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Patent Search

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Abstract:

This invention presents a method for synthesizing biodegradable plastic from chitosan derived from shrimp shell waste, addressing the need for sustainable alternative to conventional petroleum-based plastics. With India's shrimp production projected to reach 1.4 million metric tonnes by 2025, shrimp shell waste offers a viable raw material for producing chitosan. A systematic procedure for chitosan synthesis is proposed, involving chemical treatment and refinement of shrimp shells. The synthesized chitosan is analyzed using FTIR analysis and is suitable for manufacturing biodegradable products such as food packaging and single-use plastics, promoting environmental sustainability and waste utilization.

Complete Specification

Description: The proposed chitosan is prepared by deproteinization of shrimp shells by using NaOH solution and then demineralized with 1% HCL solution at room temperature. The obtained sample was treated for deacetylation with 50% NaOH solution, then the dried sample is mixed with vinegar and wood flour, the final solution is used to create the plastic packaging using moulds. , Claims: 1. A biodegradable plastic material comprising chitosan derived from shrimp shell waste, providing a friendly and sustainable alternative to crude-oil-based plastics, particularly for single-use applications.

- A method for preparing chitosan from shrimp shell waste by deproteinization, demineralization and deacetylation.
- The use of chitosan, derived through the described method, as a raw material for manufacturing biodegradable single-use plastic products, reducing environmental pollution caused by conventional plastics.
- A biodegradable plastic product derived from chitosan, which, upon prolonged exposure to water, dissolves, enhancing soil fertility and indirectly acting as a bio-fertilizer.

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