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Plenary Lecture

The Future of Marine Bio Industry

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Abstract

Over the 70% of the earth is covered by ocean consisting of more than 80% of organisms. Marine have the huge amount of unexplored or underutilized organisms, which can be potentially utilized to develop the commercial products. Marine organisms are lived in extreme environments, so it can produce the compounds that are more efficient, complex and unique than compared to terrestrial resources. However, the utilizations of marine resources are limited than compared to terrestrial resources for the development of functional biomaterials until now. In addition, the availability of terrestrial organisms becomes limited due to the climate changes, insufficient water supply and environmental pollutions. Therefore, researchers are much interested to investigate the marine organisms to produce novel bioactive substances.

Marine biotechnology is relatively new and provides sufficient tools, screening, and processing technologies to develop the nutraceuticals, pharmaceuticals, cosmeceuticals and chemical polymers from marine animals and plants. Marine bio-

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industry studies the constituents and functional substances from marine resources and ultimately provides with goods and services for the improvement of human welfare. The marine biotechnology that leads the development of marine bio-industry, requires for comprehensive form of technologies encompassing not only marine science technology such as the marine biomass exploration technology and ecosystem monitoring technology to secure marine living resources and to protect marine environment, but also high tech biotechnology and information technology.

The ultimate goal of marine bio-industry is to produce the commercial products for humankind. It can be achieved by establishing the modern marine biotechnological industry to explore the marine bio resources. To increase the commercial value of marine biotechnology industries, much attention have been paid on screening, breeding, culturing techniques to produce consistent raw materials. Even, adopting artificial intelligence (robotics), incorporation of nano technologies and production of bioenergy from marine bio resources will be the future goal of marine biotechnology industries. To summarize, the future of marine based bio-industries is enormous, which can potentially increase the quality to human life.

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