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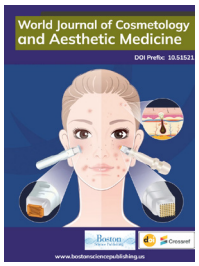

# A Scoping Review of Unani Medicinal Herbs Used to Treat Acne Vulgaris

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ABSTRACT

Acne vulgaris (*Buthūr Labaniyya*) is among the most prevalent dermatological conditions worldwide, often leading to low self-esteem and negatively impacting the quality of life. Conventional treatments have been widely used, but prolonged use has caused the emergence of resistance against acne-causing pathogens. This paper explores the therapeutic potential of medicinal herbs mentioned in classical Unani literature approach to treating acne. A comprehensive detailed search was conducted using classical Unani texts and modern scientific databases such as PubMed and Google Scholar to identify Unani medicinal herbs with anti-acne properties. Various clinical studies have reported that the selected herbal drugs exhibit significant anti-acne effects, though further research is needed to determine the specific chemical constituents responsible for these properties. Among the plant parts, roots were the most frequently mentioned for their therapeutic benefits.

This paper provides an updated overview of the most widely reported active ingredients with anti-acne effects. Unani medicine offers a promising for preventing and treating acne vulgaris, also providing an affordable and comparatively safer option with minimal adverse effects when used consistently.



## Introduction

Acne vulgaris is a chronic inflammatory disease that affects pilosebaceous follicles, causing comedones, papules, pustules, nodules, along with scarring in extreme cases. Most commonly affected parts are face, neck and trunk (Lone *et al.*, 2012). It is produced by hyperkeratosis of the lining of the follicles, which retains keratin, sebum and the microorganisms involved include *Propionibacterium acnes* which causes inflammatory activity; are all contributing factors for developing acne (Lone et al., 2012; Fitzpatrick et al., 2001). Globally, it ranks as the eighth most common disease, affecting an estimated 9.4% of the world's population (Tan and Bhate, 2015). It is most common among teenagers although acne afflicts most of the population in the mid to late teens. It has a physical and psychological impact on patients' life, resulting in poor psychosocial development, lower self-esteem, and psychological distress as a result of perceived deformity.

According to the Unani classical literature, Acne vulgaris (*Buthur Labaniyya)* is caused predominantly by stimulation of the *Ghudud-e-Dohniya* (sebaceous glands), which causes an increase in the production of oily material that clogs the glands' openings and fills them with purulent matter which stays in the skin's pores because of its viscosity, and remains unresolved. (Sīnā, 2010; Khān, 2004; Arzani, 2016; Rhazi, 1994; Baghdādī, 2007; Anṭākī, 2010). According to the Unani system of medicine, the treatment for *Buthūr Labaniyya* (Acne vulgaris) is involved three fundamental pharmacological actions: *Muhallil* (Resolution), *Mujaffif* (Desiccation), and *Jali* (Cleanser). These therapeutic actions are employed synergistically to eliminate the underlying causes of acne. *Muhallil* drugs facilitate the resolution of morbid matter and reduce inflammation at the site of lesions. *Mujaffif* agents work by drying excess moisture and sebaceous secretions that contribute to pustule formation. *Jali* drugs help cleanse the skin by removing accumulated waste products and clearing blocked pores. The integration of these actions forms the central mechanism through which Unani medications exert their anti-acne effects, restoring skin balance and promoting healing. (Khān, 2004) (Figure 1).

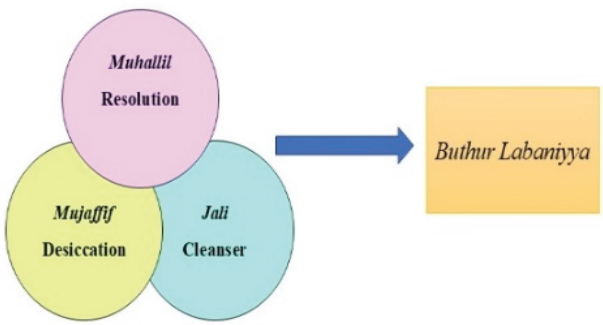


**Figure 1: Mechanism of action**.

The mainstay like Topical and systemic antibiotics and retinoid are the basic treatments for acne, but long-term use of these medications causes serious adverse effects such redness, shedding of skin, irritating burning sensation, and drying of the skin. Furthermore, increasing resistance due to Propionibacterium acne drug resistance may limit the use of

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topical antibiotics (Lone *et al.*, 2012). Therefore, exploring alternative approaches for the management of acne is a compelling need.

