



A Review Article On: Phyto Protection From Acne By Polyherbs.

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Abstract :

One of skin diseases that is frequently taking attention among teenagers and young adults is acne or in medical term called acne vulgaris. Acne is the disease which agitates the face during the primary phase of life, i.e. pubescent to adulthood. In Ayurvedic has been quoted as Mukhadushika or Yuvanpidika. Acne can be treated by repairing follicular abnormalities, decreasing sebum production, decreasing the number of Propionibacterium acnes colonies and reducing inflammation of the skin. The bacterial population of Propionibacterium acnes can be reduced by giving an antibacterial substance such as erythromycin, clindamycin and benzoyl peroxide. In the treatment of acne we can get antibacterial originating from nature, one of which can be obtained in the secondary metabolism of plants. The extracts and essential oils of Piper Betel leaf contain antibacterial and antifungal activities. The effectiveness of the use of Piper Betel Leaf ethanol extract (Piper betel Linn) in acne treatment can be improved by creating formulations in the form of cream preparations.[1]

Key words: Acne vulgaris, Ayurvedic, cosmaceutical, cream, Yuvanpidik

INTRODUCTION:

Acne, or medically known as acne vulgaris, is a constant concern of adolescents and young adults. [1] This disease is not fatal, but is a concern on the face of the victim as it is associated with selfdoubt due to the loss of beauty. Acne is caused by many factors such as genetics, endocrine, food, sebaceous gland function, psychological, seasonal, bacteria (Propionibacterium acnes), cosmetics and other drugs. Patients often complain of rashes on the face, shoulders, neck, chest, back and arms in the preferred area. It can also be uncomfortable as acne is accompanied by itching. Acne causes skin breakouts such as comedones, papules, pustules, nodules or cysts.

It is not a lifethreatening disease, but a skin disease that can cause serious mental damage.

It is a disease that affects people and has a great impact on their quality of life. [2]

Herbs and herbal products are making a comeback and a herbal "renaissance" is taking place all over the world. Today's herbal products are labeled as safe, while synthetic products are considered unsafe for humans and the environment.[3]



Fig.no.1: acne on the face

In the treatment of acne, an alcoholic extract of betel leaf (Piper betel Linn) can be formulated as a cream formulation. The formulation affects the amount and amount of active ingredients that can be absorbed. The active ingredient in a cream formulation enters the base or carrier, which brings the drug into contact with the skin surface.

Carriers used in cosmetics can be effective in drug absorption and can be beneficial if chosen correctly. Ideally, foundations and foundations should be easy to use on the skin, non-irritating, and easy to use. Along with betel and guducci leaf extracts, has antibacterial properties against *Staphylococcus aureus*.

Creams are w/w or w/w emulsions containing an aqueous phase and an oily phase.

Cosmetic preparations are used in the treatment of various skin conditions such as skin pigmentation and skin aging. Many people use whitening creams to treat various skin conditions. Wrinkled skin. Betel leaf belongs to the *Piperaceae* family. Phenols and flavonoids from the leaves have antibacterial properties.

DRUG PROFILE :

1. Piper betel leaf
2. Guduchi leaf

1. Piper betel leaf :

Piper betel leaf contains chavicol, chavibetol, eugenol, carvacrol, phenol and flavonoid. Guduchi leaf is one of the multipurpose herbal medicine which comes under family *Menispermaceae*. It contains alkaloids, diterpenoid lactones, glycosides, steroids, sesquiterpenoid, choline, palmatine, tetrahydropalmatine and magnoflorine.



Fig.no.2 piper betel leaf

Piper betel Linn. An important species of the *Piperaceae* family, it is an evergreen and perennial herb with glossy, heart-shaped leaves that is an important reservoir of phenolic compounds with antiproliferative, antimutagenic, antibacterial and antioxidant properties.

Phytochemical studies have shown that the fruit contains many bioactive compounds, the concentration of which depends on different plant species.

