



Production of Polyhydroxybutyrate from Marine Source: A Review

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Abstract: The increasing importance of the non-degradable plastics has emerged as one of the major concerns. For this, research is being ventured from the existing reserve to produce bioplastics on the basis of biodegradability properties. The experts are now searching for cost effective alternative sources such as microalgae, bacteria, cyanobacteria, actinomycetes and plants. A thermoplastic that is both biodegradable and environmental friendly, as well as biocompatible is PHB. Depending on their formulation, they vary in toughness and flexibility. Due to this variation they are used in many different ways that are analogous to the many non-biodegradable petrochemical plastics. Genetic engineering of micro organisms for the introduction of production pathways which have been examined for the last two decades are promising strategies. Making up the most commercially attractive field are the research that focus on using eccentric substrates, innovative methods for extraction and also species that are genetically modified with appraisal to create PHB from other micro-organisms. Hence, one of the survival mechanisms for microbes that exist in highly competitive and stressful marine micro-environment may be seen as the synthesis of biopolymer. These micro-environments may include bacteria associated with sponge, endosymbiotic, or macroalgae. The increasing awareness as well as the promising nature of utilizing marine microbes as a source of PHB is highlighted in this review, along with the applications in various fields such as medicine, aquaculture and antifouling.

Keywords: Polyhydroxybutyrate (PHB), Marine microbes, Biopolymer, Thermoplastics
