

ACNE AND IT'S TREATMENT BY USING HERBAL MEDICINAL PLANT

Bushra S. Sayyed¹ Rutuja S. karad²

¹Department of Pharmaceutics, P.R.E.S. 's, College of Pharmacy (For Women), Chincholi, Nashik, Maharashtra, India.

²P.R.E.S. 's, College of Pharmacy (For Women), Chincholi, Nashik, Maharashtra, India.

ABSTRACT

Acne vulgaris One of those most popular dermatological conditions affecting adolescents is *acne vulgaris*. A skin condition known as *acne vulgaris*, or simply *acne*, affects people and is characterized by skin that is red and scaly (*seborrhea*), as well as blackheads and whiteheads. (*comedones*), pinhead-sized papules (*nodules*), big papules (*pimples*), scarring, and pimples. *Acne A pilosebaceous unit illness called vulgaris is characterized by the development of open and comedones, papules, pustules, nodules, and cysts that have closed. Acne impacts skin that is thick. There are sebaceous follicles on the back, chest, and face. Acne poses no danger to your life. however, severe acne can have an effect on social interactions and mental health.*

Acne is a cutaneous pleomorphic condition of the pilosebaceous unit characterized by both inflammatory (papules, pustules, and nodules) and noninflammatory (comedones, open and closed) lesions. Acne involves irregularities in sebum production. Staphylococcus epidermis and Propionibacterium acnes are two frequent pus-forming bacteria that cause the evolution of acne vulgaris in its different forms. Topical, oral, and intravenous medications are all frequently used treatments for acne. hormonal, herbal, systemic, and combination therapy. The disease's consequences serve as a defining characteristic. characteristics of acne in skin of color, such as keloidal or hypertrophic scarring and post inflammatory. hyper pigmentation Although there are similar alternatives for medicinal and surgical treatment, these aspects should be considered when creating an acne treatment plan. This evaluation focuses on the remedy

Key word: *Acne Vulgaris, Comedones, Inflammatory, Skin, Herbal*

INTRODUCTION: Acne, sometimes known as "zits," "spots," or "pimples," is a common disease, especially among young people. Sometimes it can even impact young children and adults. It frequently creates a great deal of anxiety and discomfort but can typically be resolved, or at the very least much lowered, with the proper therapy. Even after the spots have disappeared, you might need to keep up the therapy for a time. The process might take around a month.^[1] *Acne vulgaris*, often known as *acne*, is a persistent condition that affects many people and is brought on by abnormal sebum production in skin follicles. The condition frequently has an impact on confidence. When unusual sebaceous therapies for treating acne first appear, acne becomes pathogenic. many harmful effects brought on by the chemical elements in cosmetic goods, which commonly cause skin rashes and bacterial resistance disorders ^[2] Natural cures, especially herbal therapy, have been used for thousands of years. Interest in medicinal plants has steadily grown over the past ten years as a result of rising antimicrobial resistance, side effects, and often expensive treatment costs.^[3]

85% of people have *acne vulgaris*, a common inflammatory skin disorder, at some point in their life. It is a specific kind of skin condition that develops when dead skin cells restrict the hair follicles. Even while there is a lower death rate linked with this skin condition, the psychological implications make it a serious health problem. Both boys and females have acne throughout adolescence. The stimulation of testosterone by the follicular canal's lining cells and the growth of the sebaceous glands, which causes them to create more sebum, are both factors in keratin production. A large amount of sebum causes the canals to clog and the formation of pimples. Canal blockages will cause an excess of the bacteria that causes acne. It is commonly thought to only impact young people, but the fact ^[4].

