

PRODUCTION OF BIOACTIVE COMPONENTS (tocols, sterols, squalene, monoglycerides and diglycerides) FROM PALM OIL

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This invention is a more economical and environment-friendly process for extraction of bioactive components - tocols, sterols, squalene, monoglycerides and diglycerides - from palm oil.

PRODUCTION TECHNOLOGY

The extraction is a single step process to obtain several products (Figure 1).

ADVANTAGES OF THE TECHNOLOGY

- Physical separation without any use of chemicals;
- Produces heat-sensitive bioactive components;
- More cost-effective than present technologies for producing similar products;
- Environment-friendly process with no waste generation;
- Creates new business opportunity in natural bioactive components;
- Increased uses for palm oil products; and
- Enhances the sustainability of the Malaysian palm oil industry.



Figure 2. Phytonutrients (tocols, sterols and squalene).

POTENTIAL APPLICATIONS OF PRODUCTS

- Tocols (tocopherols and tocotrienols) are known potent antioxidants protecting the body against oxidative damage, notably cell membranes and cholesterol-transporting lipoprotein;
- Sterols inhibit the uptake of cholesterol from the diet and lower plasma cholesterol;
- Squalene acts as an effective singlet oxygen quencher under exposure to sunlight as the first target lipid on the human skin surface;

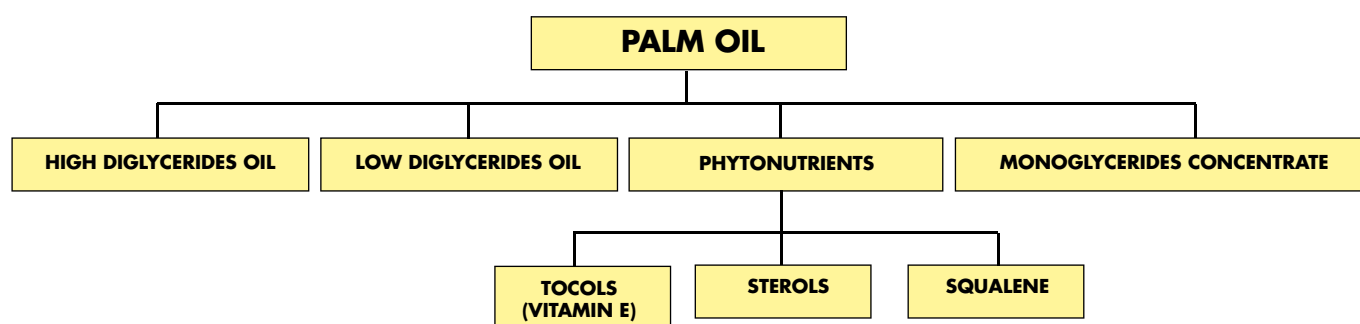


Figure 1. Bioactive components from palm oil.

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Figure 3. High and low diglycerides oils and monoglycerides concentrate.

- Monoglycerides are important as an anti-bacterial agent and emulsifier; and
- Diglyceride oil provides similar energy as conventional triglyceride-based oil without the fat absorption for a healthy diet.

CONCLUSION

In general, the results showed that tocols can be enriched 135-fold compared to the feed material. Sterols can be enriched 150-fold and squalene 185-fold.

INTELLECTUAL PROPERTY

- Malaysian Patent Application No.: PI20053315
- Chinese Patent Application No.: 2006 1000 7465.5
- European Patent Application No.: 06 250 474.1
- Indonesian Patent Application No.: P00 2006 00128
- United States Patent Application No.: 11/375,101

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