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DOI: 10.2478/auoc-2023-0004

Ovidius University Annals of Chemistry Volume 34, Number 1, pp. 22 - 27, 2023

Characterization of chitosan extracted from three mushroom species from Edo State, Nigeria

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Abstract. Chitosan, a biodegradable and nontoxic biopolymer, has applications in a wide range of fields. This study aimed to produce and characterize chitosan from three mushroom species obtained from Edo State, Nigeria. Standard protocols were used to extract and characterize chitosan. Chitosan yield from all three samples differed significantly ($p<0.05$) with the highest chitosan yield (19.00±0.03 %) from *Lenzites betulina*. There was no significant difference in the degree of deacetylation of *T. versicolor* and *L. betulina* extracted chitosan (82.71 and 83.54 % respectively). Chitosan from *Lenzites betulina* had significantly higher solubility (79 %), viscosity (1.04×10^{-1} centipoise) and molecular weight (4.70×10^4 Da) than those from the others. The bands of the spectra indicate the presence of NH_2, OH, C-O, CH, C-N functional groups. It was observed that the particle distribution was non-homogenous, irregular with the presence of pore for all spectra. The characteristics of chitosan obtained indicate that mushrooms from this locality could serve as an alternate source of chitosan to crustaceans with *Lenzites betulina* possessing the most promising features.

***Keywords*:** *Pleurotus ostreatus*; *Trametes versicolor*; *Lenzites betulina*; mushroom; degree of deacetylation; viscosity; solubility.

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