

Soap is the general name given to the products of the reaction between a fatty acid and an alkali. Fatty acids are obtained from triglycerides (fat or oil) of either animal or vegetable origin. In soap making, the fatty acids used are the C16-C18 and C12-C14 fractions as the soaps made from them have efficient cleansing action, good solubility and foaming properties.

Transparent soaps are classified as a specialty product. They are also called glycerine soaps due to the incorporation of glycerine to confer transparency, skin conditioning, help in the soap making process and enhance the appearance of the product. 'Transparent' implies the property of light transmission without undue scattering, so that any object placed behind a transparent soap is fully visible and be discernable. The amount of light transmitted will, of course, depend on the thickness of the soap.

PALM-BASED TRANSPARENT SOAP

A palm-based transparent soap for skin care (Figure 1) was developed by neutralizing fatty acids, with polyol (*e.g.* glycerine) added to impart transparency. The properties of the soap were assessed - pH, hardness and transparency value and compared with those from three commercial products (Table 1). The palm-based transparent soap had the highest transparency.



Figure 1. Palm-based transparent soap for skin care.

The performance of the palm-based soap was evaluated based on its detergency, foaming power and foam stability, and compared with those of commercial transparent soaps as benchmarks.

Detergency was tested on silk soiled cloth (70D-silk soiled with WKF soil/sebum) with 1.0% active ingredient and in deionized water and water of 50 ppm hardness. The washing test was conducted at room temperature (25°C). The result from the test showed that the percentage of sebum removed by the palm-based soap was better than those by the three commercial soaps in both water conditions (Figure 2).

TABLE 1. PROPERTIES OF PALM-BASED TRANSPARENT SOAP FOR SKIN CARE VERSUS COMMERCIAL TRANSPARENT SOAPS

Sample	pH (1% solution)	Penetration depth (mm)	Transparency value
Palm-based soap	9.84	1.09	0.90
Commercial 1	10.17	0.18	0.77
Commercial 2	10.46	1.09	0.88
Commercial 3	10.28	3.09	0.86

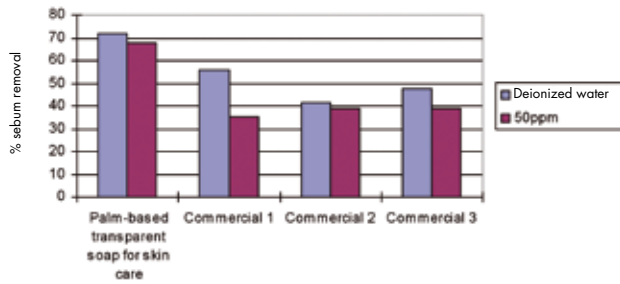


Figure 2. Sebum removal from silk soiled cloth: palm-based transparent soap for skin care versus commercial transparent soaps (in deionized water and water of 50 ppm hardness).

The foaming power of the palm-based soap was also compared to those of the commercial soaps. The test was conducted with 0.5% active ingredient, and in deionized water and water of 50 ppm hardness. In deionized water, the palm-based soap had the best foaming power and foam stability.

In water of 50 ppm hardness, the palm-based transparent soap also had the best foaming power but its foam stability was just about on par commercial soap 2 (Figure 3).

EFFICACY TEST (repeated wash test)

The repeated wash test was conducted on 20 volunteers who were healthy and free from skin disease. A Chroma Meter was used to measure skin redness with the parameter (a*) indicating the presence of erythema or skin irritation. Repeated use of the palm-based soap did not induce skin redness (Figure 4). This was supported by visual observation, with no perceivable skin redness or irritation seen.

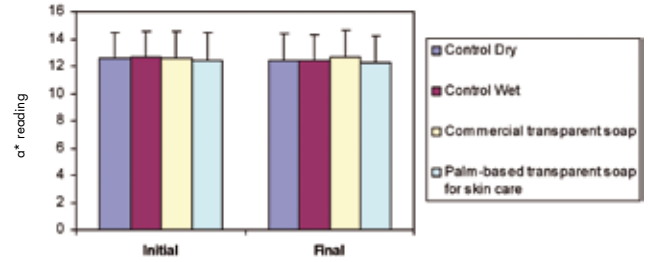


Figure 4. Average redness score (a*) to indicate the presence of any erythema or skin irritation.

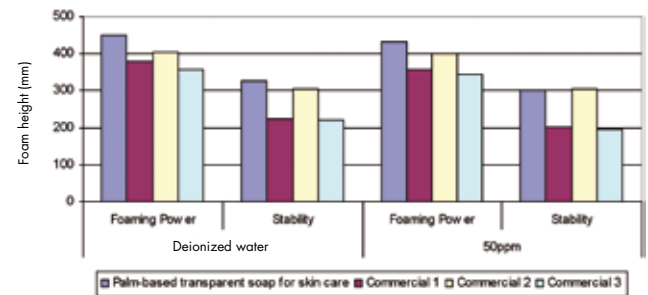


Figure 3. Foaming power and foam stability of transparent soaps: palm-based vs. commercial samples (in deionized water and water of 50 ppm hardness).

ECONOMIC ANALYSIS

- Payback period - 4 years.
- Return on investment (ROI) - 25%.

CONCLUSION

The palm-based transparent soap had better transparency than three commercial products. It is suitable for skin care and has good detergency, good foaming power and a stable foam.

For more information kindly contact:

Director-General
MPOB
P. O. Box 10620
50720 Kuala Lumpur, Malaysia.
Tel: 03-87694400
Website: <http://mpob.gov.my>
Telefax: 03-89259446