

**FORMULATION AND EVALUATION OF BETEL LEAF ANTI-ACNE  
FACEWASH**

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**ABSTRACT**

Now days usage of herbal products has increased many folds an account of side effects observed with conventional products. Piper siriboal. Commonly known as betel leaf is renowned for its medicinal properties and is found across the globe. Betel leaf extract evince various traints such as antibacterial, antifungal, antioxidant, anti- acne, anti-cancer, antimicrobial. & anti-diabetic properties. This study focuses on the development and evaluation of herbal antti- acne facewash incorporating aqueous extract of betel leaf. Unlike many existing topical herbal formulations for ance, which many incorporate synthetic ingredients, we aim to create a purly herbal formulations.

**INTRODUCTION**

Facewash apply to products, that clean the face without drying it out.

Facewash is particularly effective in removing dirt, oil & moisture from dry skin.<sup>[7]</sup> Piper betel leaf is heart-shaped deep green leaf that promote on a root climbing vine.<sup>[10]</sup> Traditional remedy has employed plant leaves that cure the variety of illness.

Hydroxychavicol(HC), an important component of Piper betel leaf extract is an allybenzene class of natural products. HC has been. Reported to posses anti-mutegenic anti-carcinogenic activity & several other biological activities like antimicrobial, anti-oxidant. & anti-inflammatory.<sup>[10]</sup> Anti-acne is a skin disorder. That set upproblems, which results causing significant difficulties, distress.

Impairment & suffering in person daily life. Touches many men & women between ages 20-50.<sup>[8]</sup> Acne the that disturb the surface of shin on the face, neck, chest & back that appears in a short time.<sup>[11]</sup> Acne generally clears by early outwood. the men have still acne, at age 25 years. female patients frequently have adult acne. women Still have acne at age 25 years. Minimum quantity of women serve acne at age 45 years.<sup>[12]</sup>

### Type of acne<sup>[12]</sup>

1. White heads
2. Black heads
3. Papules
4. Pustules
5. Nodules
6. Cysts



1. **Whiteheads:** Which block hair follicles that stay beneath the skin & produce a white pump.
2. **Blackheads:** Which block hair follicles that enter the surface of skin & open up.
3. **Papules:** Inflamed lesions that usually appear a small pink baumps.
4. **Pustules:** White or yellow pustules filled lesions that may be red at base.
5. **Nodules:** Large, painfull solid lesions, that are deep within the skin.
6. **Cysts:** Deep, painfull, pus-filled lesions.<sup>[12]</sup>

### Advantages<sup>[1,6,8]</sup>

1. Hepls keep skin fresh and healthy.
2. Enhances skin radiance.
3. It gives the skin a healthy glow.
4. Promotes skin regeneration & rejuvenation.
5. It helps to remove dead skin cells & helps new skin cells replace old ones.

**Disadvantages<sup>[9]</sup>**

1. Use facewash only twice a day.
2. The biggest drawback is its limited use.
3. Removes dead skin cells, which reduces your skin wrinkles more slowly.
4. Facial cleanser only cleans the face, it is a safer body wash.

**Benefits of betel leaf**

1. It is good for diabetics.
2. It lowers your cholesterol.
3. It helps with depression.
4. It improves oral health.

**Objective<sup>[5,6]</sup>**

1. The use of harmful chemicals on facial skin.
2. To make skin soft & remove dead skin.

**Preparation method of betel leaf extracts****1. Plant material selection & collection**

Choosing disease free & healthy plants is crucial for efficient phytoconstituent isolation.

**2. Plant material drying**

The drying process is essential for extracting plant material. The plant material are drying by the methods such as, microwave drying, oven drying, silica gel, salt drying & freeze drying are also utilized.

**3. Grinding & size reduction**

Grinding & size reduction is necessary for the soxhlet extraction process.

**4. Size separation / sieving**

Uniform particle size important for efficient soxhlet extraction.


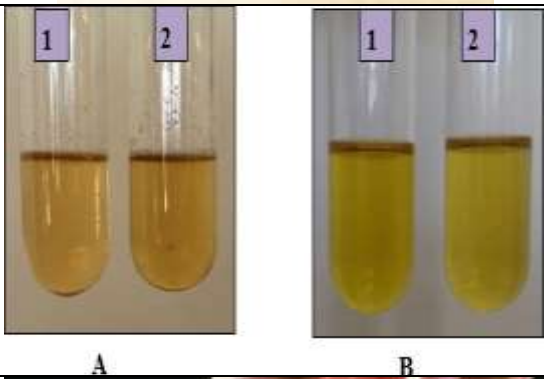


**5. Solvent selection for soxhlet extraction**

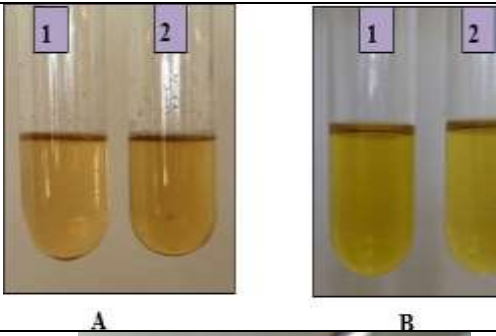





Solvent selection for soxhlet extraction is based on the phytochemical isolation process.

## 6. Post extraction process

Extracted material undergoes processes, such as concentrate extraction, solvent evaporation & extract storage.

