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Chitosan for Potted plants

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Chitosan is used for high blood pressure, high cholesterol, obesity, wound healing, and other conditions, but there is little scientific evidence to support many of its uses. Chitosan has a number of commercial and possible biomedical uses. It can be used in agriculture as a seed treatment and biopesticide, helping plants to fight off fungal infections.

In winemaking, it can be used as a fining agent, also helping to prevent spoilage. In industry, it can be used in a self-healing polyurethane paint coating. In medicine, it is useful in bandages to reduce bleeding and as an antibacterial agent; it can also be used to help deliver drugs through the skin. Chitosan is produced commercially by deacetylation of chitin, which is the structural element in the exoskeleton of crustaceans (such as crabs and shrimp) and cell walls of fungi. The degree of deacetylation (%DD) can be determined by NMR spectroscopy, and the %DD in commercial chitosans ranges from 60 to 100%. On average, the molecular weight of commercially produced chitosan is 3800–20,000 daltons. A common method for the treating of chitosan is the deacetylation of chitin using sodium hydroxide in excess as a reagent and water as a solvent.
The reaction follows first-order kinetics though it occurs in two steps; the activation energy barrier for the first stage is estimated at 48.8 kJ•mol−1 at 25–120 °C and is higher than the barrier to the second stage

Chitosan is a natural biodegradable polysaccharide extracted from marine natural sources (e.g., crustacean shells). It has been shown to be nontoxic in a range of toxicity tests, both in experimental animals and humans. Chitosan is obtained by deacetylation of chitin and it has become of great interest for both the scientific community and the food industry, due to its multiple possible applications, which include the formation of biodegradable films, blends, coatings, composites, and nanocomposites. Chitosan is a natural biodegradable and biocompatible polysaccharide derived by deacetylation of chitin (polysaccharide found in the exoskeleton of crustaceans and insects. It binds with DNA forming stable particles of size 20–500 nm depending on the molecular weight and degree of deacetylation frequent application of chitosan is somewhat limited due to its poor solubility, reactivity, and subtle physical properties such as rigidity and brittleness.

Both molecular weight and degree of deacetylation (DD) has been equallyChitosan is a polysaccharide derived from chitin; chitin is the second most abundant polysaccharide in the world, after cellulose. The presence of amino groups in the chitosan structure might be protonated-providing solubility in diluted acidic aqueous solutions, several remarkable properties of chitosan offered unique opportunities to the development of biomedical applications. The elucidation of their mechanism will lead to a better understanding of chitosan medical and pharmaceutical interest. Chitosan is a sugar that is obtained from the hard outer skeleton of shellfish, including crab, lobster, and shrimp.

It is used for medicine. Chitosan has been investigated extensively as a potential drug carrier because of its biocompatible properties. Some studies have suggested using chitosan to coat nanoparticles made of other materials to reduce their impact on the body and increase their bioavailability. Chitosan is used to treat obesity, high cholesterol, and Crohn's disease. It is also used to treat complications that kidney failure patients on dialysis often face, including high cholesterol, “tired blood” (anemia), loss of strength and appetite, and trouble sleeping (insomnia). Chitosan coating is beneficial to maintaining the storage quality and prolonging the shelf life of postharvest fruits and vegetables, which is always used as the carrier film for the antimicrobial agents

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