Many studies on pinene have shown that it contains important chemicals such as pinitol, pinpinene acetate, caryophyllene, allyl catechol diacetate, camphene, pinpine methyl ether, Eugenol, α -pinene, β -pinene, saffrole, 18-cineol, and allyl catechol monoacetate. These components are considered stimulant due to their medicinal properties such as antibacterial, antifungal, anti-inflammatory, anti-inflammatory, anti-inflammatory, Antibiotics, Antibiotics, Antibiotics, Antibiotics, Antibiotics, Antibiotics, Antibiotics, Antibiotics and Antibiotics.

This review attempts to illustrate the various medicinal uses and medical information of the leaves [2] Giving the juice for the treatment of cough and indigestion in children. So far, many scientific studies have provided a lot of information about the leaves and their activities, such as the activity of the immune system, immunity, research findings, antibacterial, antibacterial, antioxidant activity, antidiabetic activity, gastroprotective activity, anti-inflammatory activity, cytotoxic activity, antiplatelet activity, etc.

History:

Betel is a perennial tree that God created and gave its heart to.

Anthropologists have found traces of fruit in the spiritual caves of northern Thailand dating back to between 5,500 and 7,000 BC, even before the advent of agriculture and integration.

Ayurvedic Meaning:

Piper betel is a Vedic herb whose Vedic name is Saptasira, known as Tambool, Nagvelleri, Nagani in Sanskrit and used to treat many ailments. References to Tambool ranged directly from Vatsyayana's Kamasutra & Panchatantra to Kalhan's Rajatarngni (possibly the last ancient Sanskrit work of recognized historical significance). So, Tambool is estimated to be around 2000 years old. The characteristics of the leaves in the Ayurvedic medical system are as follows:

- Guna (Quality) :Laghu, Ruksha, Tikshan
- Rasa (Taste) : Tikt
- Vipak (Metabolism) : Katu
- Virya (Potency) : Ushan
- Prabhav (Impact) : Hridya[2]

Taxonomical Classification:

- Kingdom : Plantae
- Division : Magnoliophyta
- Class : Magnolipsida
- Order : Piperales
- Family : Piperaceae
- Genus : Piper
- Species : Betel

Vernacular Names:

- Sanskrit : Tambool, Mukhbhushan, Varnalata
- Hindi : Paan
- English : Betel, Betel pepper, Betel-vine
- Telugu : Nagballi, Tamalapaku
- Tamil : Vetrilai
- Gujarati : Nagarbael.

Their use ranges from chewing to medicine and is recorded in all social and cultural contexts, in religious ceremonies and as given to the gods.[3]

Antibacterial activity :

Betel leaves are potent against *Escherichia coli*, *Streptococcus pyogenes* and *Staphylococcus aureus*. Minimum inhibitory concentration (MIC) values were 3.12×10^2 , 2.50×10^3 and 5.00×10^3 $\mu\text{g/mL}$, respectively.

Ethanol extracts showed activity against *Streptococcus pyogenes*, *Escherichia coli* and *Staphylococcus aureus*. MIC values are $:1.25 \times 10^3$, 5.00×10^3 and 5.00×10^3 $\mu\text{g/mL}$, respectively.[4]

2. Guduchi leaf :

Root of Guduchi having anti-oxidant activity and it will reduce tissue cholesterol, phospholipid and free fatty acids [16]. Root is used for visceral obstruction; its water extract is used in leprosy [17] Leaves are extensively used in the treatment of fever, urinary tract disorder, diabetes, anaemia, asthma, cardiac disorder, bacterial infection [18] body” and an Amrita means the nectar that confers immortality”. Every part of the plant has therapeutic values.[19]



Pharmacological Activities :

One of many medicinal plants of Fangjiaceae containing alkaloids, diterpene lactones, glycosides, steroidal mats, peptide s, steroidal mats. and magnofluorine. [6]

Over 50 years of international scientific research has revealed a deep understanding of the medicinal properties of bezoar. Raw extracts and pure compounds of Tinospora plants have outstanding antidiabetic, antioxidant, antitumor, antiinflammatory, antibacterial, antiosteoporotic and immunostimulating properties.

In this section, the activities of active compounds and mixtures against this type are highlighted. [6] The antibacterial susceptibility of the ethanol extract of T. cordifolia revealed that it exhibits high activity against the treatment of secondary metabolites Staphylococcus aureus and Klebsiella pneumoniae [12].

