

## **Extraction of coconut oil (*Cocos nucifera* L.) through fermentation system**

### **Abstract**

Coconut oil (*Cocos nucifera* L.) has a unique role in the diet as an important physiologically functional food. The health and nutritional benefits that can be derived from consuming coconut oil have been recognized in many parts of the world for centuries. There are few techniques for coconut oil extraction, such as physical, chemical, and fermentation or enzymatic processes using microbial inoculum as enzymatic starter. Starter with different concentration (1.0; 2.5; 5.0; and 10%) of microbial strains were added into coconut cream and allowed to be fermented for over night. The extracted oil was analyzed for further experiment, especially on its antibacterial activity. The maximum yield of 27.2% was achieved by adding 5.0% starter. Water content, acid value, FFA, and peroxide value of the fermented coconut oil were 0.3%, 0.45%, 0.22% and 2.54% respectively. A gas chromatogram showed that this fermented oil contained high lauric acid (46.82%), and 6.01% caprylic, 7.5% capric, 17.02% miristic, 7.21% palmitic, 3.11% palmitoleic, 5.41% stearic, and 1.3% linoleic acid, respectively. An inhibitory effect of such kind coconut oil which contains potential fatty acid against bacterial growth was further examined. It was found that this edible oil exhibited antibacterial activity to inhibit the growth of *Bacillus subtilis*, *Escherichia coli*, *Pseudomonas fluorescens*, *Bacillus cereus* and *Salmonella*; however it showed slightly inhibitory effect when it was exposed to *Bacillus cereus* and *Escherichia coli*.