

CHITIN

Intro....

- From two potentially valuable products from shellfish processing discards chitin is one, the other is chitosan.
- Commercially produced for the first time in 1971.
- Currently being produced by upto 15 countries in Japan, U.S. & elsewhere.
- Sometimes they referred to as crab shell powders.

What is chitin actually..?

- Chitin is a natural biopolymer with 2-deoxy-2-acetaaminoglucose monomers linked together via. A β -1, 4 linkage.
- The monomer of chitin is N-acetyl-D-glucosamine.

- Global annual production of crustacean discard is estimated at 1.44 mmt.
- The chitin content in shellfish discards is between 20 & 50 % of the total dry weight.
- Thus a minimum of 200,00 tonnes of chitin could potentially become available.

Preparation of chitin

- Step 1. Grinding :
- Grinding of the shells to a uniform reduced size.
- Step 2. Deproteinization:
- Removal of proteins & minerals by addition of 5% hot NaOH.
- Step 3. washing: the deproteinized ground shells are washed with water.
- Step 4. Demineralisation:
- It is achieved by using a dilute HCl acid solution.
- Step 5: Washing
- Step 6: Drying

- Shellfish discard
 - Grinding
- Deproteinization
 - Washing
- Demineralisation
 - Washing
 - Drying
 - chitin

Applications of chitin & its derivatives

- 1.food:

clarification of wine & juice, protein flocculation, chromatography

- 2. agriculture:

- coating for delayed ripening of fruits, seed coating, animal feed, nutrient control release etc.

- 3.water treatment:

- Food processing, potable drinking water, removal of dyes, sewage treatment etc.

- 4. additive:

- Thickener, stabilizer, inhibition of oxidation, texture modifier etc.

Ctd....

- 5.biomedical:
 - Wound care, eye bandage, drug delivery, dental applications etc.
- 6.cosmetics:
 - Moisturizers, emulsifiers, hair & skin care etc.
- 7.biotechnology:
 - Enzyme & cell immobilization, encapsulation, protein recovery etc.
- 8.textile/paper:
 - Coatings, fibers, dyeability, wet strength etc...