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Green Technology on the Virgin Coconut Oil Production Using Enzyme from Pineapple Waste

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Abstract

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Abstract

Virgin coconut oil (VCO) is widely used in the pharmaceutical and cosmetic industries. The high lauric acid content is very beneficial in the pharmaceutical field, such as antiviral and antibiotics. This study proceeded with VCO production using an enzymatic way that was efficiently conducted and environmentally friendly. The main materials used in this research included coconut (*Cocos nucifera* L) and pineapple (*Ananas comosus* L). This research aims to identify the enzymatic process of VCO production by using pineapple waste, including pineapple crowns, pineapple fruit skins, pineapple leaves, and pineapple trunks. The pineapple waste contains the enzyme bromelain to break down

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protein emulators in coconut milk cream. The production was conducted in a 250 mL measuring cylinder glass and incubated in the water bath at 30°C, 50°C, and 80°C. The progress of VCO production was observed every 1(one) h for 3 h long experiment. The ratio between the coconut cream and fresh pineapple waste was 1:1 until 9:1. Based on the experiment data with variations in substrate volume and temperature, the optimal VCO formation was obtained at 50°C with a ratio between the substrate and enzyme material of 9:1. The VCO was produced at an average of 57 mL from 200 mL of the initial volume of coconut cream. VCO quality was evaluated as water content, free fatty acid concentration, and saponification numbers. Based on the evaluation results, VCO's quality met SNI's standard and Codex Alimentarius Commission. © 2022 Universitas Gadjah Mada - Faculty of Pharmacy. All rights reserved.

Author keywords

Enzymatic; Pineapple crown extract; Virgin Coconut Oil

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