

# DEVELOPMENT OF FACIAL SERUM PRODUCT CONTAINING ROSELLE (HIBISCUS SABDAIFFA L.) EXTRACT

Nilinee rodphet \*, Nustha Kitprathaung \*\*

Wayu Phudang\*\*\*, Apichaya Nasong\*\*\*\*, Rattana Panriansaen\*\*\*\*\*

\*,\*\*,\*\*\*,\*\*\*\*,\*\*\*\*\* College of Allied Health Sciences, Suan Sunandha Rajabhat University, Bangkok, Thailand

E-Mail: \* s63122235020@ssru.ac.th, \*\* nustha.ki@ssru.ac.th, \*\*\* wayu.ph@ssru.ac.th, \*\*\*\* apichaya.na@ssru.ac.th, \*\*\*\*\* rattana.pa@ssru.ac.th,

## ABSTRACT

This research aims to 1) Development of Facial Serum Product containing Roselle Extract. 2) To test the effectiveness of Facial Serum. 3) To develop a product prototype for a Facial Serum Product. 4) Development of Facial Serum products by formula 1, without extracting, formula 2, 3 and 4 containing 0.5, 1, 1.5 percent staining. Performs some physical properties test Stability, hypersensitivity test and product satisfaction in volunteers. The statistics used were mean standard deviation. One-way ANOVA was analyzed and compared the paired mean according to Paired Samples Test. This Research results found that Development of Facial Serum Product containing Roselle extract there are 4 formulas with extracts 0, 0.5, 1, 1.5 all of formula are stable. There was no product allergy in the volunteers. The satisfaction test of skin care products containing Roselle extract showed that. The subjects were satisfied with the product formula 2, the concentration of Roselle extract at 0.5% had the highest level of satisfaction. When comparing the differences between the 3 formulas, it was found that no statistical difference was found at the 0.05 level ( $p < 0.05$ ) and was able to develop a prototype of a facial serum containing Roselle commercialized.

**Keywords:** Development, Facial Serum Product, Roselle

## INTRODUCTION

1. Thailand's current environment is polluted by air pollution.
2. There is still a problem with PM 2.5 dust - tends to increase air pollution, causing various health problems such as respiratory & skin problems.
3. Facial skin problems like acne, blemishes, dark spots, & dullness suffer both men and women and urge them to take care of their skin.
4. Choosing skin products with natural extracts is another popular way to take care own facial skin. Numerous essential elements help nourish the skin.  
Roselle or its scientific name is Hibiscus sabdariffa L.
5. 1-2 m tall, single leaves, large flowers, light yellow, red flowers in the middle.
6. Male and female stamens. Purple-red in females.
7. Originated in Africa and has spread worldwide - India, Malaysia, Thailand – Lop Buri, Saraburi, Kanchanaburi.

8. People bring the calyx of roselle to dry, then boil to drink. It has a sweet and sour taste that helps the body feel refreshed.

9. Roselle includes vitamins A, B, and C, especially vitamin C is beneficial to the skin. It also contains anthocyanin, which is classified as an antioxidant – an essential compound that helps the body's immune system and helps slow down the process that causes aging

### **OBJECTIVE**

1. To develop a facial serum product containing Roselle.
2. To test the effectiveness of facial serum.
3. To develop a prototype of facial serum.

### **METHODOLOGY**

- This research was experimental research >> 3 experiments.
  1. Determination of total Phenols and Flavonoids in extracts
  2. DPPH Radical Scavenging Activity
  3. Development of facial serum with roselle extract
- 4 formula samples were prepared for testing.
  - Formula 1 – facial serum w/o extract
  - Formula 2 - facial serum with 0.5% extract.
  - Formula 3 – facial serum with 1.0% extract
  - Formula 4 –facial serum with 1.5% extract
- Did experimental testing - physical properties, stability, hypersensitivity, and product satisfaction survey in volunteers.
- Used descriptive statistics - mean, S.D., One-way ANOVA, paired test for data analysis.

### **RESULTS**

According to DPPH Assay, the antioxidant activity of roselle extract provided IC50 value of roselle extract was 5.491 µg/mL IC50 value of Vit E was 273.87 µg/mL A linear correlation was obtained by comparing the extracts' antioxidant activity and polyphenols and flavonoid content. The extracts containing a good amount of phenols and flavonoids possess potent antioxidant activity.

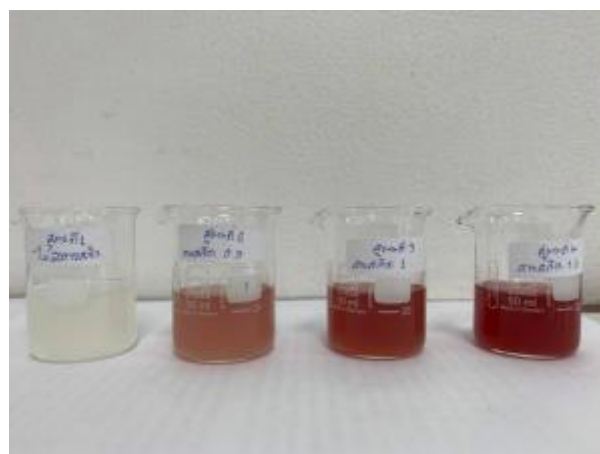
**Table 1**  
**Physical Properties of facial serum after 5 weeks at room temp**

Formula	pH	Appearance	Color	Smell	Viscosity	Odorometer
1	5.65	Homogeneous	Peal	Not pungent	Fluid	Approx. 8 hrs.
2	5.96	Homogeneous	Cream	Quite pungent	Rather viscous	Approx. 8 hrs.
3	5.30	Homogeneous	Beige	Pungent	Sticky	Approx. 12 hrs.

**Table 2**  
**Comparison of moisturizing efficiency b/w before and after using the facial serum product with roselle extract**

Formula	N	Before		After		t	Sig
		Mean	SD	Mean	SD		
1	5	36.3	3.61	37.80	4.00	-2.7	0.03*
2	5	35.4	3.21	36.54	2.43	-1.4	0.12
3	5	34.2	1.92	36.28	1.30	-1.6	0.09

**Figure 1**  
**Facial serum products that contain all 4 formulas of Roselle extracts.**



**Figure 2**  
**Facial serum products that contain Roselle extracts.**



### **CONCLUSION AND FUTURE WORK**

This research found the development of facial serum products containing roselle extract, including 4 formulas with 0%, 0.5%, 1%, and 1.5% extract. The research disclosed that • No product allergy in the volunteers. Most volunteers were “strongly satisfied” with Formula 2 – 0.5% extract. No statistical difference at the 0.05 level, when comparing b/w 3 formulas. A prototype of facial serum with roselle extract could further develop for commercial.

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