Herbal remedies for acne

S Mahesh Kumar*, MJN Chandrasekar, MJ Nanjan and B Suresh
TIFAC-CORE (Herbal Drugs)
JSS College of Pharmacy, Ootacamund – 643 001, Tamil Nadu, India
* Correspondent author

Abstract

Acne represents a significant challenge to dermatologists because of its prevalence, complexity and range of clinical expression. It is the single most common skin disease affecting 85% of teenage boys and 80% of teenage girls and can continue throughout adulthood. Treatment of acne with topical and systemic allopathic medicines results in mild to severe side effects. Hence, herbs and herbal preparations play a significant role as alternative line of treatment. This article describes the commonly used herbs in the treatment of acne.

Keywords: Medicinal herbs, Acne, Skin diseases.

IPC code; Int. cl.7—A61K 7/00, A61K 35/78, A61P 17/00, A61P 17/10

Introduction

Acne is the most common of all the skin problems of which three major forms, *acne vulgaris*, *acne conglobata* and *acne rosacea* are prevalent. *Acne vulgaris* is characterized as a superficial disease that affects the hair follicles and oil secreting glands of the skin. It manifests as blackheads, whiteheads and inflammation (redness). *Acne vulgaris* is the least severe form of acne. *Acne conglobata* is a more severe form with cyst formation and subsequent scarring. *Acne rosacea* is a chronic acne-like eruption on the face of middle aged and older adults associated with facial flushing (Murray & Joseph, 1998).

Acne affects both males and females although males tend to have more with the onset of puberty. The occurrence is due to the fact that male sex hormones such as testosterone stimulate the cells that line the follicular canal to produce keratin and the enlargement of the sebaceous glands that results in the production of more sebum. This results in the formation of the pimple and the blockade of the canal. If the blockade is complete, it results in the formation of white head and if the blockade is incomplete, black head will be formed. The blockade of the canal also leads to the over growth of *Propionibacterium acnes* (*Corynebacterium acnes*), which releases enzymes that breakdown sebum and promote inflammation. Inflammation results in the redness of the pimple. Another cause for acne is the low levels of 5-α-reductase, which converts testosterone to a more potent form dihydrotestosterone (DHT) (Takayasu et al, 1980). Intestinal toxemia, where more toxins are absorbed from the intestine, which in turn leads to increased blood level of toxins, is yet another contributor to acne (Juhlin & Michaelson, 1983).

Treatment of acne

Treatment of acne is directed towards correcting the altered pattern of follicular keratinization, decreasing sebaceous gland activity, decreasing *P. acnes* population and producing anti-inflammatory effect. Treatment of acne with broad-spectrum antibiotics often develops intestinal
overgrowth of the yeast *Candida albicans*. This chronic yeast infection may actually make acne worse and must be treated when present (Murray & Joseph, 1998; Lucinda & Wallace, 1998).

**Ayurvedic perspective**

According to Ayurveda, acne is generally excess of *pitta*. Therefore, Ayurveda approaches acne from symptomatic and causative levels to remove symptoms, herbs and herbal preparations can be used. Simultaneously, the excess *pitta* and toxins inside the body should be reduced. If neglected, *pitta* and toxins will cause acne to reappear or manifest as illness in another part of the body. For causal balancing and healing persons should follow a fire reduction diet, which reduces *pitta* (Uniyal et al., 1998).

**Herbal treatment**

Several plants and plant-based preparations are used for the treatment of acne. Some of them are discussed below:

**Amaranth**

*Amaranthus hypochondriacus* Linn. and *A. cruentus* Linn. (Family: *Amaranthaceae*) are native to China and Mexico. Amaranthus seeds and leaves have been used effectively as an astrigent and also make a good wash for skin problems ranging from acne and eczema to psoriasis (Heinerman, 1996). The main constituents are saponins.