that it affects between 40 million and 50 million people in the United States. But after childhood, a sizable proportion of people either face acne again or get it for the first time. Women were more likely than males to report experiencing acne. According to another survey, 40% of males and 54% of women over 25 have some degree of facial acne. Clinical facial acne continued into middle age in this group, affecting 12% of the women and 3% of the males. Similar findings were reported in They and Holland 1989 20 years later. Age-related increases in acne prevalence are observed in pediatric populations. Clinically diagnosed acne affects 28% to 61% of 10- to 12-year-old youngsters, whereas it affects 79% to 95% of 16- to 18-year-old adolescents. Even a sizable proportion of kids (between the ages of 4 and 7) have acne diagnoses. As a result, acne is a common skin condition in the West that mostly affects teens but also affects a sizeable number of people over the age of 25. Although there has been a significant increase in understanding recently about the dermatological treatment of persistent acne, very few research has examined the effects of appropriate physical treatment upon the psychological functioning of patients.^[5]

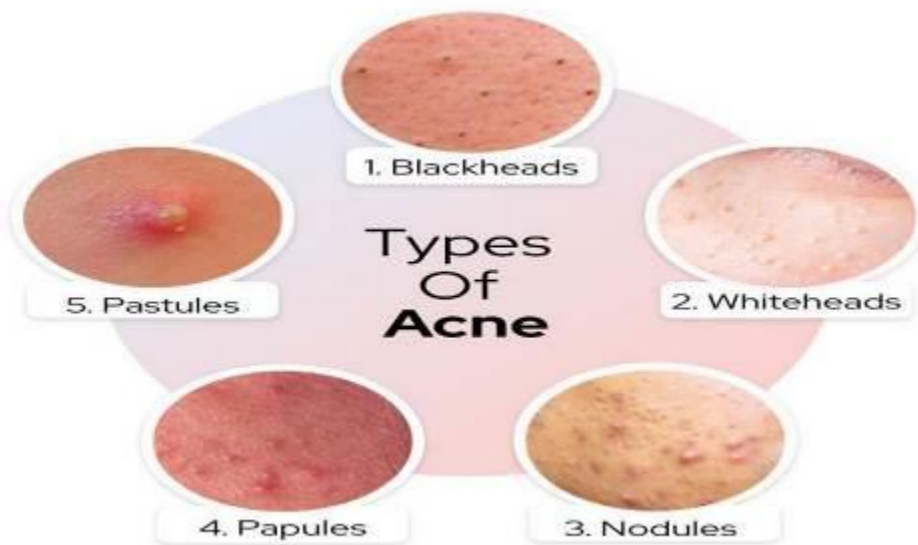


Fig 1: Acne And It's Types

Classification:

Acne vulgaris was graded by Indian authors, using a simple grading system, which classifies acne vulgaris into four grades as follows

- Grade 1: Comedones, occasional papules.
- Grade 2: Papules, comedones, few pustules.
- Grade 3: Predominant pustules, nodules, abscesses.
- Grade 4: Mainly cysts, abscesses, widespread scarring.^[7]



Fig 2: NORMAL SKIN & ACNE SKIN

Acne-causes:

- A number of medications, including birth control pills and cortico steroids.
- consuming a lot of processed sweets or glucose, such as bread and chips.
- Acne in youths is most likely to occur during puberty. The body experiences major hormonal changes at this period. These hormones may increase oil production, which raises the chance of developing acne. Typically, hormonal acne brought on by puberty goes away as a young person enters maturity.
- Whiteheads, blackheads, tiny lumps, nodules, and cysts are implied by the term "acne lesion."
- Despite the fact that acne is mostly a natural physiological occurrence, the following notable diseases can worsen its state.
- fluctuation in women's hormone levels during menstruation.
- Acne lesions that have been disturbed by plucking, probing, or little pressing them.
- Pizza, fatty and fried meals, and junk food should be avoided since they are bad for your general health even though they don't cause or worsen acne.
- Some cosmetics and skin care items block pores. For people who suffer from acne, water-based solutions are typically the best option.^[9]

Plant use for treatment:**1.Achyranthes asper (prickly chaff flower)**

Achyranthes aspera (Family: Amaranthaceae) is an important medicinal herb found as a weed throughout India. Seeds, roots, and shoots are the most significant portions that are utilized medicinally, despite the fact that practically all of its parts are employed in traditional systems of medicine. Updated knowledge on its pharmacological and Phytochemicals characteristics is provided in the current article. The review indicates several Phytochemicals compounds have been extracted from the plant, and these constituents have major therapeutic effects such as anti periodic, diuretic, purgative, laxative, anti asthmatic, hepatoprotective, anti-allergic, and many more.^[10]