In classical literature of Unani medicine, a number of formulations and single medicinal herbs are mentioned for the management of acne. Increased acceptance of botanical medicine for acne has been promoted due to the benefits of improved patient tolerance, their long historical use, being comparatively less costly and having fewer adverse effects. Many medicinal herbs with a long history of use in traditional cultures have made their way into the burgeoning 'cosmeceuticals' market.

Medicinal herbs used in acne treatment are effective probably because of their antibacterial activity and influence on sebum activity, inflammation, and hyperkeratinisation, all of which are having a role in acne pathophysiology. The goal of this review is to provide current evidence on unani medicinal plant origin drugs and possible mechanism of their main phytoconstituents used in acne treatment.

## Materials and Method:

This scoping review looked into numerous reliable Unani classical literature and recently published studies on medicinal plants effective in the treatment of acne vulgaris. Acne terminology, causative factors, and its management were examined and selected anti-acne herbal drugs were explored in light of current scientific information on their ingredients and possible mechanism of action. Information from the published studies that were accessible through databases such as Google Scholar, PubMed, and Scopus about medicinal plants that are efficient in the treatment of acne vulgaris was reviewed and compiled (Table 1).

**Table 1: Herbal origin Unani medicinal herbs having anti-acne properties.**

| S. No. | Unani Name | Scientific Name | Family | Used Parts | Active Compound | Mode of Action |
|---|---|---|---|---|---|---|
| 1. | Elva | *Aloe vera* | Liliaceae | Leaf gel | Aloin and emodin (Lalla et al., 2001) | anti-bacterial and anti-inflammatory properties (Bashir et al, 2011) |
| 2. | Neem | *Azadirachta indica* | Meliaceae | Leaf | Azadirachtin, nimbin, nimbidin, nimbolide, and limonoids (Abiya et al, 2018) | anti-bacterial and anti-inflammatory properties (Yogesh et al, 2022) |
| 3. | Haldi | *Curcuma longa* | Zingiberaceae | Rhizome | Curcumin, demethoxycurcumin, bisdemethoxycurcumin (Lalla. et al, 2001) | anti-bacterial and anti-inflammatory properties (Batubara and Mitsunaga, 2018) |
| 4. | Irsa | *Iris ensata* | Iridaceae | Root, Leaf | Flavonoids, Terpenoids, Glycosides (Ganaie, Mishra and Allaie, 2018) | Antimicrobial, anti-inflammatory, wound healing, immunomodulatory, antioxidant (Parveen et al, 2009) |
| 5 | Piyaz | *Allium cepa L.* | Liliaceae | Fruit | Flavonoids, Terpenoids, Glycosides, Saponin (Zhoh, Kwon and Ahn, 2010) | Antimicrobial, Antioxidant (Orăşan et al, 2017) |
| 6. | Atees | *Artemisia absinthium* | Asteraceae | Root | Atisine (Khan 1920) | Antimicrobial (Khan 1920) (Iraji et al 2021) |
| 7. | Halela | *Terminalia chebula* | Combretaceae | Fruit | Chebulagic acid (Lalla. et al, 2001) | anti-bacterial and anti-inflammatory properties-lipase, Antioxidant, Anti-acne effect in vivo (Saenprakob, 2020) |
| 8. | Asgandh | *Withania somnifera* | Solanaceae | Root | Glycowithanolides identified as sitoindosides VII-X and withaferin A (Lalla et al, 2001) | Anti-bacterial and anti-inflammatory properties (Giri, 2016) |
| 9. | Guggul | *Commiphora mukul* | Burseraceae | Oleo-gum resin of the stem bark | Triterpenes, myrrhanol Amyrrhanone (Dubey, D et al, 2009) | Anti-bacterial activity (Thappa, D.M. and Dogra, J, 1994) |
| 10. | Darchini | *Cinnamomum zeylanicum Blume* | Lauracae | Bark | Cinnamaldehyde and eugenol (Chaudhary, S. et al, 2013) | Antimicrobial Antioxidant, Anti-inflammatory (Chaudhary, S. et al, 2013) |
| 11. | Kutki | *Picrorrhiza kurroa Royle ex Benth* | Scrophulariaceae | Rhizome | Picroside-I and picroside-II (Kumar, R. et al, 2016) | Anti-inflammatory, Antioxidant(Kumar, R. et al, 2016) |
| 12. | Chiraita | *Swertia chirata* | Acanthaceae | Leaf | Andrographolide (labdane diterpenoid) and echiodinin (polyphenol) (Rasheed, A. *et al,* 2012) | Antimicrobial, Antioxidant, Anti-inflammatory, Anti-androgen (Mastan A, 2020) |
| 13. | Aslusoos | *Glycyrrhiza glabra Linn* | Fabaceae | Root | flavanoids, 5-10% glycyrrhizin, licochalcone, Glycyrrhizic acid,glabridin, glbrene (Iraji et al., 2021) | Antimicrobial Antioxidant, Anti-inflammatory (Nam et al., 2003) |
| 14. | Anzaroot | *Astragalus sarcocolla* | Fabaceae | Gum | Flavonoids and Saponins (Mastan A, 2020) | Antimicrobial, Antioxidant, Anti-inflammatory (Parveen et al., 2009) |

