TO STUDY OIL CONTROL PROPERTY OF PARSLEY LEAF EXTRACT IN COSMETIC PRODUCTS

Sangeeta Sahasrabuddhe
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1Department of Cosmetic Technology, L.A.D. College, Nagpur

Correspondence should be addressed to Sangeeta Sahasrabuddhe

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ABSTRACT

Skin is a protective covering and an attractive feature for both men and women. It forms an important part of personal appearance. But Oily skin can be a challenge. It is usually seen on thicker, larger pored skin and contributes to blemishes. The Parsley leaves extract (juice) is used in this project to study oil control property.

The latin name used for parsley (Petroselinum hortense), is formed from two Greek words: "petros" which means "stone" and "selinon" which means "celery. It is important to mention that parsley contains more vitamin C than lemon, orange or any other fruit ie more than 50mg/100g of Parsley. It has abundant quantities of other vitamins and minerals such as: pro-vitamin A, vitamin B, vitamin E, vitamin K, beta-carotene, magnesium, phosphorus, iron, manganese, sodium, potassium, sulfur and calcium.

Parsley has long been widely used in cosmetics to freshen the face, discoloration, freckles and dark age spots, wrinkles and prevent the occurrence of red spots, strengthen and grow hair.

The Cleanser base was selected with the 2% and 4% concentrations of the active which then subjected to its in-vivo study in order to evaluate its oil control property using Sebometer. The 4% concentration of parsley leaf extract was found to be effective oil controlling agent.

KEY WORDS: Skin, Parsley leaves, oil control, Cleanser base, Sebometer.

INTRODUCTION

Human skin is the outer covering of the body and it is the largest organ of the integumentary system. The average skin inch holds 650 sweat glands, 20 blood vessels, 600000 melanocytes and more than 1000 nerve ending.

Sebaceous gland is a small oil-producing gland present in the skin of mammals. Sebaceous glands are usually attached to hair follicles and release a fatty substance, sebum, into the follicular duct and thence to the surface of the skin. The glands are distributed over the entire body with the exception of the palms of the hands and the soles of the feet; they are most abundant on the scalp and face.

The sebaceous glands are involved in the development of the common adolescent skin disorder known as acne vulgaris. Acne occurs when the outlet from the gland to the surface of the skin is plugged, allowing sebum to accumulate in the follicle and sebaceous duct. The chemical breakdown of triglycerides in the sebum, possibly by bacterial action, releases free fatty acids,
which in turn trigger an inflammatory reaction producing the typical lesions (pimples) of acne.

Oily skin can be a challenge. It is usually seen on thicker, larger pored skin and contributes to blemishes. Oily skin is caused by the overactive sebaceous glands that produce a substance called sebum, a naturally healthy skin lubricant. But when skin produce excessive sebum it becomes heavy and thick in texture. Oily skin typified by shininess, blemishes and pimples. The oily skin type is not bad as it is less prone to wrinkles and ageing, because oil keeps the needed moisture lock into the epidermis (outermost layer of the skin).

The negative aspect of oily skin is that it is susceptible to clogged pores, blackheads and build up of the dead skin cell on the surface of the skin. Oily skin is rough in texture and tends to have larger clearly visible pores everywhere except around the eyes and neck.

Therefore it is very important to control the excess of oil secretion from the skin. Thus the aim of the present work is to study oil control property of Parsley leaves extract (juice) in cosmetic product.

MATERIAL AND METHODS

Figure 1: Parsley leaves

i. **Family:** Apiaceae

ii. **Latin Name:** Petroselinum crispum

iii. **Common Name:** Parsley

iv. **Growth:** Biennial; typically 12 to 15 inches high (reaching 27 to 30 inches when blooming); about 12 inches wide; flowers tiny, yellow-green in umbels

v. **Hardiness:** Withstands frost.

vi. **Light:** Sun to partial shade.

vii. **Soil:** Rich, acidic to basic soil.

viii. **Water:** Reliably moist, but well drained.

ix. **Use:** Culinary; medicinal; cosmetic; ornamental.

x. **Propagation:** By seed sown in spring.

xi. **Constituents:** It is important to mention that parsley contains more vitamin C than lemon, orange or any other fruit i.e. more than 50mg/100g of Parsley.

It has abundant quantities of other vitamins and minerals such as: pro vitamin A, vitamin B, vitamin E, vitamin K, beta-carotene, magnesium, phosphorus, iron, manganese, sodium, potassium, sulfur and calcium.

**Uses:** Parsley leaf powder can be used

i. As a natural, green colorant in soap and other cosmetic products.

ii. In scrubs to provide a natural color, and to nourish the skin with an abundance of vitamins and minerals.

iii. In lotions, creams, and ointments.

iv. in facial masks

v. In shampoo and conditioner formulas.

vi. in facial toner recipes

vii. In bath bomb recipes.

viii. Infused in massage oils

ix. In scrubs

x. For brightening the dark circles and in anti ageing preparations.

**Evaluation of Active:** Evaluation of active was done and the results are given below.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Test Performed</th>
<th>As per Standard</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Color</td>
<td>Dark Green</td>
<td>Dark Green</td>
</tr>
<tr>
<td>2.</td>
<td>Odor</td>
<td>Characteristic</td>
<td>Characteristic</td>
</tr>
</tbody>
</table>
**FORMULATION AND DEVELOPMENT**

As the main objective of the project is to study oil control property of the cosmetic preparations using Parsley Leaf Extract, thus it is necessary to prepare the cosmetic bases which are used for the oil control purpose. Hence the Cleanser cum Toner base was selected and prepared:

Cleanser cum toner is a class of cosmetic products which are identified by their local effect on skin when applied topically. These effects may include: tightening of the skin, temporary reduction of pore size, anti perspirancy, the mitigation of oily skin, skin healing. It gives such as refreshing or invigorating feeling. It cleanses the skin from deep and gives soothing sensation.

