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Abstract

The increasing significance of non-degradable plastic wastes is an emerging concern. As a substitute, researches are being endeavoured from existing reserve to yield bioplastics based on their properties of biodegradability. Owing to their cost, now the experts are quest for a substitute source like bacteria, microalgae, actinomycetes, cyanobacteria and plants. PHB is biodegradable, environmental friendly and biocompatible thermoplastics. Varying in toughness and flexibility, depending on their formulation, they are used in various ways similar to many non-biodegradable petrochemical plastics currently in use. Promising strategies contain genetic engineering of microorganisms to introduce production pathways examined for the past two decades. Such kind of researches focusing on the use of unconventional substrates, novel extraction methods, and genetically enhanced species with assessment to make PHB from marine microbes are commercially attractive field. Hence, this biopolymer synthesis may displayed as one of the survival mechanisms of endosymbiotic, macroalgae, or sponge-associated bacteria, which exist in a highly competitive and stressful marine microenvironment. This review throws light on the promising and growing awareness of using marine microbes as PHB source, along with their applications in different fields of aquaculture, medicine, antifouling and tissue engineering.

Keywords: PHB, Marine microbes, Biopolymer, Thermoplastics