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Patent Search

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Abstract:

Disclosed is a fermentative production of a highly deacetylated chitosan from the mycelia of the fungus Beauveria bassiana and from the fungus Aspergillus wentii.

Complete Specification

FUNGAL CHITOSAN

Field of the invention

This invention is directed to chitosan and a method of isolating chitosan from fungal mycelia of Beauveria bassiana or Aspergillus wentii

Back ground of the invention

Chitin is highly insoluble N-acetylated polymer of beta-1,4-N-glucosamine present in various marine and terrestrial organisms including crustacean, insects, mollusks and microorganisms such as fungi. Chitosan is an acid soluble deacetylated form of chitin.

Chitosan has many industrial, medical, pharmaceutical and nutritional uses, including those requiring a biodegradable, non-toxic polymer. For example, chitosan is used as a polyelectrolytic coagulant and a sludge dewatering aid in waste water treatment. Medical, pharmaceutical and nutritional uses often require a higher quality chitosan for functional and aesthetic reasons. These uses include applications as anticoagulants, antiviral agents, drug carriers, cosmetic additives, dialysis membranes, orthopedic materials, wound dressings, food stabilizers and thickeners, flavor and nutrient carriers and dietary fiber.

The quality of chitosan varies with the degree of deacetylation, degree of polymerization, manufacturing process, colour, clarity, consistency, uniformity and source. Most chitosan is formed by dissolving calcium carbonate from the shells of aquatic crustacean to liberate chitin, deacetylating the chitin to form chitosan with a hot alkali solution, followed by recovery and drying of the chitosan. This chitosan production process has number of unfavourable characteristics. For example, the process requires expensive heat energy and caustic alkali which is a potential health hazard. The process also produces large amounts of waste, thereby necessitating significant disposal costs. In addition, supply of shrimp or crab shells is highly dependent upon seasonal and environmental factors, leading to unpredictable limitations on production capacity.

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