

ABSTRACT

Enzymatic production using papain enzymes is one promising technique implemented to produce VCO with desirable yield, yet an examination on the effect of the implementation on oil quality is limited. VCO quality is determined by chemical properties and must comply with standards regulated by APCC. This study investigated the effect of papain-assisted production using different incubation temperatures and enzyme concentrations on chemical properties of free fatty acid (FFA) and iodine value (IV), while monitoring the moisture content and pH value of the raw coconut milk of checking on the consistency for each production and the compliance to Codex standard. The evaluation on the effect of incubation temperature was performed by incubating coconut cream at 25°C (control negative) and 45°C (control positive) for 16h. The evaluation on the effect of papain concentration was performed by adding papain into cream 0% (control positive), 0.5%, and 1%, and incubated at 45°C for 16h. The finding revealed that FFA in oil incubated at 45°C was significantly higher than 25°C, while no significant difference in IV between treatments. Treated with different papain concentrations, FFA in 0.5% was similar to control and 1% was significantly higher among all treatment, while the IV had no significant difference between treatments. Overall, all papain-assisted VCO produced IV complies with, but FFA far exceeded the APCC standard, signifying the enzymatically-produced VCO could not be classified as good quality VCO.

Keywords: *Virgin Coconut Oil, Enzymatic Production, Coconut milk, Papain Enzyme, Free Fatty Acid Content, Iodine Value*