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|---|---|---|---|---|---|---|
| 15. | Ustukhudus | *Lavandula stoechas L* | Lamiaceae | Flower | Linalol, Linalyl acetate Terpeniods (Zu et al., 2010) | Antimicrobial, Antioxidant, Anti-inflammatory (Zu et al., 2010) |
| 16. | Asrol | *Rauvolfia serpentina* | Apocynaceae | Root | Ajmaline (Rasheed et al., 2011) | Cleanser, Anti-inflammatory, Antibacterial (Rasheed et al., 2011) |
| 17. | Alsi | *Linum usitatissimum* | Lineaceae | Seed | Alpha Linoleic acid, Omega -3 fatty acid (Rashid et al., 2018) | Anti-inflammatory, Cleanser (Arzani, 2016; Rashid et al., 2018) |
| 18. | Karsana/Matar | Pisum sativum | Fabaceae | Seed powder | Phenolic acids, Flavonoids (Imbert et al., 2009) | Antioxidant, anti-inflammatory, antimicrobial (Imbert et al., 2009) |
| 19. | Nakhud/Chana | *Cicer arietinum* | Fabaceae | Seed powder | Phenolic, tannins, amino acids and flavonoids (Kaur et al, 2019) | Cleanser (Kaur et al, 2019) |
| 20. | Jau | *Hordeum vulgare* L. | Poaceae | Seed powder | Flavanoids, Phenols (Pasalar et al., 2022) | Cleanser, anti-inflammatory and anti-microbial (Pasalar et al., 2022) |
| 21. | Baobarang | *Embelia ribes* | Myrsinaceae | Fruit | Embelin (Prasad and Bist, 2018) | Antiseptic, Antibacterial (Prasad and Bist, 2018) |
| 22. | Babuna | *Matricaria chamomilla Linn* | Asteraceae | Flower | Glycoside, Salicylic acid (Al-Hindawi et al., 1989) | Anti-inflammatory, Resolvent, detergent (Al-Hindawi et al., 1989) |
| 23. | Babchi | *Psoralea corylifolia L* | Fabaceae | Seed | Bakuchiol, α meroterpene (Lee et al., 2010) | Antimicrobial, Anti-inflammatory, Antioxidant (Chen et al., 2017) |
| 24. | Balchar | Nardostachys *DC grandiflora* | Valerianaceae | Root | flavonoids and polyphenols (Muzafar et al., 2017) | Antioxidant, Cleanser (Muzafar et al., 2017) |
| 25. | Badam Talkh | *Prunus amygdalus var.amara* | Rosaceae | Kernel | Flavonoids, tannins, and terpenoids, Hydrocyanic acid (Isfahlan et al., 2010) | Antimicrobial, Cleanser Antioxidant (Hajazi, 1967) |
