PALM-BASED LIPSTICK

by: ZAHARIAH ISMAIL

MAY 2002

174

MPOB TT No. 161,162

MPOB INFORMATION SERIES ISSN 1511-7871

MPOB TT NO. 161 ROSELLE LIPSTICK
MPOB TT NO. 162 ROSELLE LIP PROTECTOR

Roselle or its scientific name *Hibiscus sabdariffa* L. Malvaceae is also known as Florida cranberry due its similarity in taste and flavour to cranberry. Believed to have originated from Sudan, roselle is grown as a rain-fed crop in Sudan and Egypt and as a source of pulp for paper in certain parts of the world. Today, it is grown in the tropics.

Nutritional analysis have shown that the contents of roselle edible portion is as in *Table 1* (Morton, 1987).

In Malaysia, Jabatan Pertanian Negeri Terengganu plants roselle commercially. With the commercial planting, supply of roselle seed oil as well as calyx extract could be assured and R&D into their end-use applications were looked into. The reddish colour of roselle extract prompted the investigation into the potential application in colour cosmetics, in particular the lipsticks. Furthermore, addition of the oil will add beneficial nutritional value to the users.

In Febuary 2001, an exclusive agreement to formulate cosmetic products containing roselle oils and extract was signed between MPOB and Monrose Sdn. Bhd. This paper reports the technology of incorporating roselle seed oil and calyx extract into premixed palm-based lipstick formulations containing 51%-57% palm-based materials (Zahariah, 2001).

LIPSTICK MANUFACTURE

To have a good lipstick preferred by consumer (Zahariah, 2001), the mechanical treatment of the raw materials in the compounding of the lipstick mass itself is important. Basically the colour pigments must be uniformly and finely dispersed so that the lipstick does not have grainy feeling on application. A proper mixing for pigment mixture and hot wax mass will result in uniform shade and with a beautiful external gloss on stick.

LIPSTICK EVALUATION

The amount of palm-based materials that can be incorporated into the lipsticks with acceptable characteristic taste on application is about 57% (Zahariah, 2001). Besides taste, the performance of a lipstick can be evaluated using several tests such as softening point, dropping point, lipstick

Figure 1. Roselle lipsticks and lip protector.

Malaysian Palm Oil Board, Ministry of Primary Industries, Malaysia
P. O. Box 10620, 50720 Kuala Lumpur, Malaysia. Tel: 03-89259155, 89259775, Homepage: http: //mpob. gov. my Telefax: 03-89259446

TABLE 1. ROSELLE EDIBLE PORTION (per 100 g)

Calyx, fresh	mg	Leaves, fresh	%	Seeds	%	Calyx, fresh	*
Moisture	9 200	Moisture	86.2	Moisture	12.9	Arginine	3.6
Protein	1 145	Protein	1.7-3.2	Protein	3.29	Cytine	1.3
Fat	2 610	Fat	1.1	Fatty oil	16.8	Histidine	1.5
Fibre	12 000	Carbohydrates	10	Cellulose	16.8	Isoleucine	3.0
Ash	6 900	Ash	1	Pentosans	15.8	Leucine	5.0
Calcium	1 263	Calcium	0.18	Starch	11.1	Lysine	3.9
Phosphorus	273.2	Phosphorus	0.04			Methionine	1.0
Iron	8.98	Iron	0.0054			Phenylalanine	3.2
Carotene	0.029	Malic acid	1.25			Threonine	3.0
Thiamine	0.117					Tryptophan	-
Riboflavin	0.277 mg					Tyrosine	2.2
Niacin	3.765 mg					Valine	16.3
Ascorbic acid	6.7 mg					Aspartic acid	7.2
						Glutamic acid	3.7
						Alanine	3.8
						Glycine	5.6
						Proline	3.5
						Serine	
						*Amino acids (N=16p.100)	

hardness, lipstick breakage, humidity and heat test (Zahariah, 2001). These are normally compared to a control, which is a commercial sample (COM).

The lipsticks formulated with roselle oils were found to be comparable with COM. The lipsticks are available in six shades to reflect personality, occasion and fashion trend. All shades are suitable for all age groups (*Figure 1*). The profiles of roselle lipstick are shown in *Table 2*.