**Table 2: Formulation of Cleanser cum Toner**

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Ingredients</th>
<th>Trial 1 (gm%)</th>
<th>Trial 2 (gm%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Disodium EDTA</td>
<td>0.2%</td>
<td>0.2%</td>
</tr>
<tr>
<td>2</td>
<td>Allantoin</td>
<td>0.1%</td>
<td>0.25%</td>
</tr>
<tr>
<td>3</td>
<td>Glycerin</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>4</td>
<td>Coco Amido Propyl Betaine (CAPB)</td>
<td>4.5%</td>
<td>5.0%</td>
</tr>
<tr>
<td>5</td>
<td>Propylene glycol</td>
<td>2.00%</td>
<td>2.00%</td>
</tr>
<tr>
<td>6</td>
<td>Water</td>
<td>Upto 100%</td>
<td>Upto 100%</td>
</tr>
<tr>
<td>7</td>
<td>Perfume</td>
<td>q.s</td>
<td>q.s</td>
</tr>
</tbody>
</table>

**Incorporation of Active:** Parsley leaves juice was added in the base as per the reported value and the concentrations selected were 2%, 4%, 6% on trial and error basis.

**ACCELERATED STABILITY STUDY**

For the base and base with active the accelerated stability studies were carried out for one and half month by keeping the samples at the following temperatures.

i. Room temperature: \((27\pm 2)\)°C

ii. Oven: \((45\pm 2)\)°C

iii. Fridge: \((4\pm 2)\)°C

**Parameters for Stability Study:** Change in Color, Odor, pH.

Where the formulations were found to be stable.

**INSTRUMENTAL ANALYSIS: (SEBOMETER MPA5)**
Principle

The sebum measurement on the skin as well as on the hair and scalp is based on the internationally recognized Sebometer MPA5 method. It is direct measurement of the sebum secretion on skin, hair and scalp. The measurement principle is the photometric method, the grease spot photometer. This method is not sensitive to moisture.

**Figure 2: Sebometer MPA5**

![Sebometer MPA5](image)

**Table 3: Interpretation Of Sebotape**

The following values are valid for healthy skin and normal room conditions (20°C and 40-60 % air humidity) and will help you to determine the skin type:

<table>
<thead>
<tr>
<th>Dry, less sebum</th>
<th>Forehead, t-zone, scalp</th>
<th>Hair</th>
<th>Cheek, eyelid, temple</th>
<th>Corner of the mouth, upper body parts, back, neck</th>
<th>Arms, hands, legs, elbows</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt; 100</td>
<td>&lt;40</td>
<td>&lt;70</td>
<td>&lt;55</td>
<td>0-6</td>
</tr>
<tr>
<td>Normal</td>
<td>100-200</td>
<td>40-100</td>
<td>70-180</td>
<td>55-130</td>
<td>&gt;6</td>
</tr>
<tr>
<td>Oily</td>
<td>&gt;220</td>
<td>&gt;100</td>
<td>&gt;180</td>
<td>&gt;130</td>
<td>&gt;6</td>
</tr>
</tbody>
</table>

The table is only an approach for the interpretation of the results.

**Table 4: Oil Control Property of Cleanser**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Blank</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Base</td>
</tr>
<tr>
<td>1</td>
<td>25</td>
<td>20</td>
</tr>
<tr>
<td>2</td>
<td>20</td>
<td>14</td>
</tr>
<tr>
<td>3</td>
<td>19</td>
<td>10</td>
</tr>
<tr>
<td>4</td>
<td>29</td>
<td>25</td>
</tr>
<tr>
<td>5</td>
<td>40</td>
<td>29</td>
</tr>
</tbody>
</table>
RESULTS

i. From the organoleptic evaluation it was found that the color of the Cleanser bases containing active concentrations such as 2%, 4%, 6% was stable at different storage condition for one and half month.

ii. Odour of the bases with concentrations 2%, 4% were found to be acceptable and gave refreshing odor except for 6% concentration which showed slight change in odour with sedimentation in last few days of the accelerated stability study.

iii. pH of Cleanser was found to be in between 7.1 - 7.4 except for 6% which was showing variation in pH throughout the stability study.

iv. From the vivo study of cleanser, with 4% concentration of parsley leaf extract showed good cleansing property as well as good astringency effect and also controlled oil to greater extent as compared to 2% concentration which was not giving the desired effect.

DISCUSSION AND CONCLUSION

The Parsley leaves extract was standardized and was as per the standards. But the quantity of Vitamin C obtained is slightly less than as compared to standard, this might be due to impurities present or lack of sophisticated methods.

Further the extract used in the Cleanser base as per the reported value.

Cleanser passes the tests for organoleptic properties and Physical parameters. But in 6% concentration of the active, it later showed some growth of fungus at the bottom of the base. It might be due to high concentration of active. Thus it was discarded and was not used in further vivo study and subjective evaluation.

The Cleanser base with the 2% and 4% concentrations of the active were then subjected to its vivo study in order to evaluate its oil control property using Sebometer. The 4% concentration of parsley leaf extract was found to be effective oil controlling agent Quantity of active might be playing an important role. The reported value for oil control is -1.5 to 5.0 ml /50gms of cosmetic.

Thus it is concluded that the Parsley leaves extract with 4% concentration in Cleanser base was found to be effective oil controlling agent.

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