| 26. | Banafsha | *Voila odorata* | Violaceae | Flower | Glycoside, Saponin, Flavonoids, Phenolics (Kapoor and Saraf, 2011) | Antioxidant, Antiseptic, Soothes and heal acne wounds(Khan, A., 1920) |
| 27. | Sangtarah | *Citrus auratium Linn.* | Rutaceae | Fruit peel | Limonoids, flavonoids. (Wu et al., 2021) | anti-inflammatory Antimicrobial (Wu et al., 2021) |
| 28. | Adas | *Lens culinaris* | Fabaceae | Seed | Polyphenol (Pandya and Pampaniya, 2013) | Anti-inflammatory, Anti-androgenetic, Anti-oxidant, Antimicrobial (Pandya and Pampaniya, 2013) |
| 29. | Jaiphal | *Myristica fragrans* | Myristicaceae | Fruit | Saponin (Lee et al., 2020) | Antimicrobial, Anti-inflammatory (Lee et al., 2020) |
| 30. | Khas | *Vetiveria zizanioides* | Poaceae | Root | Essential oil, sesquiterpenoids. (Narkhede et al., 2012) | Antimicrobial, Refrigerant, detergent, anti-septic (Narkhede et al., 2012) |
| 31. | Khaksi | *Sisymbrium irio* | Brassicaceae | Seed | Terpenoids, saponins, flavonoids alkaloids (Vohora, Naqvi and Kumar, 1980) | Antimicrobial (Khan, 1984) |
| 32. | Darchini | *Cinnamomum zeyalanicum* | Lauraceae | Bark | Euginol (Chaudhary, S. et al, 2013) | Antimicrobial, Antioxidant, Anti-inflammatory (Chaudhary, S. et al, 2013) |
| 33. | Angoor | *Vitis vinifera* | Vitaceae | Stem | Tannis,Phenols, Flavonoids (Campisano et al., 2014) | Antimicrobial (Sīnā, 2010; Campisano et al., 2014) |
| 34. | Rehan | *Ocimum tenuflorum* | Lamiaceae | Seed ,Leaf | Ocimine,Linoleic acid (Mastan A, 2020) | Anti-oxidant, anti-inflammatory, anti-bacterial (Mastan A,2020) |
| 35. | Sambhalu | *Vitex negundo L.* | Verbenaceae | Seed | Flavonoid (Ghosh et al., 2011) | Anti-inflammatory, Anti-androgenetic,Anti-oxidant, and Antimicrobial activities (Kumar, Kumaravel and Lalitha, 2010) |
| 36. | Shahatra | *Fumaria indica vaillanti* | Fumariaceae | Leaf | Fumarin (Kumar, Kumaravel and Lalitha, 2010) | Immunomodulator and anti-inflammatory (Chaudhary, S. et al, 2013; Geelani, 1996) |