**Arnica**

Arnica is a perennial herb native to the mountainous regions of Europe to southern Russia (Bisset, 1994). The dried flower heads of *Arnica montana* Linn. (Family: *Asteraceae*) and several other related species of *Arnica* are useful in the treatment of acne, bruises, sprains, muscle aches and as a general topical counterirritant (James & Tyler, 1999). The plant contains a number of sesquiterpene lactones (helenalin, dihydrohelenalin, arnifolin and the arnicolides), flavonoid glycosides and about 0.3% of a volatile oil (Newall et al., 1996). The essential active principles are helenalin and dihydrohelenalin esters (Dermarderosian, 2001; Newall et al., 1996; Bisset, 1994), which have been shown to have strong antimicrobial, antioedema and anti-inflammatory properties (James & Tyler, 1999).

**Asparagus**

*Asparagus officinalis* Linn. (Family: *Liliaceae*) is a dioecious perennial herb, native to Europe and Asia and is widely cultivated. The fleshy roots and seeds have been used for medicinal purposes. Roots contain inulin, fructooligosaccharides, glycoside bitter principles (officinalisins I and II), β-sitosterol, steroidal glycosides (asparagosides A to I) and asparagusic acid, yamogenin (Leung, 1980). Home remedies containing the shoots extracts are used as topical application to cleanse the face and acne form lesions (Dermarderosian, 2001).

**Birch**

*Betula alba* Linn. (Family: *Betulaceae*) is found mainly in the Northern U.S, Canada and Northern Europe. The tree bark has been used successfully for the treatment of psoriasis, eczema, acne and similar chronic skin diseases (Heinerman, 1996). The main constituents are phenolic compound, salicylic acid and guaiacol; terpenoids, betulin, ylangene, betuloside; and flavone, sakuranetin (Jeffery et al., 1999).

**Burdock**

The roots and leaves of *Arctium lappa* Linn. (Family: *Asteraceae*) are most widely used for treating chronic skin problems including acne (Foster & Tyler, 1999; Bradley, 1992). It grows in Europe and North America. The main constituents are arctiopicrin (sesquiterpene lactone), arctigenin (lignan), inulin (fructosan) and mucilage (xylocan) (Jeffery et al., 1999).

**Calendula**

The flower heads of *Calendula officinalis* Linn. (Family: *Asteraceae*) have long been used for the treatment of various skin ailments and to facilitate healing and reduce inflammation (James & Tyler, 1999). The herb contains flavonoids (quercetin), triterpenoid saponins (arvensoside A), essential oils and polysaccharides (Evans, 2002).

**Celandine**

*Chelidonium majus* Linn. (Family: *Papaveraceae*) is a perennial herb. It grows in Europe and temperate and subarctic region of Asia. Any part of the broken herb exudes an acid, sticky orange juice with unpleasant odour. The sticky juice is used for the treatment of pimples (Heinerman, 1996). The main
chemical constituents are isoquinoline alkaloids of proberberine, benzo-phenanthrene and protopine type.

**Jojoba oil**

*Simmondsia chinensis* (Link) C. Schnied. (Family: Buxaceae) is a desert shrub indigenous to Arizona, California and North Mexico. Jojoba seeds produce 50% (by weight) colourless and odourless oil, which is used in cosmetic application. The oil is composed of straight chain monoesters of C-20 and C-22 acids and alcohols with two double bonds (Wisniak, 1977; Mckeown, 1983). The oil is of value in the management of acne and psoriasis (Mosovich, 1984).

**Lavender**

Several *Lavandula* species including *L. angustifolia* Mill., *L. stoechas* Linn., *L. dentata* Linn., *L. latifolia* Medic. and *L. pubescens* Deene (Family: Lamiaceae) have been used medicinally. Lavender plants are aromatic evergreen sub-shrubs native to Mediterranean region. Fresh flowering tops are collected and essential oil is distilled or the extracts is obtained by solvent extraction. Extracts have been used to treat conditions ranging from acne to migraine (Leung, 1980). Flowers contain 1-3% essential oil (Bisset, 1994). The oil is a complex mixture of more than 150 compounds, the most abundant of which are linalool acetate (30-55%), linalool (20-35%), cineole, camphor, beta ocimene, limonene, caproic acid, Caryophyllene oxide and tannins (5-10%) (Leung, 1980; Bisset, 1994).
The main chemical constituents are triterpenoids and tetranortriterpene (limonoids and protolimonoids of the gedunin group) in seed oil; nimbin A and B, nimbin, gedunin, tannin and volatile oil in the bark and leaves. The plant and its preparations are known to have anti-inflammatory, antimicrobial and antibacterial properties (Rao, 1986; Patel & Bhatt, 1988).