More importantly, stimulation of the embryogenic callus of T. cordifolia in the presence of additional compounds can suppress both Gram-positive and Gram negative bacteria [6] It belongs to the:

Family: Menispermaceae.

Botanical names: *Tinospora cordifolia* (TC), *Menispermum cordifolium* and *Cocculuc cordifolia*.

This plant has been found in the Himalayas and many other places. . South India. It has the following medicinal uses. This herb is used in the treatment of HIV/AIDS, Jaundice, indigestion, constipation, hemorrhoids, dysentery and Cancer (to increase one's energy before and after chemotherapy). It is also used as a blood purifier and antipyretic.

Formulation of cream :

Materials used for anti acne cream:

Ingredients	Functions	Quantity (%)
Phase A [O]		
Steric acid	Moisturiser	14%
Zinc oxide (%)	Skin whitener	3%
liquid paraffin (%)	Emollient	3%
Cetostearyl alcohol (%)	Softener	1.5%
Phase B [W]		
Citric acid	Preservative	0.3%
Triethanolamine	Stabilizer	1%
Propylene glycol (%)	moisturizer	8%
Methyl paraben	Preservative	0.02%
Water	Vehical	65%
Propyl paraben	Preservative	0.02%
Piper betel leaf Extract	Anti-Acne agent	5%
Guduchi leaf Extract	Anti-acne Agent	5%

Table 2: formulation of Anti-acne cream.

Evaluation of herbal cream:

1.Appearance:

All the batches of herbal cream are tested for appearance by visual observation.[8]

2.Determination of pH:

The pH of herbal cream was determined by using a pH meter. The measurements was performed at 1, 30, 60, 90 days after preparation to detect any pH changes with time.[10]

3.Viscosity:

The viscosity of the prepared herbal under eye cream was carried out by Brookfield viscometer (Model RVTDV). The readings were taken at 100 rpm using spindle no.6.[10]

4.Spreadability:

Two glass slides with standard dimensions are chosen in order to assess the spreadability of the gel compositions. The formulation whose spreadability is to be assessed spread over one slide, and the other slide is placed on top, sandwiching the gel in between them. After pressing the slides together to remove any air, the gel that is sticking to them is removed. The upper slide is linked to a weight, which caused it to slide off by force, allowing only the lower slide to be held firmly by the opposing fangs of the clamp. Carefully connect to the upper slide a 20 g weight. The time it took for the upper slide to fully separate from the bottom slide is recorded. (9)

5.Drug diffusion:

The drug diffusion is carried out by Franz diffusion cell using cellophane membrane. Franz diffusion cell consists of 2 compartments, one is donor and the other is receiver. And in between that 2 compartment cellophane membrane is placed.[10]

6.Drug content:

For determination of drug content 1gm of cream was dissolved in 30 ml of methanol and kept for 1 hour by continuous stirring.

After 1 hour the absorbance of that sample was taken at 255nm and drug content was calculated.

7.Centrifugation testing:

Centrifugation testing is done by cream is placed in centrifugation testing apparatus and the separation of two phases was observed.

8.Freeze thaw test:

In freeze thaw testing herbal creams are placed in freeze at low temperature and then cream was placed at room temperature. This cycle was repeated for 5 times and changes were observed by visual observation.[11]

9.Sun exposure evaluation:

The sun exposure evaluation cream was placed under sun light for 24 hours and the changes are observed by visual observation.

10.Homogenicity test:

All creams were tested for physical homogeneity by visual observation.[13]

11.Stability study of herbal cream:

The stability study was performed as per ICH guidelines. The formulated herbal creams are filled in well closed containers and stored at different temperatures and humidity conditions, viz. 25^o C and 60% RH for a period of 3 months and studied for appearance, pH, viscosity.[14]

12.Antimicrobial study

For anti microbial study agar broth medium is used. First of all the MIC (Minimum Inhibitory Concentration) of the extract was carried out against *Escherichia coli* and *Staphylococcus aureus*. The herbal cream was screened against bacterial strains of *Escherichia coli* by using agar disc-diffusion assay. The zone of inhibition was measured. The prepared herbal anti-acne cream was compared with the marketed formulation for antimicrobial activity.[15]

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