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|---|---|---|---|---|---|---|
| 37. | Shooniz | *Nigella sativa* | Ranunculaceae | Seed | Ocimine (Rahat, I. and Sharma, S.K. 2021) | Anti-oxidant, anti-inflammation, anti-bacterial (Sīnā, 2010; Rahat, I. and Sharma, S.K. 2021) |
| 38. | Kaghzi Limoo | *Citrus aurantifolia* | Rutaceae | Fruit peel | Tannic acid, Ascorbic and citric acid (Wu et al., 2021) | Detoxifying agent and antimicrobial (Shinkafi and Anusa 2013) |
| 39. | Simagh Arbi | *Acacia arabica* | Leguminosae | Gum | Resin, Curcumin (Mastan A, 2020) | Anti-oxidant and anti-bacterial (Mastan A, 2020) |
| 40. | Zaranbad | *Curcuma zeodaria* | Zingiberaceae | Root | Resin, Curcumin (Kapoor and Saraf, 2011) | Antimicrobial (Kapoor and Saraf, 2011) |
| 41. | Ushba | *Smilax ornata* | Apocynaceae | Root | Tannin (Mastan A, 2020) | anti-bacterial and anti-inflammatory properties (Mastan A,2020) |
| 42 | Gulab | *Rosa damscena* | Rosaceae | Spirit of rose flower, oil | Gallic acid (Wedler *et al.,*2016) [60] | Antiseptic and antibacterial (Mastan A,2020) [26] |
| 43. | Kishneez | *Coriandrum sativum L.* | Apiaceae. | Fruit | Coriandrin (Sathishkumar *et al.,* 2016) | Antioxidant (Geelani,1996) |
| 44. | Kunjad Siyah | *Sesamum indicum L.* | Pedaliaceae | Seed | Terpenoids (Nigam, Singh and Tiwari,2014) | Anti-oxidant, Anti-bacterial, Anti-inflammatory (Nigam, Singh and Tiwari, 2014) |
| 45. | Lehsun | *Allium sativum* | Liliaceae | Fruit | alkaloid compounds, flavonoids, saponins, and tannins (Fajryana *et al*, 2022) | Detergent, Antioxidant, Antimicrobial (Khan, 1920) |
| 46. | Ghongchi | *Abrus precatorius L.* | Fabaceae | Seed | Alkaloids-Abrin, Fat splitting enzyme, Saponins (Tabasum *et al,* 2014) | Anti-suppurative , Antimicrobial, anti-inflammatory Antioxidant (Tabasum *et al,* 2014) |
| 47. | Siras | *Albizzia lebbeck* | Fabaceae | Bark | Tannis, Saponins,Triglycerides (Tabasum *et al,* 2014) | Antimicrobial, anti-inflammatory, wound healing, immunomodulatory, antioxidant (Batubara and Mitsunaga,2013) |
| 48. | Soya | *Anethum sowa* | Apiaceae | Leaf ,Seed | Flavonoids (Mastan, A., 2020) | Anti-inflammatory,Anti-aging, anti-microbial, anti-oxidant, antiseptic (Mastan, A., 2020) |
| 49. | Gulnar | *Punica granatum* | Punicaceae | Flower | Tannins, punicalagin, punicalin, strictinin (Iraji F, et al 2021) | Anti-microbial, Anti-lipase, Anti-keratinocyte proliferation, and Anti-inflammatory properties (Lee *et al,*2017)66 |
| 50. | Turb | *Raphanus sativus* | Brassicaceae | Seed | Flavonoids, phenolic compounds, Saponins (Ahmad and Ahmad, 2012) | Antioxidant and Cleanser (Ahmad and Ahmad, 2012) |
| 51. | Henna | *Lawsonia innermis* | Lythraceae | Leaf | Flavonoids, phenolic compounds (Gupta et al., 2014) | Antimicrobial (Tabri, 1995) |
| 52. | Mochras | *Bombax malabaricum* | Bombacaceae | Bark | Flavanoids,Terpeniods,Glycosides (Gurunani and Karadi, 2018) | anti-oxidant, anti-inflammation, anti-androgen and anti-bacterial activities (Tabri, 1995) |
| 53. | Zaitoon | *Olea europaea Linn.* | Oleaceae | Oil | Glycerides of oleic, linoleic, palmitic, and stearic acids (Kim et al., 2013) | Antimicrobial, Anti-inflammatory, Antioxidant (Sīnā, 2010) |
| 54. | Chameli | *Jasminum officinalis Linn.* | Oleaceae | Oil | Phenolics, terpenoids, coumarins, glycosides (Parveen et al., 2009) | Resolvent, detergent, anti-bacterial (Mastan, 2020) |
| 55. | Khashkhash | *Papaver somniferum L.* | Papaveraceae | Seed | Triglycerides, including linoleic, oleic, and palmitic acids (Khan, M.H., 1984). | Anti-bacterial, Anti-inflammatory, Antioxidant, mild astringent, Emollient (Khan, M.H., 1984). |
| 56. | Arjun | *Terminalia arjuna* | Combretaceae | Bark | flavonoids, tannins, triterpenoid and glycosides (Syal, Pandit and Ashwat, 2020) | Anti-oxidant, anti-bacterial (Syal, Pandit and Ashwat, 2020) |

