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Enzymatic hydrolysis extraction and quality assessment of fish oil from Patin catfish (Pangasius Hypophthalmus)

Abstract

This study aimed to characterize the extraction of fish oil and investigate the oil quality of Patin catfish (*Pangasius hypophthalmus*) using the enzymatic hydrolysis technique. The selected parameters were the concentration of enzymes, temperature, and reaction time. Patin catfish available across Southeast Asia is one of the species most accessible to fast-growing Malaysian population and one of the most convenient food supply alternatives. In this research, alcalase was used as the source of enzyme to obtain the oil yield percentage. The optimization of the recovery process of Patin catfish oil using enzymatic hydrolysis technique was conducted using the multifactor experiments software Design of Experiments (DoE), which obtained an optimum condition for the oil yield percentage at 55.3°C with a 1.2% enzyme concentration for 3 h. The percentage of oil yield obtained was 10.90%. The fish oil was further characterized via the FTIR spectroscopy analysis at 4000–700 cm^{-1}. The investigation of the oil quality was conducted based on analysis test. The acid value test gives 2.24 mg KOH/g, peroxide with 4 meq/kg, and *p-anisidine* analysis leads to 0.895.

Keywords:

Digital circuits, Microcontroller, Energy use and applications, Batteries