Cultivation and collection:

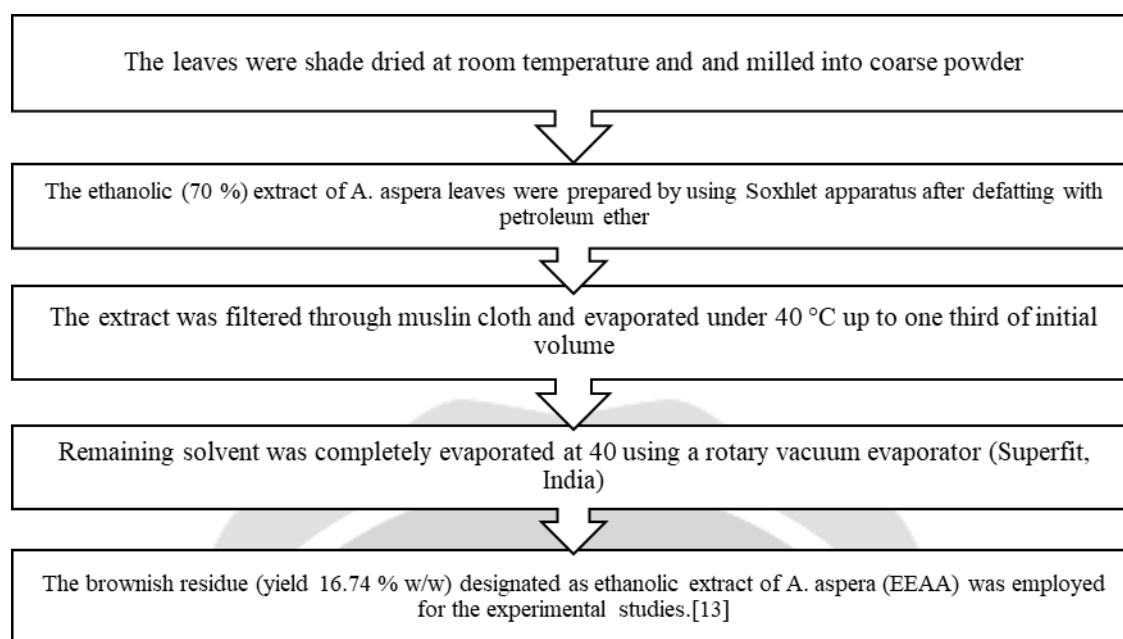
Achyranthes aspera is an erect perennial herb belonging to the family Amaranthaceae. It is widely distributed throughout the world, particularly in the tropical countries. In India, it is predominantly grown on the wasteland and on the edges of cultivated land as a weed. Various parts including leaves, roots and seed were used for therapeutic purpose.^[12]

classification:

Kingdom: Plantae
 Division: Mangoliophyta
 Class: Mangoliophsida
 Subclass: Caryophyllidae
 Order: Caryophyllales
 Family: Amaranthaceae
 Genus: *Achyranthes*
 Species: *Aspera*



Fig3: *Achyranthes aspera*

Extraction procedure:**2) *Carica papaya* linn**

Papaya (*Carica papaya* Linn.) belongs to the family Caricaceae and is well known for its therapeutic and nutritional properties all over the world. The different parts of the papaya plant have been used since ancient times for its therapeutic applications. Herein, we aimed to review the anticancer, anti-inflammatory, anti-diabetic and antiviral activities of papaya leaf.^[14]

Cultivation and collection:

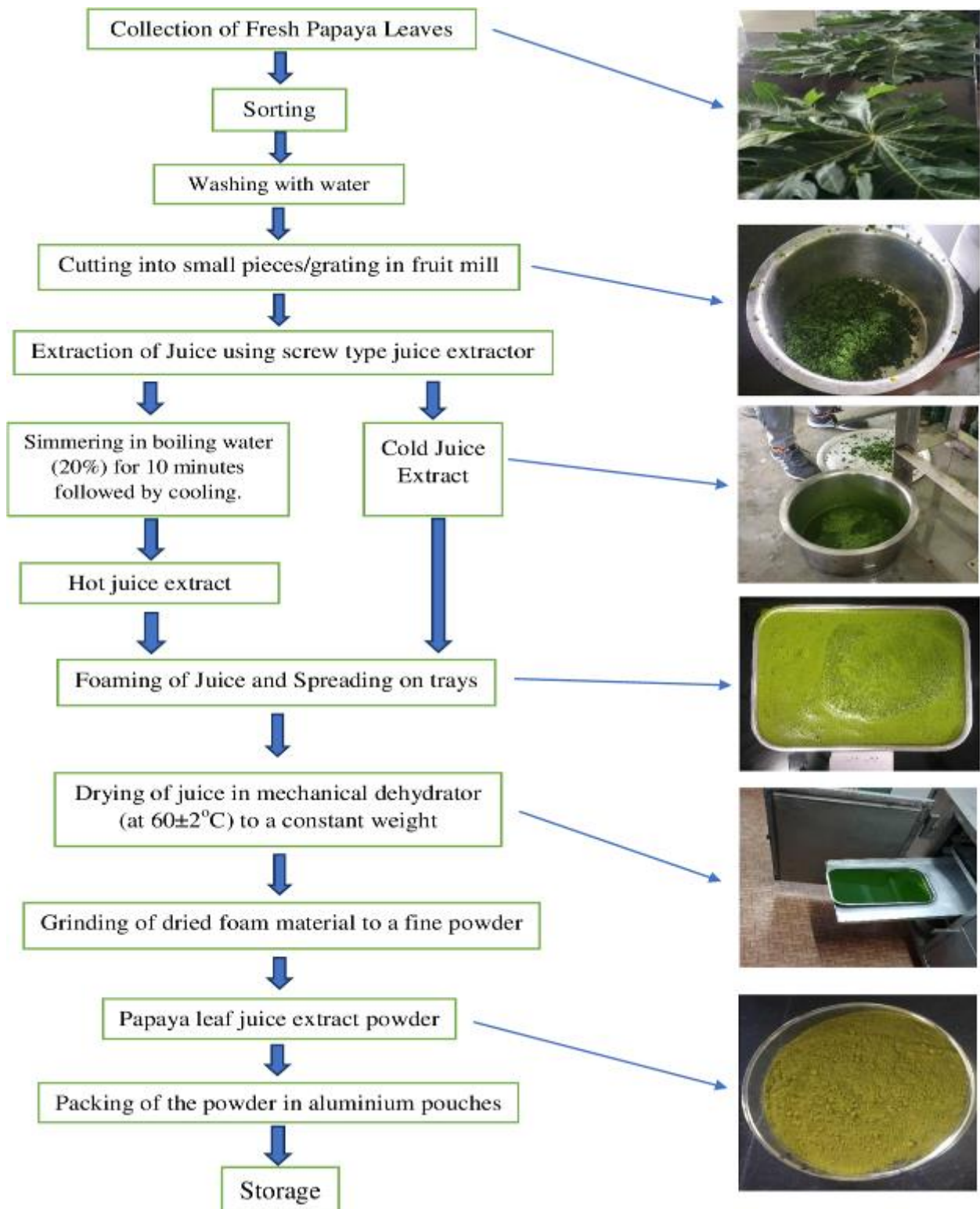
It has four types and four species in India (Krishna et al., 2008). It is found all over the world, including India, Europe, and tropical America. It is original to Southern Mexico. Other names for papaya include the papaya melon tree, papau (sometimes called pawpaw), lapaya (also spelling papaya), and tapaya. Because they have specific cells called laticifers, the plant is lactiferous. According to Anur et al. (2008), these laticifers make milky sap-like latex that is distributed throughout the plant tissues. Traditional medicine has used the entire plant, including the seeds, leaves, latex, juice, ripe and unripe fruit.^[15]

scientific classification:

