

# A Review on Formulation and Evaluation of Multipurpose Herbal Scrub in Gel Form

Ms. Navale Dnyaneshwari<sup>1</sup>, Ms. Khose Sonali<sup>2</sup>, Ms. Shinde Ankita<sup>3</sup>, Ms. Gaikwad Rutuja<sup>4</sup>

Students, Samarth Institute of Pharmacy, Belhe, Maharashtra, India<sup>1,2,3</sup>

Department of Pharmaceutics, Samarth Institute of Pharmacy, Belhe<sup>4</sup>

**Abstract:** The main objective of the present study was to prepare a Multi-Purpose Herbal scrub incorporated into the gel. In daily life for both women and men apply the cosmetics for beautifying and altering the appearance of the skin. Nowadays consumers well aware of the product benefits and their side effects, hence the usage of the herbal cosmetics gets increases because herbal cosmetics have fewer or no side effects. *L. acidissima* is a huge source of vitamin C and it contains 4 times vitamin C than any other citrus fruits. Vitamins C help in Immunity improvement and also protect against common infections and pathogen. *L. acidissima* contains anti-oxidant like B-carotene which helps defend the skin from Aging and wrinkles. It also contains vitamin A, B helps in getting cleared of skin discoloration, dark circles, redness, and acne irritation. It is understood that the regular use on the skin helps to keep skin cool, smooth, fair and well-textured appearance it is also known to be defensive against skin cancer by blocking UV rays. The pulp of *L. acidissima*, to eliminate minor spots and lesions on the skin.

**Keywords:** Multi-Purpose, Anti-aging, Anti-oxidant, Natural ingredients Cleansing action Dirt removal

## I. INTRODUCTION

Generally herbal cosmetics are also referred to as natural cosmetics. herbal cosmetics, referred as products are formulated using various permissible cosmetic ingredients to form the base in which one or more herbal ingredients are used to provide defined cosmetics benefits only shall be called as herbal cosmetics.

The science of Ayurveda had utilized many herbs and floral to make cosmetics for beautification and protection from external affects the natural content of in the botanicals do not cause any side effects on human body; instead enrich the body with nutrients and other useful minerals. The natural herbs and their products when The increase demand for the natural products has created new avenues in cosmetics market. Herbal medicines have long history of use and better patient tolerance as well as acceptance medicinal plants have a renewable source which is due only hope for sustainable supplies of cheaper medicines for the world growing populations. There are a number of herbs that are used for their medicinal and cosmetics properties, *Limonia acidissima* is one of them. Different parts of *Limonia acidissima* are responsible for different medicinal as well as cosmetics properties.

*L. acidissima* is a huge source of vitamin C and it contains 4 times vitamin C than any other citrus fruits. Vitamins C help in Immunity improvement and also protect against common infections and pathogen. *L. acidissima* contains anti-oxidant like B-carotene which helps defend the skin from Aging and wrinkles. It also contains vitamin A, B helps in getting cleared of skin discoloration, dark circles, redness, and acne irritation it is also known to be defensive against skin cancer by blocking UV rays the pulp of *L. acidissima* to eliminate minor spots and lesions on the skin

### Top 10 benefits of scrubbing your skin

- For A Squeaky Spotless Skin: Scrubbing gives you clear skin, free from dirt, oil, and sweat.
- Frees Your Skin From Flakes: Blistered skin looks hideous!
- Helps In Removing Dead Cells
- Adds Glow To Skin
- Removes Dark Patches.
- Removes Acne Scars
- Prevents Ingrown Hair

- For Smooth Skin
- Improve the Smoothness Of Your Skin
- Promotes Clear Complexion

## II. AGING AND WRINKLES

Aging and Wrinkles are natural. As people get of age, their skin gets thinner, drier, and less elastic, and less capable to defend itself from damage. This leads to wrinkles, creases, and lines on the skin. UV light breaks the collagen and elastin fibers in the skin. These fibers form the skin's connective tissue. They are located below the surface of the skin, and they support the skin. Destroy this layer causes the skin to become weaker and less flexible. The skin starts to languish, and wrinkles occur