### Phytochemical Analysis of betel leaf facewash

Sr.no.	Test	Procedure	Observation	Photos
1	Test for alkaloids	2ml of plant extract+ few drops of Wagner solution	Brown reddish precipitate.	
2	Test for flavonoids	2ml of plant extract+ 1ml of 2N NaOH	Yellow colour show	
3	Test for glycosides	2 ml of plant extract+ few drops of concentrated $H_2SO_4$	Formation of red colour	
4	Test for aminoacid	2ml of plant extract + 2-5 drop of ninhydrin solution. Samples were kept in boiling waterbath for 1-2min	Purple colour appear	

5	Test for tannins	2ml of plant extract + 2 drops of 5% ferric chloride solution.	Yellow colour appear	
6	Test for reducing sugar	2ml of plant extract + 2ml fehling's solution. Sample was kept in waterbath for 40°C	Brick red precipitate on	
7	Test for steroids	1ml of plant extract + 2 ml of acetic acid 2-3drops chloroform were added to the test tube. 2 drops conc. H <sub>2</sub> SO <sub>4</sub> added	Blue colour appear	
8	Test For phenols	2ml of plant extract+few drops of 10% aqueous ferric chloride solution	Blue or green colour appear	
9	Test for saponins	2ml of plant extract+2ml of distilled water and shaken vigorously	Foam on the top of sample appear	
10	Test for carbohydrates	1ml of plant extract+few drops of molish reagent+ 1ml of conc. Sulphuric acid	Red-violet colour appear	

**Formulation table of betel leaf facewash**

Sr.no.	Name of ingredients	Properties
1	Ethanolic betel leaf extract	Anti-microbial, anti-oxidant
2	Carbopol 934	Gelling agent
3	Triethanolamine	Neutralizer
4	Propylene glycol	Humectant
5	Betel leaf oil	Preservatives
6	Sodium lauryl sulphate	Foaming agent
7	Distilled water	Vehicle

**1. API****Betel leaf**

Betel leaves have antibacterial activity against propionibacterium. acnes.<sup>[11]</sup>

It is primarily use to treat chronic, rather than life-threatening, illness & to promote health.<sup>[10]</sup>

**Drug profile**

**Family name:** Piperaceae.

**Synonyms:** Piper Siribal.

**Common name:** Betel leaf, betel vine, betel paper.

**Morphology:** It has shiny heart shape leaves with small white flowers spikes.

**Chemical Constituents:** Carophyllene, cadinene allyl acetechol, eugenol methyl ether.

**2. Gelling agent**

- Carbopal 934**

Carbopol 934 is a white, water soluble crosslinked palyacrylic acid polymer, that is used as a gelling agent. It has a creamy sensory profile & short flow properties.

**3. Neutralizer**

- Triethanolamine**

Triethanolamine (TEA) is used as a neutralizer in a variety of products.

Skin care & haircare products, because it neutralizes acids, regulates PH & improves product Stability.

#### 4. Humectant

- **Propylene Glycol**

Propylene glycol is used as a humectant in many products, including Cosmetics, personal care products, lotions & serums.

#### 5. Preservative

- **Betel leaf oil**

Betel leaf oil can be used as a preservative because it has antimicrobial & antioxidant properties.

Antimicrobial: Betel leaf oil can inhibit the many types of microorganisms including gram +ive & gram -ive bacteria.

Anti-oxidant: Betel leaf oil has anti-oxidant properties.

#### 6. Foaming agent

- **Sodium lauryl sulphate**

Yes, sodium lauryl sulphate is a foaming agent that is used in a variety of products including, personal care products cleaning products.

#### Evaluation parameters of betel leaf

Sr.no.	Name of Ingredients	Properties
1	Ethanollic betel leaf extract	Anti-microbial, anti-oxidant
2	Carbopol 934	Gelling agent
3	Triethanolamine	Neutralizer
4	Propylene glycol	Humectant
5	Betel leaf oil	Preservatives
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#### 1. Colour<sup>[1]</sup>

The colour of facewash gel was checked visually.

#### 2. Odour<sup>[7]</sup>

The formulation was evaluated its odour by smelling it.



**3. Consistency<sup>[7]</sup>**

It was determined manually.

**4. PH<sup>[2]</sup>**

PH of 1% aqueous solution of the formulation will be measured by calibrated digital PH meter.

**5. Washability<sup>[1]</sup>**

The product will be pointed by hand & was observed under running water.

**6. Foamability<sup>[2]</sup>**

Small amount of gel was taken in a beaker containing water. The good foam ability was observed.

**7. Irritancy test<sup>[11]</sup>**

Definite quantities of prepared facepacks were applied to the specified area & time was noted.

**CONCLUSION**

Neutral remedies are more acceptable in the belief that they are safer with fewer side effects than the synthetic herbal formulation are global market. It is a fantastic endeavor to build the herbal face Wash with betel leaf extracts.

The development of herbal face wash Utilizing aqueous extract of betel leaf represent a commendable effort in this direction.

Betel leaf face wash are widely recognized for there effectiveness in treating acne, while Providing moisturization & cleansing benefits. They are particularly suitable for both Oily & dry Skin type.

The evaluation of various parameters including Color, PH, consistency, washability irritability and foamability confired the superiority of the formulated betel leaf facewash over commercial alternatives.

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