Domain: Flowering plant
 Kingdom: Plantae
 Division: Tracheophyta
 Class: Magnoliopsida
 Superorder: Rosanne
 Order: Brassicales
 Family: Caricaceae
 Genus: *Carica*
 Species: *Carica papaya* L (Millind and Gurditta, 2011).^[15]

**Fig 4:** papaya

- **Extraction procedure:**



3) Licorice

Licorice, *Glycyrrhiza glabra* L. belongs to the Family – Fabaceae; Tribe Astragaleae. The name *Glycyrrhiza* is of Greek origin which means “sweet wood”. Since ancient times, licorice finds an important place in Chinese medicine.^[18] Licorice has been credited in the literature as having anti-inflammatory, antibacterial, anti-androgenic, antioxidant, skin-lightening, and turnover-accelerating qualities. Therefore, herb that aim to treat acne and the advancement of complementary medicine.^[19]

scientific classification

kingdom-plantae
division-angiosperm
subdivision-angiosperm
class-dicots
subclass-polypeptide
order-calciflore
family-Leguminosae
genus-glycyrrhizin



Fig 5: Licorice

cultivation & collection:

Licorice is also cultivated in China, France, Italy, Russia, USA and UK.

It is native to Arabia, Afghanistan, Gulf and southwest Asia and the root is cultivated in Punjab, Sub-Himalayan region and Andaman Island. Licorice herb is indigenous to several areas of Eurasia, North Africa and West Asia.^[22]

Extraction procedure:

Different extraction methods have been developed for saponins or flavonoids from *Glycyrrhiza* species. They include maceration, counter current extraction, supercritical fluid extraction, extraction by ultrasonics, Soxhlet extraction, and microwave assisted extraction.^[23] In reality, a mixture of ethanol and water (30:70, v/v) had been used to extract licorice for 60 min at 50 °C, and the amount of glabridin extracted was considerable (72.5%). Methods including high-speed counter current chromatography and treatment with microporous resin were utilized to enhance the licorice fractions in licochalcone A.^[24]

4) Melaleuca alternifolia

Melaleuca alternifolia (tea tree) originates from Australia and belongs to the family- Myrtaceae. Tea tree oil is known to have a wide range of medicinal properties that include antimicrobial, antiseptic, analgesic, anti-inflammatory, insecticidal and repellent activities. Recent research has suggested that tea tree oil may have a specific role to play in topical applications, for example, in the treatment of acne, rashes, hotspots another cutaneous infection.^[25] In general, monoterpenes are dominant in *Melaleuca alternifolia* oil, which contains mixtures of various monoterpenes, sesquiterpenes, and their associated alcohols.^[26]

Cultivation & collection:

Tea trees originate from Australia, and that is where most of the oil is produced. The oil is extracted, using steam, from the leaves and branches. One tone of branches and leaves can produce around six to ten kilograms of oil, which is a pale yellow or green color.^[27]

scientific classification:

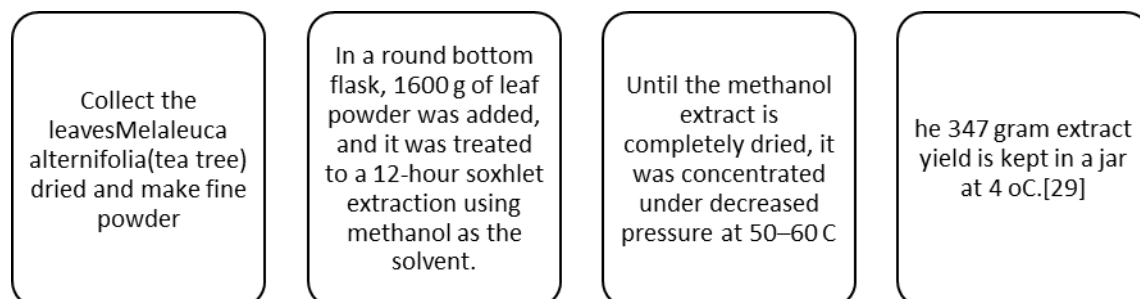
Kingdom: Plantae
Subphylum: Euphyllophytina
Subclass: Magnoliidae
Superorder: Rosanae
Order: Myrtales
Suborder: Myrtinea
Family: Myrtaceae
Genus: *Melaleuca*
Species: *M. alternifolia*