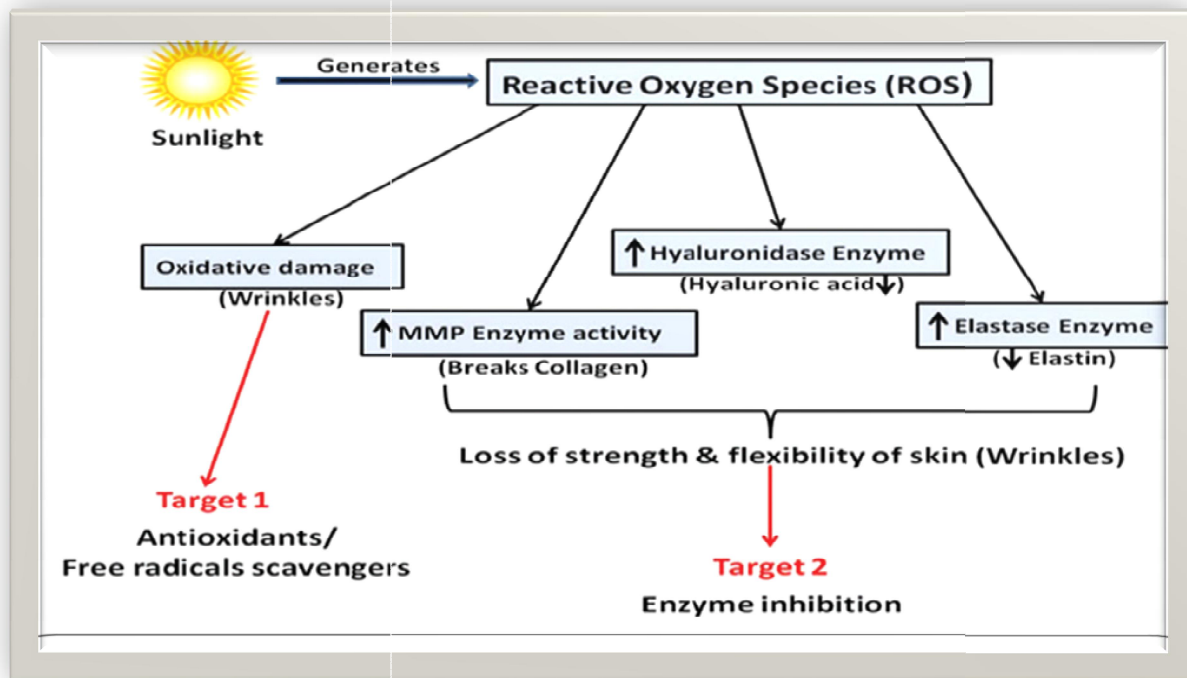


Fig-01 Mechanism action of Aging

### 2.1. Scrub use for Anti-aging and Anti-wrinkle Purpose

Fruit is rich in vitamins and antioxidants like B-carotene, lycopene which help protect the skin from aging, wrinkles, skin discoloration, dark circles, redness, and acne. It is high in astringent properties; it also helps in tone up and tightens the skin. Vitamins and Anti-oxidant like B-carotene are increases the production of collagen and elastin to prevent wrinkles and skin aging

### 2.2. Multiple benefits of Scrub

- Moisturizes and hydrates aging skin
- Controls Excessive Facial Oil, Removes Serious Acne, Pimples, Blackheads and whitehead
- Freckles
- Dark inner elbows & knees
- Sunspots
- Melasma
- Hyperpigmentation

- Senile lentigines
- Old scars
- Chloasma

### 2.3. Active Profile

*Limonia acidissima* is the only species within the monotypic genus *Limonia*. It is also known as wood apple belonging to family Rutaceae. It is globally reported from India, Sri Lanka, and Java it occurs in dry regions. *Limonia acidissima* (L.) of family Rutaceae (Citrus family) belongs to the monotypic genus elephant-apple, monkey fruit, curd fruit, kath bel and kaitha. This plant is given as a medicine for the treatment of various disorders. *L. acidissima* is a deciduous, slow-growing, erect tree with a few upward-reaching branches bending outwards near the summit where they are subdivided into slender branchlets drooping at the tips. Its fruit is spherical in shape with 5- 12.5 cm diameter. The rind is greyish-white in color and 6 mm thick. It has woody and extremely hard outer shell (called as rind) which is very difficult to crack open. Hammer is used to crack the hard rind of wood-apple fruit.



**Fig:-02-Outer shell**



**Fig:-03 Pulp of *Limonia acidissima***

**Scientific Classification:**

<b>Kingdom</b>	Plantae
<b>Sub-Kingdom</b>	Tracheobionta
<b>Division</b>	Magnoliophyta
<b>Class</b>	Magnoliopsida
<b>Sub Class</b>	Rosidae
<b>Order</b>	Sapindales
<b>Family</b>	Rutaceae
<b>Genus</b>	Limonia L.
<b>Species</b>	L.acidissima
<b>Synonyms</b>	Feroniaele phantom Correa,

**2.4. Phytoconstituents**

The analysis of *Limonia acidissima* plant parts showed the presence of alkaloids, flavonoids, phenols, terpenoids, tannins, fats steroids, saponins, glycosides, gum, mucilage, and fixed oils. The unripe fruits contain stigmaterol. Fruit pulp contains a large quantity of citric acid and other fruit acids, mucilage and minerals. Alkaloids, coumarins, fatty acids, and sterols have been detected in the pericarp. It also contains umbelliferone, dictamnine, xanthotoxol, scoparone, xanthotoxin, isopimpinellin, isoimperatorin and marmin. Leaves contain stigmaterol, psoralen, bergapten, orientin, vitedin, saponarin, tannins, and essential oil.