The ability to withstand hot temperature is measured by softening and dropping points. The softening and dropping points of roselle lipsticks ranges from 57°C-62°C and 56°C-59°C respectively which are lower than the COM (64°C - 66°C). In terms of hardness, roselle lipsticks are softer than COM, and it is acceptable. Breaking point test is conducted to ensure that the lipstick does not break when consumer applies force during lipstick application and this is confirmed by breaking point balance. All the lipsticks passed the test.

Heat test is to make sure the lipstick does not melt in safekeeping of the user. The time taken for all lipsticks to melt or distort were comparable to COM and all of them retained their shapes when placed in safekeeping of the user for more than one year. No sweating is shown for all the lipsticks.

UNIQUE CHARACTERISTICS OF ROSELLE LIPSTICKS

TABLE 2. PHYSICAL PROPERTIES OF ROSELLE LIPSTICKS

Evaluation	Shade						
	1	2	3	4	5	6	COM
Softening point (°C)	59.0	58.0	57.0	60.0	62.0	58.0	64.0
Dropping point (°C)	59.0	57.0	56.0	59.0	58.0	58.0	66.0
Lipstick hardness (mm)	11.0	13.0	12.0	11.0	11.0	13.0	9.0
Breaking point	pass	pass	pass	pass	pass	pass	pass
Heat test (stick drop or distort in min)	105	70	40	45	80	80	90
Humidity test	*nsb	nsb	nsb	nsb	nsb	nsb	nsb

Note: *nsb = no sweating and bleeding.

a. Incorporate 57% of palm-based material and roselle seed oil;
b. Lipsticks contain roselle as a source of protein; and
c. Good quality lipsticks with brilliant surfaces.

ROSELLE LIP PROTECTOR

Like lipstick, lip protector consists of a mixture of waxes, oil and pigments. The major difference is gloss and transparent coverage. The lip protector manufacture is identical to lipstick with the key differences being higher oil to wax ratio and lower levels of pigment. The pigment ranges from 0% to 5%. The roselle lip protector is a colourless stick that is specially formulated so that it can be used widely by men and women of all ages (*Figure 2*). The roselle seed oil, source of energy and protein (Homepage: *Hibiscus sabdariffa* L. Malvacea) have been successfully incorporated into the 54% palm-based material. Inorganic sunscreens for UVA and UVB protection have also been incorporated in the lipsticks thereby enhancing the functionality of the lipsticks. The profile of roselle lip protector in comparison with COM is as shown in *Table 3*.

TABLE 3. PHYSICAL PROPERTIES OF ROSELLE LIP PROTECTOR

Evaluation	LP(1)	COM
Softening point (°C)	60	63
Dropping point (°C)	62	62
Lipstick hardness (mm)	14	5
Breaking point	Pass	Fail
Heat test (stick drop or distort)	50 min	45 min
Humidity test	nsb	nsb

The softening point, dropping point, heat and humidity test were found to be comparable with COM. The lipstick hardness for roselle lip protector indicates that it is softer compared to COM. Even though it is a soft stick, it has thixotropic properties which passed the breaking point (the stick breaks over the limit time at weight

given). For the COM sample, result shows a hard stick and thus, it does not have thixotropic properties (the stick breaks before limit time at weight given).

UNIQUE CHARACTERISTICS OF ROSELLE LIP PROTECTOR

a. Contains 54 % of palm-based materials;
b. Enriched with protein;
c. Has SPF 12; and
d. Good quality sticks with brilliant surfaces.

REFERENCES

ZAHARIAH, I (2001). Palm-based lipsticks. *MPOB Infromation Series No. 121.*

NOWAX, G A *et al.* (1964). New ideas in lipsticks. *American Perfumer and Cosmetics.*

MORTON, J (1987). Roselle. *Fruits of Warm Climate.* Miami, Florida.

http://www.botany.com/hibiscus.htm

For more information kindly contact:

Director-General
MPOB
P. O. Box 10620
50720 Kuala Lumpur, Malaysia.
Tel: 03-89259155, 89259775,
Homepage: http: //mpob. gov. my
Telefax: 03-89259446