

# To Prepare and Evaluate Herbal Antimicrobial Gel

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**Abstract:** *The main Objective of the project is to prepared and evaluate herbal antimicrobial gel formulation was done on the basis Neem, Tulsi, Curry Leaves. The above mentione plant are good antimicrobial, anti inflammatory, antioxidant properties. Antimicrobial Gel are prepare and measures by the Consistency, viscosity, Determination of spreadability, skin irritation test, Stability.*

**Keywords:** Holy basil, Ocimum sanctum L, Murrayakoenigii, Ethanol (95%) Gel Base: Carbopol 940 Stabilizers, Preservatives: (Methyl paraben, Propylparaben)

## I. INTRODUCTION

According to the World Health Organization (WHO, 1977) "A medicinal plant" is any plant, in which one or more of its organs contains substances that can be used for the therapeutic purposes or which, are precursors for the synthesis of useful drugs. Herbal antimicrobial gel is a natural substance used in combination with a medicine obtained from a natural source to kill microorganisms. The use of medicinal plants in traditional medicine has been described in literature dating back several 1000 years. Books on Ayurvedic medicine, written in the Vedic period (3500–1600 B.C.) describe practices, including the use of medicinal plants. Plants such as neem, tulsi, curry leaves there are the primary source of therapeutics and each part of the plant, including the seeds, root, stem, leaves, and fruit, potentially contains bioactive components.

### 1) NEEM



**Fig No.1**

**Synonyms:** Antelaeeazadirachta (L. Adelb., MeliaazadirachtaL.

**Biological Source:** It is obtained from fully matured

**Family:** Seeds of Azadirachta indica Linn. Meliaceae

**Chemical Constituents:** It contains glycerides of saturated and o unsaturated fatty acids.

#### Uses

Nearly all parts of the neem tree are useful, and many of its medicinal and cosmetic uses are based on its antibacterial and antifungal properties.

Neem is commonly used in shampoos for treating dandruff and in soaps or creams for skin conditions such as acne, psoriasis, and athlete's foot.

It is also a component in some toothpastes and mouthwashes.

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## 2. Tulsi



**Fig no. 2**

**Synonyms :** - Sacred basil, Holy basil.

**Biological Source :-** Tulsi consists of fresh and dried leaves of *Ocimum sanctum* Linn., belonging to family Labiatae.

**Chemical Constituents:-** It contains approximately 70% eugenol, carvacrol (3%), and eugenolmethyl-ether (20%). It also contains caryophyllin. Seeds contain fixed oil with good drying properties. The plant is also reported to contain alkaloids, glycosides, saponin, tannins, an appreciable amount of vitamin C and traces of maleic, citric, and tartaric acid.

### Use

The fresh leaves, its juice and volatile oil are used for various purposes.

The oil is antibacterial and insecticidal.

The leaves are used as stimulant, aromatic, spasmolytic, and diaphoretic.

## 3. Curry leaf



**Fig No.3**

**Synonyms:** Curry Leaf English, MithaNeem in Hindi, and Surabhinimba in Sanskrit.

**Biological source:** Curry Leaf consists of the fresh and dried leaves of *Murrayakoenigii*

**Family:** Rutaceae.

**Chemical constituents:** linalool, geranyl acetate, myrcene, allo-ocimene,  $\alpha$ -terpinene.

### Uses

Ant diarrheal, anti-inflammatory,

Antifungal, blood purifying.

## II. MATERIAL AND METHOD.

### Collection of plant material.

The authentic fresh leaves of NeemTulsi (*Ocimum sanctum* L), curry tree (*Murrayakoenigii*), was collected from the surrounding agricultural area of college campus. The collected fresh leaves of each plant were washed under running water and shade dried for one week. After drying plant leaves and stem were coarsely powdered with the help of grinder and prepared into 80 mesh size.

#### **Preparation of extract**

Take a 1000 ml beaker, add 50 gm of coarsely powder of dried plant materials was weighed and soaked in 300 ml of distilled water and 25 ml of methanol. Allow to stand for 4-5 days with occasional stirring. Then after the extract was filter and concentrated by using desiccator with the help of desiccating agent (calcium oxide) for 4-5 days. Dry extract was then powder with the help of mortar and pestle and stored in well closed container.

#### **Preparation and formulation.**

Accurately weighed Carbopol 934 was taken in a beaker and dispersed in 50 ml of distilled water.

Kept the beaker aside to swell the Carbopol for half an hour and then stirring should be done using mechanical/lab stirrer at 1200 rpm for 30 min. Take 10 ml of polyethylene glycol (400) and required quantity of Extract.

Take 10 ml polyethylene glycol in another beaker and add weighed quantity of Propyl paraben and methyl paraben to it and stirred properly.

After all Carbopol dispersed, 1 gm extract and preservatives solutions were added with constant stirring.

Finally, volume made up to 100 ml by adding remaining distilled water and Triethanolamine was added drop wise to the formulations for adjustment of required skin pH (6.8-7) and to obtain the gel at required consistency.

### **III. EVALUATION**

#### **PH Determination**

A digital pH meter was used for the determination of pH of the prepared gel formulation.

#### **Appearance**

A visual inspection was done in order to check the physical appearance and the homogeneity of the prepared gel formulation.

#### **Spreadability**

About one gram of sample was weighed and place at central of glass plate and another glass plate was place over it carefully about glass plate 100 gram weight was place up on upper slide so that the formulation between two was pressed uniformly to form a thin Layer the weight was remove the excess of formulations adhering is to the slide was scrapped of one of the slide was fixed on which the formulation was placed the time in which upper slide moves over the lower plate was taken as measured of spreadability . Spreadability is calculated by using formula.

$$S = M \times L / T$$

Where, M= weight on the slide

L= Length moves on the slide,

T= Time is taken.

#### **Viscosity**

Viscosity of gel was measured using Brookfield viscometer with a spindle number 6 at 100 RPM

#### **Skin irritation test**

It was performon 10 healthy volunteers comprise of both male and female.

#### **Antimicrobial Activity**

Evaluation and antimicrobial activity can be done by using divs plate method

### **IV. CONCLUSION**

A thousand years ago describes how medicinal herbs are used in conventional medicine. 70%–80% of people utilize herbal medicine as their primary form of healthcare. From the study we can say that Tulsi, curry leaves, and neem. These herbs demonstrate to be certainly beneficial as a supplement to mechanical therapy in the prevention and treatment of tropical skin illness. Also serve a multipurpose product that use in rashes, dry skin, irritation and local infection etc. From the study we can conclude that, Herbal antimicrobial gel containing Tulsi, curry leaves, neem was

successfully prepared and evaluated. From the evaluation of the herbal antimicrobial gel, we can conclude that formulation has a potent antimicrobial activity evaluate against the bacteria bacillus subtilis and fungi candida albican.

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