Fig 6: *Melaleuca alternifolia*

Uses:

The oil has the ability to improve milder from acne.
Use for dry skin, focusing on areas that are acne pore.
Fights against acne

Extraction procedure:**5) Neem**

Neem (*Azadirachta indica* A. Juss) is the tropical plant of the family Meliaceae that has been utilized in traditional medicine. Almost every component—including the leaves, stems, bark, roots, seeds, and flowers can be utilized to treat a variety of illnesses. Neem is used as a medication and has various health advantages. is a plant that has a lot of potential since it may be utilized to slow down population expansion.^[30] Neem plants have a wide range of medicinal benefits, including antipyretic, antiviral, analgesic, antibacterial, contraceptive, and hepatoprotective actions, many others.^[31]

Scientific classification:

Kingdom: Plantae
Division: Magnoliophyta
Order: Rutales
Suborder: Rutinal
Family: Meliaceae
Subfamily: Melioideae
Genus: *Azadirachta*
Species: *A. indica*

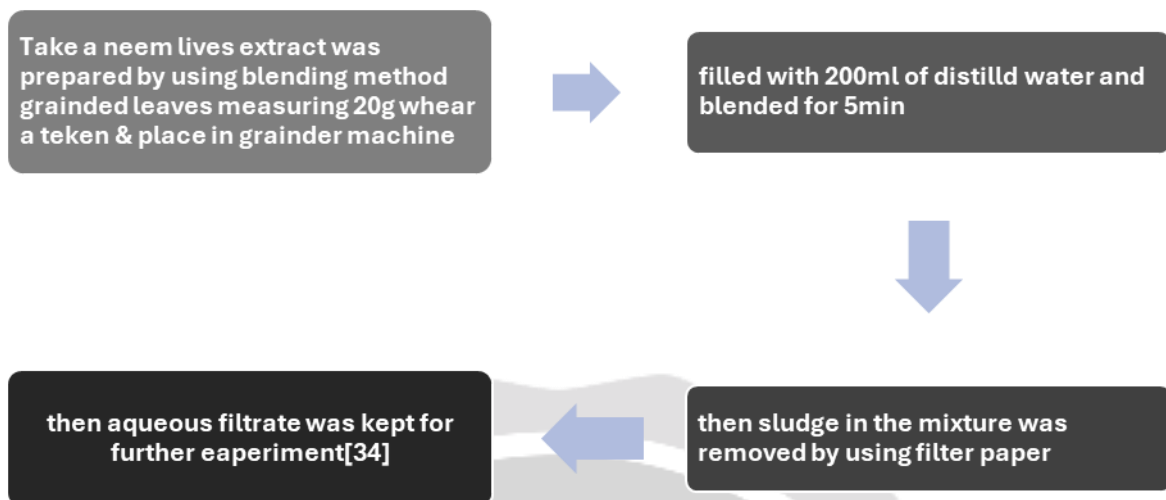
**Fig 7: Neem****Cultivation and collection:**

Azadirachta indica (Neem) is a rapidly growing evergreen well known tree found generally in various regions of world like America, Africa and India.^[33]

- **Uses of Neem for acne:**

- Neem leaves aid in healing sun damage.
- Prevents a hyper pigmentation
- Soothes inflamed skin
- Neem leaves helps to reduce acne breakouts

- **Extraction procedure:**



6) Turmeric

It is the One of the oldest medicinal herbs, turmeric (*Curcuma longa*), has been utilized before ancient times. Turmeric derived from the family - Zingiberaceae and curcumin is the bioactive component in the turmeric [35]. It has been found that a widely used spice possesses anti-inflammatory, antibacterial, antioxidant, and anti-neoplastic effects. Curcumin, an important ingredient in turmeric, may be used therapeutically to treat a number of dermatological conditions, according to growing research. The use of turmeric/curcumin, both topically and orally, to modify skin health and function. [36]