## Result and Discussion:

Numerous studies have been carried out to identify the phytoconstituents in medicinal plants responsible for anti-acne activity. The medicinal plants used to cure acne are compiled in the section that follows, arranged by the class of their active ingredient (Figure 3).

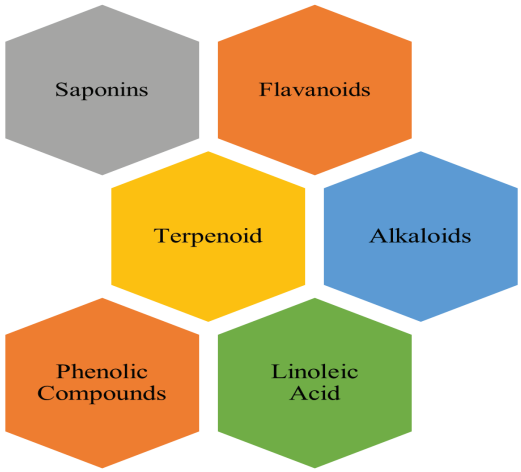


**Figure 2: Main ingredients of selected medicinal plants.**

Among the selected medicinal plants, *Iris ensata, Allium cepa, Astragalus sarcocolla, Pisum sativum, Citrus aurantium, Vitis vinifera, Lavandula stoechas, Sesamum indicum, Prunus amygdalus, Viola odorata, Punica granatum, Ocimum tenuiflorum, Matricaria chamomilla, Vetiveria zizanioides, Nigella sativa, Terminalia arjuna, Albizzia lebbeck, Raphanus sativus, Hordeum vulgare, and Cicer arietinum* are high in flavonoid content. Flavonoids are a key group of plant-based compounds widely researched for acne management, known for their diverse and beneficial effects. It acts as antioxidant and photoprotective influencing their preventive use in the development of Acne vulgaris. Their ability to stimulate circulation speeds up the healing of severe inflammatory acne lesions by inhibiting the release of archidonic acid caused by membrane lipid oxidative processes. Chelating flavonoids deactivate 5-lipoxygenase and cyclooxygenase, two enzymes that convert arachidonic acid into proinflammatory leukotrienes and prostaglandins. Their antioxidant properties correlate with their skin activity and soothing properties (Čižmárová et al., 2023).

Few medicinal herbs which contain saponins are *Glycyrrhiza glabra, Nigella sativa, Raphanus sativus, Albizzia lebbeck, Matricaria chamomilla, Prunus amygdalus, Ocimum tenuiflorum, and Hordeum vulgare.* Saponins are an important class of phytoconstituents that have been extensively examined for the management of acne by their anti-inflammatory and skin-soothing qualities can aid in lowering the redness and inflammation associated with acne. Moreover, they can facilitate the healing process of acne lesions, thereby minimizing the risk of scarring for example, Licorice root contains glycyrrhizin, a triterpenoid saponin (Wei. et al., 2021).

*Viola odorata, Prunus amygdalus, Vitis vinifera, Embelia ribes, Punica granatum, Hordeum vulgare, Nigella sativa, Matricaria chamomilla, Ocimum tenuiflorum, Raphanus sativus, Cicer arietinum, Sesamum indicum, Citrus aurantium, Lavandula stoechas, Vetiveria zizanioides, Allium cepa, Astragalus sarcocolla, and Terminalia arjuna* are reported to be rich in polyphenols. They act as an antibacterial, antioxidant, and anti-inflammatory characteristics as phenolic compounds show activity against C. acnes and have an anti-acne activity (Działo. et al., 2016).

The largest and most varied class of secondary metabolites found in *Lavandula stoechas, Vetiveria zizanioides, Jasminum officinalis, Sesamum indicum, Citrus aurantium, Ocimum tenuiflorum, Matricaria chamomilla, Nigella sativa, Terminalia arjuna, Punica granatum, Prunus amygdalus, Albizzia lebbeck, Raphanus sativus, and Glycyrrhiza glabra* are called terpenoids. Terpenoids may play a role in acne because of their antioxidant, anti-inflammatory, or antibacterial properties against *Cutibacterium acnes* (Działo et al., 2016).

One important class of phytoconstituents that has been thoroughly researched for the treatment of acne is alkaloids. According to research findings, *Rauvolfia serpentina, Abrus precatorius, Allium sativum, Nigella sativa, Albizzia lebbeck, Ocimum tenuiflorum, and Hordeum vulgare* contain alkaloids. They have antibacterial effect against *Staphylococcus* species, *Cutibacterium acnes*, and reduces lipogenesis in hamsters through the sebaceous glands (Seki and Morohashi, 1993).

