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# Marine Biological Activity and Industry Innovations in the Production of Drugs

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## Abstract

The biological activities have skyrocketed as a result of the remarkable expansion of the bio-based industry. The marine biomes are an appealing target for biological in order to identify and develop potential drug molecules for human therapeutics because they contain a rich reservoir of unique life systems. From marine organisms, numerous drug molecules like ara-c, trabecetidin, and eribulin have been discovered. Sadly, pharmaceutical companies utilize traditional knowledge based on marine life that has been developed by communities at various stages of drug development without a mechanism for access and benefit sharing. One such model is the marine biological Fiji contract that represents the pretended by Fijian people group and the lacuna in access and advantage sharing components. The purpose of this study is to investigate how the benefits of using marine bio-resources can be shared fairly with local communities that hold marine traditional knowledge in marine areas. It provides a brief explanation of the various international protocols and conventions that place an emphasis on the creation of equitable benefit sharing mechanisms. Contracts for marine biological based on terms agreed upon by key stakeholders are the subject of the study. Marine biological contracts in the end should be modified according to the regulation of a country as a result of regional nature of regulation. In addition, the unique parameters of the activity, such as the economics of deep sea explorations, the continuous supply of samples, the jurisdiction of marine areas, and associated traditional knowledge, will make the marine biological contracts distinct from other biological contracts. The current review explains the idea of marine biological shrinks by considering India as a contextual investigation underlining sharing of advantages with conventional information holders as well as guaranteeing maintainable utilization of marine hereditary assets by the drug area.

Keywords: Marine biological activity; Drugs; Marine organisms; Bio-resources

#### Introduction

Nature has forever been a wellspring of motivation and plays had a basic impact in drug disclosure and improvement process. Plants, animals, and microorganisms were used to identify drug molecules and compounds. Due to the advantageous properties provided by marine chemical compounds, interest has gradually shifted from terrestrial to marine bio-resources. Marine biological systems are novel and rich repository of biodiversity with a tremendous potential towards working on the nature of human existence. These marine flora and fauna can be utilized in a variety of ways by the modern medical system. The pharmaceutical industry is the primary sector actively expanding its inventory of drugs derived from marine bio-resources. A portion of the deciding boundaries for expanded corporate premium in the marine hereditary assets incorporate prerequisite to battle multi drug safe, novel medication revelation that is low timeframe of realistic usability of regular medications and expanding market interest of bio-based drugs. In order to survive in hostile conditions like extreme temperatures, varying pressures-low or high-low energy and lack of sunlight, marine organisms have highly developed defense systems [1].

As a result, marine organisms provide a distinct genetic pool that has the potential to treat a variety of diseases, including those that are still regarded as incurable or rare. This is clear from the FDA-approved medications cytarabine, vidarabine, ziconotide, trabectedin, and eribulin mesylate. From the perspective of comprehending a variety of fundamental phenomena of life that have not yet been deciphered, marine organisms also serve as models. Elucidating the process by which vertebrates develop using zebrafish embryos is one such example. Curiously, the biological works on utilizing marine bio-assets are not new as native networks have been subject to these assets for food, medication and business starting from the beginning of human progress. However, as the world moves toward the bio-based economy, biological activities have exploded for a variety of reasons, including human health care [2]. Various authors and organizations have defined biological in general in various ways. CBD, traditional medicines, and TRIPS: The systematic search for and development of new sources of chemical compounds, genes, micro- and macroorganisms, and other valuable products from nature is referred to as biological, according to a World Health Organization publication titled "Concepts and Questions."

The activity of biological has been described in four main phases. The phases include product development and commercialization, sample isolation, and characterization. In addition to a provider and an acceptor, the entire biological process includes the owner of marine genetic resources, the bio-prospectors, a research and development group, and customers of the final product. Both the genetic resource and these components are highly dependent on one another [3].

It is important to note that the protocols used in biological are complicated and time- and cost-intensive, and that there is an inherent element of uncertainty regarding the amount of returns. In this manner, profit from venture is a significant mark of thought by

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the drug organizations for putting resources into marine innovative work. The drug organizations will generally safeguard the recognized builds of revenue and the gathered data under restrictive system due to the immense ventures associated with investigations, assortment of test and screening of the accumulates which may each time require advancement of new convention. Medications of drug interest got from the marine creatures are safeguarded through different devices of licensed innovation regulation however for the most part by means of patent system. Products and processes derived from marine bioresources like sponges, jelly fish, and seaweeds have seen a sharp rise in patenting in recent years [4]. Curiously, a nearby connection exists among developments and marine customary information. The food, medicine, and livelihoods of the marine indigenous communities are all dependent on marine resources. These communities have passed down a wealth of marine traditional knowledge from one generation to the next, ensuring that the marine ecosystem and the communities that surround them continue to thrive sustainably. Alternative traditional medicine systems in nations with abundant marine biodiversity also contain marine traditional knowledge.

