

رتبه سوم خارجی Foreign Third Winner

Project Title:

Production of Chitin and Chitosan
from Prawn Shell Waste

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Research



عنوان طرح:

تولید کتین و کیتوزان از ضایعات میگو

محقق:

دکتر گوپاکومار کومارا پانیکر

کشور:

هندوستان

دانشگاه:

انستیتو تحقیقات کشاورزی (شیلات) هند

Abstract:

During shrimp processing 40-50% are thrown out as shell and hull waste. This was an environmental issue for seafood industries because it putrefies and gives a foul smell to surroundings. The only use was either as a manure or animal feed. This bio-waste is now utilized to prepare chitin, a macro polymer of N-acetyl 2-amino 2-deoxy-D-glucose. Chitosan is the deacetylated form of chitin. Chemically prawn shell contains chitin, proteins, fats and minerals. From the shell first proteins and fat are removed by mild alkali digestion with 3 percent sodium hydroxide. After this the shells are treated with dilute hydrochloric acid to remove all the minerals. The deproteinised and demineralised shell is washed thoroughly, dried and powdered. It is chitin which has several industrial and medical applications.

The chitin is then deacetylated with strong aqueous alkalies, 40% NaOH at 95°C for 1.5 to 2 hrs. and finally washed free of alkali to get chitosan. Chitosan is now a valuable bio-polymer used in medicine, surgery, industries, preparation of various bio-membranes and also removal of radio active metalions. Chitosan is now used also as a diet to reduce fat, weight and also to lower cholesterol.