Those herbs which constituents' rich in linoleic acids *are Linum usitatissimum, Ocimum tenuiflorum, Sesamum indicum, Papaver somniferum, and Prunus amygdalus.*Sebum secretion is one of the primary factors contributing to the cause of acne. Patients with acne have been found to have both quantitative and qualitative changes in their sebum. In terms of wax esters and skin surface triglycerides, acne patients had higher C16:0/C16:1 ratio. Fatty acid desaturation has been suggested to be a major factor in sebogenesis and the onset of acne. It has been shown that linoleic acid helps in acne treatment. The size of follicular casts and microcomedones was successfully decreased by topically applying linoleic acid in a double-blind, placebo-controlled, randomized crossover design (Letawe, Boone and Piérard, 1998; Kim, Lee and Lee, 2021). Thus, linoleic acid-containing plants may be used to treat acne.

## Conclusion:

In conclusion, this scoping review highlights the rich potential of Unani medicinal herbs for treating acne vulgaris. Conventional agents such as hormonal, anti-androgen, or anti-seborrheic therapies, as well as Benzoyl peroxide, retinoids, isotretinoin and salicylic acid are the mainstay in the treatment of acne vulgaris. Invasive interventions also encompassed intralesional corticosteroid injections for inflammatory cysts, along with procedures such as microdermabrasion, chemical peels, and laser therapies. However, these treatment options are associated with a lot of adverse effects and increasing resistance. Prolong use of antibiotics can cause resistance as well as kidney and gastrointestinal problems. These limitations highlight the need for exploring alternative approaches. However, Unani medicine which relies on medicinal herbs offers a safe, effective and cost-effective approach in prevention and cure of acne vulgaris with relatively low chances of any drug resistance. Topical Unani medications are also widely used to treat many forms of acne, including acne scarring. These are used in paste, oil and liniment. Unani herbal medications can be used either alone or in compound form—that is, in conjunction with other medications. The presence of bioactive phytoconstituents, such as flavonoids, saponins, phenolic compounds, terpenoids, alkaloids, and linoleic acid, underscores their relevance in addressing inflammation, microbial activity, and sebum production are the key factors in acne pathogenesis. Compound formulations are believed to offer greater efficacy and were supported by some clinical trial data compared to single herb treatments, reflecting the importance of synergistic combinations in Unani medicine.

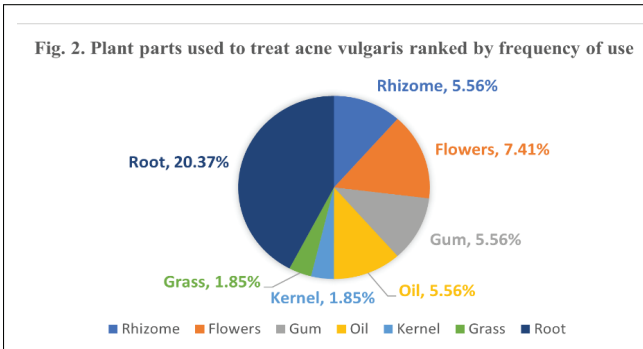


**Figure 3: Plants parts used to treat acne vulgaris by frequency of use.**

Among various plant parts used in Unani medicine for acne treatment, roots were found to be the most frequently utilized, followed by flowers, rhizomes, and oils. This preference highlights the therapeutic potential of roots due to their rich bioactive content. Such patterns support the traditional emphasis on specific plant parts for targeted efficacy in managing acne vulgaris (Figure 3).

These medications are occasionally used either alone or in conjunction with allopathic medications to treat illnesses. While conventional treatments remain effective, their side effects and limitations underscore the need for complementary approaches. Since only a fraction of these medicinal plants are thoroughly investigated so far. Further clinical research should be conducted to substantiate the efficacy and safety of the aforementioned Unani medicinal herbs in order to generate more evidence-based concrete data, to elucidate their exact mechanism of action and their subsequent confident use by the practitioners.

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**Conflicts of Interest**: The authors declare that there are no conflicts of interest.

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