Scientific classification:

Kingdom: Plantae
 subkingdom: traheobionta
 Genus: *Curcuma*
 Species: *C. longa*
 Division: Mangoliophyta
 Order: Zingiberidae
 Binomial name: *Curcuma longa*
 Common Names: Kunyit, Haridra
 Indian Names: Haldi



Fig 8: Turmeric

Cultivation and collection:

The South East Asian native plant turmeric has a long history of uses as a condiment and colour. It is mostly grown in Bangladesh, China, Taiwan, Sri Lanka, and Java. Peru. Australia Along with the West Indies As a natural, unprocessed, and inexpensive dye for essential clothes, it is still utilized in Hindu rites. [39]

Extraction procedure:**7) Tulsi**

The scientific name of Tulsi (Holy Basil) is *Ocimum Sanctum*, and it is a member of the Lamiaceae family. Tulsi, which has many medical benefits in herbal medicines, is also known as the "queen of herbs." Two varieties of Tulsi—Green Tulsi (Ram Tulsi) and Black Tulsi (Krishna Tulsi)—have a lot in common. [41] One of India's oldest and sacred plants can be grown here. Antiseptic, analgesic, anti-inflammatory, antibacterial, anti-stress, immunomodulatory, hypoglycemic, hypotensive, and antioxidant characteristics are all known to be present in this plant.^[42]

Scientific classification:

Kingdom: Plantae
 Division: Magnoliophyta
 Class: Magnoliopsida
 Order: Lamiales F
 Family: Labiatae
 Genus: *Ocimum*
 Species: *Sanctum*

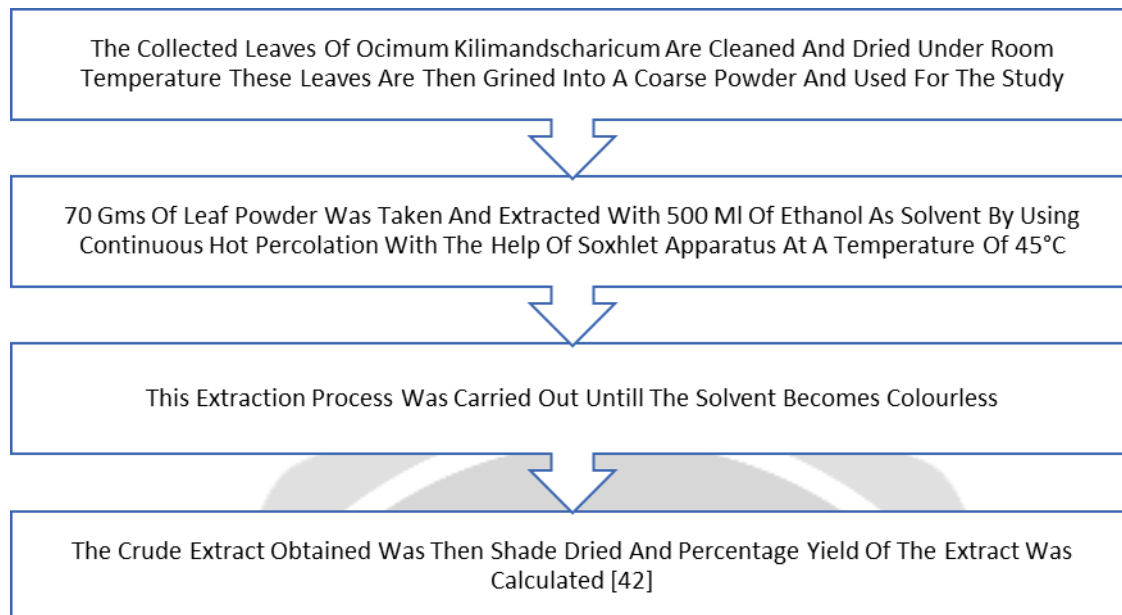
**Fig 9:** Tulsi**Cultivation and collection:**

Tulsi grows well in warm, tropical climates. The plant was developed in India and is now widely marketed and grown there. Up to 1800 meters above sea level, it is grown. From the Himalayas to the Andaman and Nicobar islets, shops are cultivated in India. In colourful regions of Asia and Africa, it's generally cultivated. In naturally sticky soil, it flourishes. The kind of soil and variations in downfall affect the factory's size, shape, and medicinal rates. In Asia's tropical areas, the *Ocimum rubric* has around 150 species.^[45]

Uses of Tulsi for acne:

- Skin shines like a sunshine.
- Lead fighter of anti-acne club.
- Cleanses pores deeply.
- Powerful immunity buster.
- Relieves skin infection and inflammation
- Stimulate the blood circulation.

