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## Deproteination and demineralization of shrimp waste using lactic acid bacteria for chitin and chitosan production

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Chitin and chitosan are valuable natural biopolymers which attracted attention due to their biomedical applications and can be extracted from crustacean shells through chemical and microbial processes. In this study, deproteination and demineralization efficiencies of shrimp waste using two *Lactobacillus* species treated with different carbohydrate sources for chitin production, its chemical conversion to chitosan and the quality of chitin and chitosan produced were determined. Using 5% glucose and 5% cassava starch as carbohydrate sources, pH slightly increased from the initial pH of 6.0 to 6.8 and 7.2, respectively after 24 h and maintained their pH at 6.7 to 7.3 throughout the treatment period. Demineralization (%) in 5% glucose and 5% cassava was highest during the first day of treatment which was 82% and 83%, respectively. Deproteination (%) was highest in 5% cassava starch on the 3<sup>rd</sup> day of treatment at 84.4%. The obtained chitin from 5% cassava and 5% glucose had a residual ash and protein below 1% and solubility of 59% and 44.3%, respectively. Chitosan produced from 5% cassava and 5% glucose had protein content below 0.05%; residual ash was 1.1% and 0.8%, respectively. Chitosan solubility and degree of deacetylation were 56% and 33% in 5% glucose and 48% and 29% in 5% cassava, respectively. The advantage this alternative technology offers over that of chemical extraction is large reduction in chemicals needed thus less effluent production and generation of a protein-rich liquor, although the demineralization process should be improved to achieve greater degree of deacetylation.

### Biography

Farramae Francisco completed her Bachelor's degree in Fisheries in 2012 at the University of the Philippines Visayas. She recently finished her graduate studies in the same university under the full time scholarship of Department of Science and Technology-Accelerated Science and Technology Human Resources Department Program (DOST-ASTHRDP) with the degree Master of Science in Fisheries, Major in Fish Processing Technology.

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