Drug organizations other than leading endeavours to distinguish novel bio-assets for drug builds, likewise frequently base their investigation for a marine creature of drug revenue in view of the customary information created by the native networks. Pharmaceutical companies prefer it because it saves time and money gathering basic information like habitat, time of reproduction, population density, and so on for random screening [7]. However, because the state or indigenous marine communities were unaware of the access to marine genetic resources, there have been numerous instances of bio-piracy of marine life and the associated traditional knowledge [5]. The communities have not received a fair and equitable share of the benefits of their knowledge's commercialization. As indicated by Worldwide Industry Examiners, marine bio-assets were supposed to lead to 'marine biotechnology' items worth more than \$3.75 bn by 2012, especially useful elements for nutritionals, beauty care products and drugs and keeping in mind that as per another market report by TechNavio, the marine biotech market is expected to develop at a CAGR of 3.82% over the period 2012-2016.

#### Discussion

As a result, as the world's population grows, so does the demand for bio-based goods like bio-drugs and alternative fuels that support clean technologies and sustainable development. The steadily expanding request would thusly upgrade marine biological exercises. As a result, the urgent requirement to develop mechanisms like contracts as a necessary component for effective benefit sharing among grassroots stakeholders in the marine biological sector is raised. As referenced over, the financial matters of remote ocean investigation is a lot higher, there is vulnerability of supply of test in remote ocean biological and worries about the locales in this way, making it hard to manage remote ocean biological. Nonetheless, agreements can in any case be a device to manage the remote ocean biological [6].

The concept of benefit sharing and access to genetic resources is clearly outlined in the UN Convention on Biological Diversity. The Convention's Article 8(j) acknowledges the significance of indigenous and local communities' innovations, practices, and knowledge. Article 15 of the Convention on Biological Diversity emphasizes that any public or private enterprise seeking access to biodiversity resources must obtain prior informed consent. Further, the third level headed of the Show as given in the Article 1 is to guarantee fair and impartial sharing of advantages alongside admittance to the hereditary assets. In accordance with the Convention on Biological Diversity, numerous biodiversity-rich and traditional knowledge-rich nations are attempting to implement access and benefit sharing legislation. Protected innovation freedoms particularly licenses under the Exchange Related Licensed innovation Privileges system have been viewed as a significant apparatus for income age. However, the Trade-Related Intellectual Property Rights and the Convention on Biological Diversity do not complement one another [7].

### Results

As a result, contracts for marine biological have the potential to be an important tool in the development of robust benefit sharing mechanisms and recognition for conventional knowledge-based marine biological. Contractual models are also envisioned as a means of enhancing the protection and sustainable use of marine resources and associated traditional knowledge. As a country with a lot of marine biodiversity, India was used as a case study in this study to develop contracts for marine biological. As was mentioned earlier, the Convention on Biological Diversity (CBD) is a single international agreement that focuses on biodiversity conservation and benefit sharing among stakeholders. In a similar vein, a number of other international treaties and organizations have been established with the purpose of controlling the activities of bio prospecting. The information that is provided in Section 3 of this study pertains to the various international instruments that have developed in relation to bio-resources, including marine genetic resources, in the form of treaties, guidelines, and protocols. Notwithstanding, first and foremost the review examines global association and regulation arrangements that might have pertinence on ABS today and in future. It has also been looked at how these international organizations affect marine biological activities [8, 9].

Different biological contracts executed till currently have been analyzed, to assess the advantages gathered to the conventional information holders. Earthly and marine biological arrangements have been assessed as far as the arrangements to support test supply, protection and access and advantage sharing systems. The various agreements talk about protecting the environment and improving local communities' means of subsistence. In Section 3, a comprehensive analysis has been provided. In addition, the study examines the feasibility of developing a jurisdiction-specific contract to safeguard marine biological diversity and ensure the socioeconomic development of traditional knowledge stakeholders [10].

## Conclusion

Due to the distinct characteristics that the extreme conditions of the marine environment confer on the marine organisms, marine biodiversity is an appealing genetic resource pool. These marine bio-resources have been utilized by indigenous communities on all continents for a variety of purposes, including the treatment of diseases. Biological activities in marine areas have increased as a result of the blue gold rush, which has led to numerous partnerships, joint ventures, and collaborations between institutions and businesses. Subsequently, it is conceived that arrangements, for example, agreements will take the middle phase of marine biological exercises. The urgent need is for well-defined guidelines that will recognize traditional knowledgeholding communities and reduce bio-piracy of marine organisms. Bio-piracy can also be curbed by making changes to the relevant intellectual property regime and creating new mechanisms. When it comes to raising awareness among stakeholders, particularly traditional knowledge-holding communities, state level organizations can play a significant role.

The unprecedented commercialization of marine bio-resources for pharmaceutical purposes is anticipated to increase reliance on indigenous communities for marine bio-resource knowledge. The World Ocean Council, an alliance on Corporate Ocean Responsibility, and the Ocean Recovery Alliance, a California-based non-profit organization, can help stakeholders become more aware of benefit sharing mechanisms and sustainable resource use. Different lawful instruments visualize advancing access and helping sharing system for native networks as it will bring acknowledgment and motivator for local area improvement. It will be possible to develop appropriate mechanisms for ensuring access and benefit sharing if traditional knowledge-rich nations actively participate in the Conference of Parties to the Convention on Biological Diversity. As the Micro B3 project for Europe suggests, agreements that adhere to national laws will be more successful. The marine biological contracts can be an important tool for creating a successful access and benefit sharing mechanism that will protect indigenous communities' interests and monitor the sustainable and environmentally friendly use of marine bio-resources.

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