OPTIMIZATION OF SQUALENE RECOVERY FROM PALM FATTY ACID DISTILLATE USING PRESSURE SWING SUPERCRITICAL FLUID EXTRACTION

TECHNOLOGY DESCRIPTION

This invention is a method to recover squalene from palm fatty acid distillate (PFAD) using supercritical fluid extraction. The extraction of squalene from the PFAD is non-toxic and contains antioxidant properties.

TECHNOLOGY FEATURES

The palm oil is a viable source of squalene and will be available as additional revenue with the thriving oil palm industry. The production cost for squalene derived from palm oil is expected not to incur any substantial capital expenditure. It will be able to compensate the shortage of squalene production due to the dwindling population of shark fish. Pressure swing technique which is used in pressurized-depressurization steps can be applied in SFE process. This will be able to reduce the amount of CO2 used and increase the efficiency of squalene extraction process.

ADVANTAGES

- Squalene is a potent antioxidant
- Helps to heal wounds
- Widespread applications in health supplements and cosmoceutical industries
- Reduce the amount of CO_2 used in extraction process.

INDUSTRY OVERVIEW

Prospect: Palm Oil Industry

Squalene is a potent antioxidant that helps to heal wounds. It has found widespread applications or potentials in health supplements and cosmoceutical industries. The price of squalene is about RM600 per kg. It was found that a viable source of squalene comes from the by-product of palm oil. Palm oil production in Malaysia has increased over the years, from 4.1 million tonnes in 1985 to 6.1 million tonnes in 1990 and to 16.9 million tonnes in 2010. It reached 18.9 million tonnes in 2011. Malaysian Palm Oil Board listed 61 suppliers of palm oil. In addition, WWF provides a total of 25 major players in the supply chain of the palm oil industry (12 plantation companies; 7 industry organizations; 5 government agencies; and 1 others). Of the 3.38 million hectares of palm oil planted in Malaysia in 2000, 60% were under private ownership, particularly by plantation companies, 30.5% were under Government land schemes while the remaining 9.5% are individual smallholders. This new invention offers the creation of a new downstream product for the industry. At the same time, the product has found widespread applications or potentials in health supplements and cosmoceutical industries. It was found to be around 318 SMEs in the Pharmaceutical and 528 SMEs in Healthcare.

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