Application of crude proteolytic enzyme extract from fresh rhizome ginger to produce coconut oil

Jutathip Naksri*, Anurak Saiyang, Sirintra Bunwat and Pensri Penprapai
Faculty of Science and Technology,Rajamangala University of Technology Srivijaya, Nakhon Sri Thammarat, 80110, Thailand

*e-mail: puk0831849584@gmail.com

Crude extract from fresh rhizome ginger contained crude proteolytic enzyme and phenolic compound as antioxidant. Application of crude proteolytic enzyme extract from fresh ginger was used to produce coconut oil with high antioxidant activity and low hydrolysis and oxidation susceptibility. Protease enzyme from crude extract of fresh rhizome ginger can be used to digest protein used as an emulsifier in coconut milk. The main objective of this work was to produce coconut oil at 60 ^{o}C for 1, 2, 3, 4 and 5 hours by using crude proteolytic enzyme extract from fresh rhizome ginger and determine the total phenolic content, antioxidant activity and stability of coconut oil obtained from this process. Coconut oil was produced by using four different ratios of coconut meat to fresh rhizome of ginger (w/w) – 2.5:0.25, 2.5:0.5, 2.5:0.75, 2.5:1.0. Our results indicated that using crude proteolytic enzyme extract from fresh rhizome ginger provided high coconut oil yield of ~17% during 2-3 hours while without protease coconut oil was still not produced. It was found that increasing the fresh rhizome of ginger content resulted in increasing total phenolic content, antioxidant activity and stability of coconut oil. Moreover, coconut oil with low free fatty acid and peroxide value was more inactive against hydrolysis and oxidation reaction. Thus, there is a potential production of coconut oil with high phenolic compounds, antioxidant activity and stability for application in healthy food or cosmetic.

Keywords: proteolytic enzyme; fresh rhizome ginger; coconut oil