**III. AIM**

Formulation and Evaluation of Multipurpose Herbal Scrub in Gel Form

**IV. OBJECTIVE**

- To Prepare a Multipurpose Scrub Incorporated into gel.
- To Study the role of *Limonia* Fruit to Prevent Wrinkling or Removing dirt, oil. Sebum and Reduce the clogged of pore.
- To assess the efficacy & tolerability of face gel to improve the appearance of aging, wrinkle, finelines, etc.
- To nourish and beautify the skin.

**V. METHODOLOGY**

- 1) Selection of active Ingredients
- 2) Collection and Authentication
- 3) Extraction Method
- 4) Selection of base
- 5) Formulation
- 6) Preparation
- 7) Evaluation

**5.1. Formulation of Multipurpose Herbal Scrub**

Ingredients	Parts Used	Category	Qty%
<b>L.acidissima</b>	Fruit(Pulp)	Anti-aging, Anti-Oxidant Anti-Wrinkles	5
<b>L.acidissima</b>	Outer (shell)	Exfoliate Skin	2
<b>Carbopol 940</b>	-	Gelling agent	3
<b>Triethanolamine</b>	-	Neutralizer	2
<b>Propylene glycol</b>	-	Moisturizer	2

Sodium Lauryl Sulfate	-	Foaming Agent	2
Distilled water	-	Vehicle	Q.S
Methyl Paraben	-	Preservative	0.20
Rose Water	-	Flavouring Agent	Q.S

### 5.2. Extraction of fruits parts

#### Extraction of fruits parts:-

The fresh fruits was collected from the local market. fruit was dried hot air oven at 40°C to avoid degradation of phytoconstituents

After drying material was coarsely powered with grinding mill and kept in well closed container

About 30g powder respectively was defatted with petroleum ether (60-80°C) in a Soxhlet apparatus followed by extraction with ethanol.

The collected extract

kept in a vacuum dryer until used.

### 5.3. Preparation of Gel base-

The gel prepared first the Required quantity of water was taken in a beaker

then weighed quantity of propylene glycol, and sodium lauryl sulfate was added and dissolved.

A weighed quantity of carbopol 940 was added little by little in a homogenizer until uniform gel was obtained.

To this, extract of fruit pulp powder was added and fruit outer shell powder are added then triturated wel

and at last, triethanolamine was added to adjust the pH

### 5.4 Ideal properties of a Scrub

- Non-toxic
- Possess small gritty particles
- Mild abrasive
- Non-irritant
- Non-sticky
- Removes dead skin

## VI. EVALUATION OF MULTIPURPOSE HERBAL SCRUB

### 1) pH

pH of the gels was determined using a digital pH meter. The pH value of the Scrub was 7.4 which are considered acceptable to avoid the risk of irritation on application to the skin.

### 2) Spreadability

The spreadability is very much important as it shows the behavior of gel that comes out from the tube. It is used to identify the extent of spreadability by the gel on the skin. A small quantity of sample was placed on a glass slide and another slide was placed above them; 100 g of weight was placed on the slide. The time taken for the gel to spread on the slide was noted and measured which was found to be 6.5 cm in 5 min.



### 3) Extrudability

To determine extrudability, a closed collapsible tube containing formulation was pressed firmly at the crimped end. When the cap was removed, formulation extruded until the pressure dissipated. Weight in grams required to extrude a 0.5 cm ribbon of the formulation in 10 s was determined. The average extrusion pressure in g was reported. It was found to be 15.3 g/cm<sup>2</sup>

### 4) Viscosity

The thickness of the different gel designs was determined at 25°C using Brook field viscometer apparatus DV2T model. The gel sample (5g) was placed in the sample holder of the viscometer and permitted to settle for 5 min, and the viscosity measured a rotating speed of 50 rpm at room temperature (25–27°C). The viscosity was found to be 1050 centipoise

### 5) Irritability

A small amount of gel was applied externally on the skin surface for a few minutes and checked for reactions on the skin. It was found to be non-irritant.

### 6) Washability

A small amount of gel was applied externally on the skin surface, and it was washed with running water. It was found to be easily washable.

### 7) Foamability

A small amount of gel was taken in a measuring cylinder, and it was shaken for 5 min and the foam stability of the gel was measured.

## VII. RESULT

It contains ethanol extract of *L. acidissima* fruit Pulp which possesses antioxidant, anti-aging, and anti-wrinkle skin tightening lightening and brightening property. It also contains outer shell powder of Fruit acting as a natural exfoliating agent the skin surface by releasing dead cell and pore-blocking impurities. They can exfoliate the skin without scratching the skin surface by applying pressure on them. Suitable base materials such as gelling agent, preservative, neutralizer, and foaming agent were selected and incorporated into the extract to design a suitable herbal gel. Evaluation parameters such as color, odor, consistency, and pH were checked.

