

PALM LIPSTICK BASE

ZAFARIZAL ALDRIN AZIZUL HASAN; NORASHIKIN AHMAD and HAZIMAH ABU HASSAN



MPOB INFORMATION SERIES • ISSN 1511-7871 • JUNE 2014

MPOB TT No. 559

Lipstick base is a substance that is used to make lipsticks, balms or lip glosses. Lipsticks are intended to impart attractive colours, enhance the appearance of lips and hide unattractive features, such as very thick or very narrow lips. A lipstick is a combination of lipstick base and pigments. The major components of a lipstick base are oils and waxes. The addition of pigments to a lipstick base offers a wide range of colours appealing to consumers. Currently, castor oil, jojoba oil, bees wax, candelilla wax, carnauba wax, lanolin and ozokerite are used predominantly in lipstick formulations. Oils contain fatty acids, for example, castor oil consists of ricinoleic, oleic, linoleic, linolenic, stearic, palmitic and dihydroxystearic. All fatty acids except ricinoleic can be replaced by palm oil and its derivatives such as middle chain tryglyceride, isopropyl myristate, octyldodecyl myristate and cetyl alcohol. To add functionality, palm-based vitamin E can be added to enhance its antioxidant properties. This technology on palm lipstick base uses 60% palm-based materials.

EVALUATION OF LIPSTICK PERFORMANCE

A good lipstick formulation should have little tendency to dry out, harden or become brittle upon ageing and disintegrate during application. It should melt at sufficiently high temperature to avoid excessive softening in warm conditions leading to loss of shape and smearing or harden too much in cold weather. Blends of high melting hard waxes and palm materials can attain good mixtures for the desired lipstick formulation. There are several test parameters to evaluate the performance of a lipstick (Zahariah, 2001) such as softening point, drooping point, lipstick hardness and breakage, humidity and heat stability test. Other product quality evaluations include assessment of skin irritation potential to ensure that the lipsticks are safe for topical applications (Zafarizal *et al.*, 2005).



Figure 1. Palm lipstick base (a) and palm-based lipsticks (b).

Physical Properties

Five palm-based lipsticks (PL1, PL2, PL3, PL4, PL5) and two commercial lipsticks (CL1, CL2) were evaluated. A softening point indicates the temperature at which the lipstick starts to melt. The drooping point indicates the temperature at which the lipstick starts to drop when melt under heating. High softening or drooping point generally improves the ability of lipsticks to withstand hot climates. The results indicated that all palm-based lipsticks had comparable softening and drooping points with those of the commercial samples (Figure 2). In addition, all palm lipsticks had comparable values with those of the commercial samples for hardness (Figure 3), breaking point, heat stability and humidity test (Table 1).



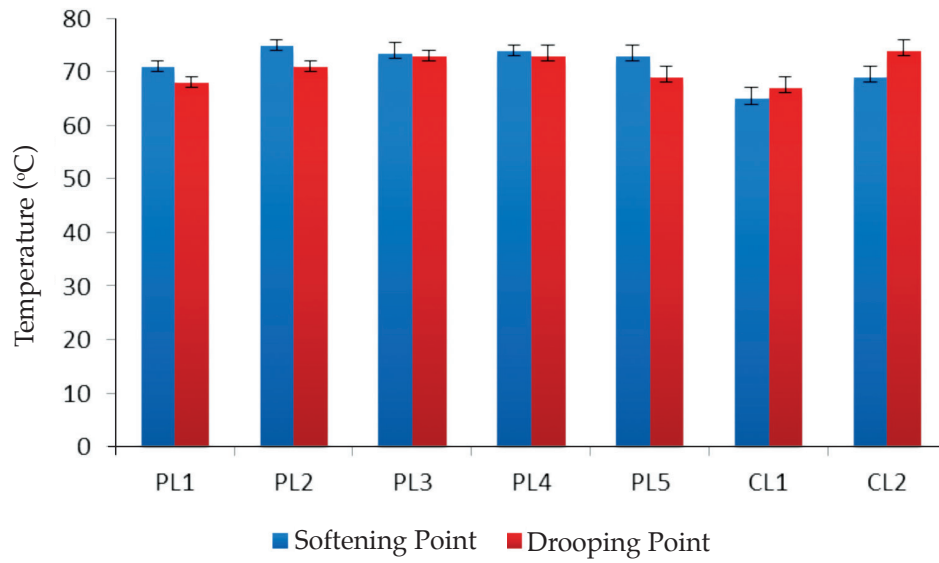


Figure 2. Softening and drooping points of palm-based and commercial lipsticks
 Note: PL - palm lipstick; CL - commercial lipstick.

