

Preparation and characterization of chitosan gel and its application in agriculture

Snehal Balbudhe, Shriya Jaiswal and Ajimbeg Mirza

Laxminarayan Institute of Technology, R. T. M. Nagpur University, India

Chitin is most important natural polysaccharides found in shells of crab, prawns and other crustaceans after cellulose. However, it is not widely utilized for industrial application till now as it is insoluble in many solvents, relatively difficult to isolate from natural sources in pristine form and to prepare in a reproducible way under good economic condition. By treating these chitin shells of shrimp and other crustaceans, chitosan is prepared. Present study was undertaken to extract chitin from waste fish scales and prepare chitosan by the sequence of chemical processes involving demineralization, deproteinization and deacetylation. Analysis and characterization of chitosan was done by FTIR, XRD, SEM. Further chitosan gel was obtained from this prepared chitosan. The successful formation of gel was confirmed

through various characterization techniques like FTIR, SEM, Thermal Analysis and Textural Analysis. Chitosan gel improved the water-holding properties of soils hence making efficient use of water in agriculture. It was found that the gel improves soil permeability, reduce the need for irrigation and improve plant growth.

Biography

Prof. Snehal Balbudhe have done M. Tech. in Chemical Technology from Laxminarayan Institute of Technology, R. T. M. Nagpur University, India. Currently working as Assistant Professor in Plastic and Polymer Department in prestigious Laxminarayan Institute of Technology, R. T. M. Nagpur University, India.

balbudhesnehal310893@gmail.com