

A Comparative Study of Chitosan and Glucosamine Isolated from Local Mushroom 'Lenahathu' (*Schizophyllum Commune*) and Oyster Mushroom (*Pleurotus Ostreatus*)

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Abstract

The use of mushroom as a raw material to obtain chitosan and glucosamine was investigated at laboratory level. Properties of chitosan extracted from local mushroom "lenahathu" (*Schizophyllum commune*) and common oyster mushroom (*Pleurotus ostreatus*) were compared. Isolation process of chitosan involved de-mineralization, de-proteinization, de-acetylation and de-coloration steps. The physico-chemical properties of chitosan such as solubility, moisture content, ash content, N content, fat binding capacity (FBC), water binding capacity (WBC) and degree of de-acetylation (DD) of chitosan samples extracted from *Schizophyllum commune* and *Pleurotus ostreatus* were analysed. The purity of two glucosamine samples were analysed by spectrophotometrically and scan electron microscope (SEM). The values for percentage yield, solubility, moisture content, ash content, N content, WBC were $1.73 \pm 0.05\%$ and $1.22 \pm 0.01\%$, $7.38 \pm 0.10\%$ and $3.41 \pm 0.14\%$, $6.39 \pm 0.20\%$ and $8.16 \pm 0.42\%$, $8.19 \pm 0.04\%$ and $1.63 \pm 0.05\%$, 11.31% and 3.02% , $387.13 \pm 15.57\%$ and $402.57 \pm 12.78\%$ respectively for chitosan samples from *Schizophyllum commune* and *Pleurotus ostreatus*. FBC were varied approximately 250% - 350% in coconut oil, soy bean oil and sunflower oil. Chitosan and glucosamine were characterized using Fourier Transformed Infra-Red (FT-IR) spectroscopy. DD% of chitosan using FT-IR and conductometric titration were 53.10% and 60.68% respectively for two species. The yield and purity of glucosamine sample of *Schizophyllum commune* were 95.70% and $0.97 \pm 0.08\%$. However the yield and purity of glucosamine sample of *Pleurotus ostreatus* were 58.14% and $0.52 \pm 0.04\%$ respectively. According to results *Schizophyllum commune* could be a good alternative to extract chitosan and an important drug glucosamine.

Keywords: Chitosan, glucosamine, mushroom, *Schizophyllum commune*, *Pleurotus ostreatus*