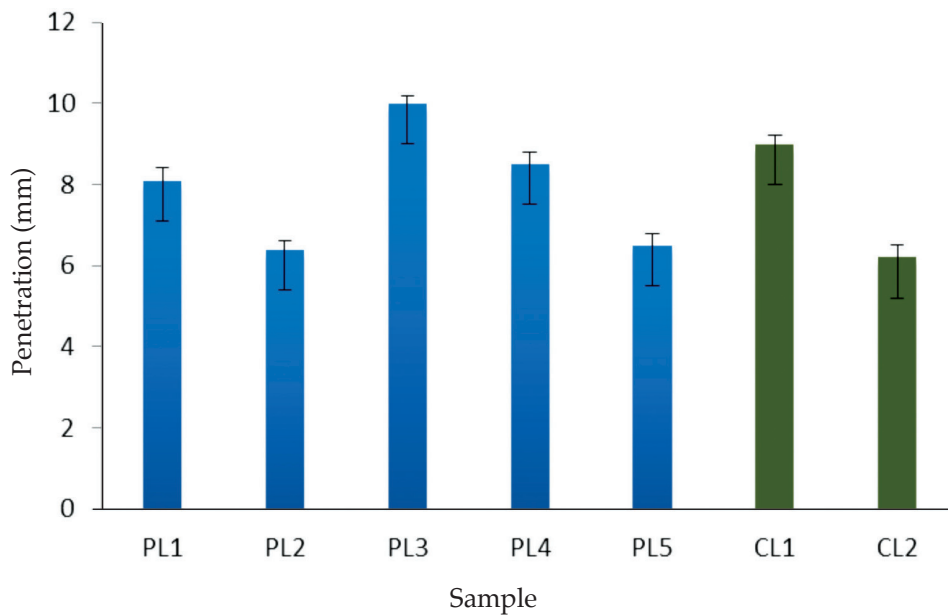


Figure 3. Hardness of palm-based and commercial lipsticks.
 Note: PL - palm lipstick; CL - commercial lipstick.

TABLE 1. PHYSICAL PROPERTIES OF PALM AND COMMERCIAL LIPSTICKS

Test	PL 1	PL 2	PL 3	PL 4	PL 5	CL 1	CL 2
Breaking point; > 15 min @ 350 g weight.	Passed	Passed	Passed	Passed	Passed	Passed	Passed
Heat test (stick drop or distort): 55°C for 24 hr	78 min	46 min	3 days	3 days	45 min	90 min	3 days
High humidity test: 45°C for 3 months	NSB	NSB	NSB	NSB	NSB	NSB	NSB

Note: PL – palm lipstick; CL – commercial lipstick; NSB – no ‘sweating’ or ‘bleeding’.

The results suggest that palm lipsticks were sufficiently strong to withstand varying degree of forces during applications and stable at a high temperature (45°C) without distortion of the surface.

Skin Irritation

Lipsticks formulated with palm lipstick base and commercial lipsticks were subjected to a patch test to assess its skin irritation potential. The samples were patched on the back of 20 subjects for 48 hr. The patches and traces of samples were then removed thoroughly before skin irritation assessments were immediately made. Another reading was taken after 24 hr of patch removal. The results indicated there were no skin irritations or erythema observed for both palm-based and commercial lipsticks in all measurement points.

MARKET ANALYSIS

According to market research firm Euromonitor International’s 2012 figures, Asia Pacific cosmetics sales figures totalled USD 122 billion with 5.2% yearly growth. Of this amount, sales from Malaysia stood at USD 2 billion with a growth rate of 4% (Warangkana, 2013). These figures indicated huge demands and growth potentials for cosmetics including colour cosmetics such as lipsticks. The local cosmetics industry manufactures lipstick by mixing and blending pigments into lipstick base. Many Malaysian manufacturers imported the lipstick base as local suppliers are not available. This provides a niche opportunity for a company to produce and market palm lipstick base to cosmetics manufacturers. The cost of imported lipstick base is RM 275 – RM 285 kg⁻¹ but palm

lipstick base can be produced at a much lower cost of RM 59 – RM 68 kg⁻¹. This would provide an opportunity for entrepreneurs to market this product with a good profit margin.

ECONOMIC ANALYSIS

Capital expenditure (CAPEX) = RM 247 000
(renovation, mixer, balances and other assets).
Internal rate of return (IRR) = 20%.
Payback period = 4 years.

CONCLUSION

The formulated palm lipstick base has comparable physical properties to those of the commercial samples and does not induce skin irritation. The palm lipstick base technology offers an opportunity for local companies to supply the cosmetics industry with a cheaper alternative compared to current lipstick base.

REFERENCES

- WARANGKANA, A (2013). Global beauty and personal care: what does the future hold? In *Cosmetic Asia - South Korea, Market Trends Presentations*. <http://www.in-cosmeticsasia.com/en/Educational-Programme2/2013-Marketing-Trends-Presentations/>, accessed on 2 May 2014.
- ZAHARIAH, I (2001). Palm-based lipsticks. *MPOB Information Series No. 121*.
- ZAFARIZAL, A A H; ROSNAH, I and SALMIAH, A (2005) Safety evaluation for dermal and ocular irritation of palm dihydroxystearic acid as a cosmetic ingredient. *J.Oil Palm Res. Vol. 17:160-167*.

For more information, kindly contact:

Director-General
MPOB

6 Persiaran Institusi, Bandar Baru Bangi
43000 Kajang, Selangor, Malaysia.

Tel: 03-8769 4400

Fax: 03-8925 9446

www.mpob.gov.my