- **Extraction procedure:**



8) Aloe vera

Form thousands of years, people have recognized and used the aloe Vera plant for its benefits to their health, appearance, and skin. The Arabic word "alloeh," which means "shining bitter substance," is the source of the name aloe Vera, while the Latin word "vera" signifies "true."^[47] aloe vera, a strong, perennial, tropical, drought-resistant plant belong to family -Liliaceae family, has traditionally been used for several kinds of therapeutic reasons.^[48]

Scientific classification

Kingdom: Plantae
 Subkingdom: tracheobionta
 Division: Magnoliophyta
 Class: Liliopsida
 Order: Asparagales
 Family: Xanthorrhoeaceae
 Genus: Aloe
 Species: *A. vera*
 Binomial name: *Aloe vera* (M.)



Fig 10: Aloe Vera

Uses of Aloe vera for acne:

- It contains healthful plant compounds.
- It has antioxidant and antibacterial properties.
- Use to remove dead skin.
- Treat skin problem (burns, wound, and anti-inflammatory processes)
- It supports the production and release of collagen

Cultivation and collection:

Aloe vera are native to East and South Africa, but they have been introduced to the West Indies and modern nations, and they will certainly grow in the nations bordering the Mediterranean. It is present in the Indian states of Rajasthan, Andhra Pradesh, Gujarat, Maharashtra, the United Kingdom, Himachal Pradesh, and Tamil Nadu. It is also financially developed in the nations of Aruba, Bonaire, Haiti, India, South Africa, the United States of America, and Venezuela.^[51]

- **Extraction procedure:**

Aloe vera plants were purchased from a nursery

The gel was taken from the leaves into a clean container and used as such (Agarry et al., 2005).

While the leaves from which the gel has been drained were air dried (50 g), macerated with 100-ml sterile distilled water in a warning blender for 10 min.

The macerate was first filtered through doubled layered muslin cloth and then centrifuged at 4,000 g for 30 min.

The supernatant fluid was filtered through Wattman No. 1 filter paper and heat sterilized.

The extract was preserved aseptically in a brown bottle at 5°C until used[52]

CONCLUSION:

Medicinal and herbal plants have a long history of use and have been shown to possess low side effects. These plants are a reliable source for the preparation of new drugs. Several plants seem to have inhibitory effects on the growth of bacteria, fungi and viruses. Also, some plants have shown anti-inflammatory and anti-bacterial properties. Medicinal plants and herbs have many different treatment options that are available for the treatment of acne. Many studies revealed that our traditional heritage is hiding a number of miraculous herbs which are safe and effective alternative to cure acne. Pharmaceuticals are searching possible alternative for desperate teenagers and other people to escape from conditions ranging from unsightly blemishes to disfiguring inflammation occurred due to acne. Essential is to the involvement of sustained and continuous research using innovative technologies targeting these herbs as effective up-to-date skincare ingredients. It is expected that this paper will motivate researchers, cosmeticians, academicians, pharmacists, industrialists and dermatologists to utilize more precisely these herbs in the topical dermato-cosmetic formulation so that consumers can get maximum benefits of natural substances. Though, there are a few clinical pieces of evidence about the effectiveness and safety of these medicinal and herbal plants in the treatment of Acne vulgaris and other skin infections or skin disorders. Acne vulgaris is a common skin disorder impacting the lives of millions. Many herbs and plants are used to treat the acne because all these traditional plants and herbs have some antibacterial, antiviral and anti fungal activity, so they help in the treatment the acne.

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