosphere maintenance and in climatic and environmental ecology. Their population is currently under stake from intruding unnecessary human activities, which needs to be properly constrained and regulated by imposing strict regulations from the governmental level. Corals have also significant importance for biomedical purpose also, especially in the treatment of serious human illnesses and in surgical interventions as bone implants etc.

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