## VIII. CONCLUSION

The current work was done to prepare a multipurpose herbal scrub using an appropriate base to form a gel. The prepared scrub gel was evaluated using various parameters and was found to be satisfied with the application on the skin to make it healthy and glowing without any side effects. Since *L. acidissima* are natural anti-aging and anti-wrinkle agents, they are incorporated into the formulation which increases the efficiency of the product.

## REFERENCES

- [1]. Rahman Mohd. Mukhlesur, Gray Alexander I. Antimicrobial constituents from the stem bark of *Feronia limonia*. *Phytochem*, 59, 2002, 73-77.
- [2]. Patel BD, Shrivastava R, Upadhyay RK. Phytochemical and pharmacological studies of root and root bark of *Feronia limonia*(L.) Swingle. *Indian J Forest*, 5, 1982, 14-17.
- [3]. Pokale S, Kushwaha R. A Review on Antidiarrhoeal Activity of Herbals. *Int J Res Pharm Biomed Sci*, 2, 2011, 1357-1362.
- [4]. Ilango K, Chitra V. Antidiabetic and antioxidant activity of *Limonia acidissima* linn. alloxan induced rats. *Der Pharmacia Lettre*, 1, 2009, 117-125.
- [5]. Smith, Albert C, *Flora vitiensis nova: a new flora of Fiji*, National Tropical Botanical Garden, Lawai, Kauai, Hawaii. 3, 1985, 526,527,758.

- [6]. Chopra RN, Nayar SL, Chopra IC, Glossary of Indian medicinal plants, PID, New Delhi, 1956, 117.
- [7]. Jadeja BA, Odedra NK, Danger NR, and Baxi US. Ethnomedicinal plants used by the people of Saurashtra to cure diarrhea. *Plant Archives*, 5, 2005, 381-392
- [8]. Senthilkumar KL, Kumawat BK, Rajkumar M, Senthilkumar. Antidiarrhoeal activity of bark extracts of *Limonia acidissima* Linn. *Res J Pharm Bio ChemSci*, 1, 2010, 550-553
- [9]. Medicinal Plants, Publication and Information Directorate, New Delhi, p 67, 99, 108.
- [10]. Ilango K, Chitra V. Hepatoprotective and Antioxidant Activities of Fruit pulp of *Limonia acidissima* Linn. *Int J Health Res*, 2, 2009, 361-367.
- [11]. Nandkarni KM. *Indian Materia Medica*, Vol. I, Popular Prakashan, Bombay, pp. 535-537
- [12]. Panda N, Patro VJ, Jena BK, Panda PK. Evaluation of Phytochemical and Anti-Microbial Activity of Ethanolic Extract of *Limonia acidissima* L. Leaves. *Int J Herb Med*, 1, 2013, 22-2
- [13]. Jayashree V H, Londonkar R. Comparative phytochemical studies and antimicrobial potential of fruit extracts of *Feronia limonia* Linn. *Int J Pharm PharmSci*, 6, 2014
- [14]. Vijayvargia P, Choudhary S, Vijayvargia R. Preliminary phytochemical screening of *Limonia acidissima* Linn. *Int J Pharm PharmSci*, 6, 2014, 134-136.
- [15]. Thomas A, Ponnammal NR. Preliminary studies on phytochemical and antibacterial activity of *Limonia acidissima* L. plant parts. *Ancient Sci Life*, 25, 2005.
- [16]. Chakraborty DP. Chemical examination of *Feronia* phantom. *Corr. J Sci. Industr. Res*, 18 B, 1959, 90-91.
- [17]. Patra A, Misra SK, Chaudhury SK. Constituents of *Limonia acidissima* application of two dimensional NMR spectroscopy in structure elucidation. *J. Indian. Chem. So*, 65, 1988, 205-208.
- [18]. Mohana Priya E, Gothandam KM, Karthikeyan S. Antidiabetic activity of *Feronia limonia* and *Artocarpus heterophyllus* in streptozotocin-induced diabetic rats. *American J. food. Tech*, 7, 2012, 43-49.
- [19]. Joshi RK, Patil PA, Muzawar MHK, Kumar D, Kholkute SD. Hypoglycemic activity of aqueous leaf extracts of *Feronia elephantum* normal and streptozotocin-induced diabetic rats. *Pharmacology online*. 3, 2009, 815-821.
- [20]. Ilango K, Chitra V. Wound Healing and Anti-oxidant Activities of the Fruit Pulp of *Limonia Acidissima* Linn (Rutaceae) in Rats. *Trop J Pharm Res*, 9, 2010, 223-23