

ROSELLE SOAP

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Soap is an essential cleaning agent in our daily life. It is the sodium salt of fatty acids from oils and fats of both animal and vegetable origin. In today's market, consumers demand a wide range of soap products catering not only for its cleansing property but also for its therapeutic effect. This is made possible because soap can be used as a carrier for numerous additives such as perfumes, super fatting agents, moisturizers *etc.*, that performs for various functions. The need to increase the functionality of the soaps makes the formulation of soap bars more complex.

Malaysia is currently the leading producer of soap noodles made from palm oil:palm kernel oil blends. There are now at least five oleochemical companies in Malaysia producing soap noodles via fatty acid route with a total capacity of 230 000 t yr⁻¹. The noodles are available commercially in various ratios of the oils, for example 80:20, 70:30 and 60:40. With the abundance availability of good quality palm-based soap noodles locally, the formulation of functionality soaps such as roselle soap is very much simplified as soap noodles are being used as the starting materials.

ROSELLE

Roselle or its scientific name *Hibiscus sabdariffa* L., a member of Malvaceae family, is also known as Florida cranberry due to its similarity in taste and flavour to cranberry. Believed to have originated from Sudan, roselle is grown as rain-



Roselle plant.

fed crop in Sudan and Egypt and as a source of pulp for paper in certain parts of the world. Today, it is widely grown in the tropics including Malaysia.

Nutritional analyses showed that the food value per 100 g of edible portion of roselle is as shown in *Table 1*.

ROSELLE SOAP

To meet the challenge of other cleansing preparations and to satisfy the ever-increasing demand of consumers today, soaps are personalized than ever before. It is no longer enough for a soap to just cleanse but must also offer additional benefits to the skin and the mood. So through a collaborative research and development project between Monrose Sdn. Bhd.



TABLE 1. ROSELLE EDIBLE PORTION (per 100 g)

Calyx, fresh		Leaves, fresh	%	Seeds	%	Calyx, fresh	*
Moisture	9.2 g	Moisture	86.2	Moisture	12.9	Arginine	3.6
Protein	1.145 g	Protein	1.7-3.2	Protein	3.29	Cytine	1.3
Fat	2.61 g	Fat	1.1	Fatty oil	16.8	Histidine	1.5
Fibre	12.0 g	Carbohydrates	10	Cellulose	16.8	Isoleucine	3.0
Ash	6.90 g	Ash	1	Pentosans	15.8	Leucine	5.0
Calcium	1263 mg	Calcium	0.18	Starch	11.1	Lysine	3.9
Phosphorus	273.2 mg	Phosphorus	0.04			Methionine	1.0
Iron	8.98 mg	Iron	0.0054			Phenylalanine	3.2
Carotene	0.029 mg	Malic acid	1.25			Threonine	3.0
Thiamine	0.117 mg					Tryptophan	-
Riboflavin	0.277 mg					Tyrosine	2.2
Niacin	3.765 mg					Valine	3.8
Ascorbic acid	6.7 mg					Aspartic acid	16.3
						Glutamic acid	7.2
						Alanine	3.7
						Glycine	3.8
						Proline	5.6
						Serine	3.5
						* Amino acids (N=16p.100)	

and MPOB, a palm-based soap with roselle has now been developed.

Roselle soap is formulated with a good quality soap noodles enriched with dry powder of roselle calyx with the following chemical compositions (Chemlab Chemical Analysis):

Parameters	Results (mg/100g)
Calcium (as Cal)	420.31
Vitamin A	0.7845
Vitamin C	321.8878
Vitamin B ₁	23.4048
Vitamin B ₂ ,	9.1664



Roselle soap.

Dry roselle calyx used in the soap formulation is

TABLE 2. FOAM CHARACTERISTICS OF ROSELLE SOAP

Sample	Foaming characteristic at 0.1% conc.			
	RT/50 ppm water hardness		RT/350 ppm water hardness	
	Foaming (mm)	Foam stability (mm)	Foaming (mm)	Foam stability (mm)
Roselle soap	360	205	20	10

TABLE 3. DETERGENCY OF ROSELLE SOAP

Sample	Detergency at 0.1% conc. Soil Removal %	
	RT/50 ppm water hardness	RT/350 ppm water hardness
Roselle soap	71.28	3.39

found to be very rich in vitamins particularly vitamin C, which is a known whitening agent. Consumer evaluation carried out indicated that roselle soap is effective in reducing/removing dark spot on the face. Besides, roselle soap also contains natural moisturizing factor to moisturize the skin leaving it soft and supple.

PERFORMANCE OF ROSELLE SOAP

Foaming

Foaming test was carried out on roselle soap at 0.1% concentration, room temperature and at 50 ppm and 350 ppm water hardness. The results are as shown in *Table 2*.

DETERGENCY

To simulate the cleaning power of roselle soap, detergency test on silk soiled with sebum was carried out at 0.1% concentration at 50 ppm and 350 ppm water hardness and room temperature condition. No comparison was made on detergency

of the soap, as there is no commercial roselle soap available in the local market. The detergency performance of the soap is as shown in *Table 3*.

CONCLUSION

With the availability of good quality palm-based soap noodles in Malaysia, the formulation of specialty soap such as roselle soap is easily achievable. Thus, specialty soap provides a niche market and another avenue for value addition to palm-based products.

REFERENCES

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