**Orange Peel**

The medicinal parts of *Citrus aurantium* Linn. (Family: Rutaceae) are the fresh or dried fruit peel, flowers, seeds and the essential oil. The plant is reported for the treatment of acne (Supreeja, 2001).

**Pine**

The genus *Pinus* (Family: Pinaceae) is one of the largest and most important of the coniferous genera. It comprises of about 95 species and numerous varieties and hybrids. Pines are widely distributed in the Northern hemisphere. The main constituent of the *Pinus* is pycnogenol, which is recommended for the treatment of acne (Heinerman, 1996).

**Poplar**

*Populus candicans* Moench (Family: Salicaceae) is a tree with simple deciduous leaves. The tree is indigenous to North America. The bark and the leaves of the tree are used for the cosmetic applications. Preparations of the Poplar buds are used in the treatment of acne (Heinerman, 1996). The main chemical constituents include flavones and flavonoids-chrysins; phenols and phenolic acids-catechol, salicin and gentisyl alcohol (Jeffery *et al.*, 1999).

**Neem**

The bark, leaves, branches, seeds and latex of *Azadirachta indica* A. Juss. (Family: Meliaceae) are used for their medicinal properties. The plant is indigenous to the woods of India and indigenous to tropical Asia. The chief constituents are linalool, linalyl acetate, $\alpha$-pinene, limonene, netrol, geraniol, methyl anthranilate, limonoids (triterpinoid bitter principles), flavonoids (Tatum, *et al.*, 1977). The juice and the milk paste of the powdered peel have been...
Rhubarb

*Rheum officinale* Baill. (Family: *Polygonaceae*) and other species of rhubarb are native to Southern Siberia, China and India. The main constituents include potassium, calcium and lesser amount of phosphorus. The anthraquinones present are rhein, emodin, chrysophanol (Sukhdev *et al.*, 1999) in rhubarb are useful to relieve the itchness and pain accompanying psoriasis as well as *Acne vulgaris* (Heinerman, 1996).

**Rose**

The aqueous extract of the petals of the *Rosa* species (Family: *Rosaceae*) are used for the daily care of the skin. The rose water is also effective against acne and black heads (Heinerman, 1996). The main constituents are tanninseugenin, pentagalloyl, pyrogallol; monoterpenoids-eugenol, geraniol; and rugosal and phenylethyl alcohol (Jeffery *et al.*, 1999).

**Soapwort**

*Saponaria officinalis* Linn. (Family: *Caryophyllaceae*) is a perennial herbaceous plant native to Northern Europe. Soapwort has been administered topically for the treatment of acne, psoriasis, eczema and boils (Dermarderosian, 2001). It contains water-soluble steroidal saponins (saponoside D) found in all parts of the plants (Meyer, 1934) and acts as surface-active agent to facilitate cleaning.

**Stinging Nettle**

Stinging nettle herb consists of fresh or dried aerial parts or leaves of *Urtica dioica* Linn. (Family: *Urticaceae*). Stinging nettle leaf and herb contains mineral salts, mainly calcium and potassium salts of silicic acid; phenolic ketones-acetophenone; amines-acetyl choline, betaine, choline, histamine, 5-HT, lecithin; flavanoids- quercitin, isoquercitin, rutin, kaempferol; β-sitosterol, tannins, volatile oil, vitamins A, B, C, K, folic acid and pantothenic acid (Bradley, 1992; Bruneton & Scancur, 1995; Escop, 1997; Newall *et al.*, 1996). The alcoholic solution of distilled nettle has been used traditionally to treat acne (Bruneton & Scancur, 1995).

**Tea tree oil**

*Melaleuca alternifolia* (Maiden & Betche) Cheel or tea tree (Family: *Myrtaceae*) is a small tree native to Australia. The leaves of the plant used medicinally are the source of valuable therapeutic oil. The essential oil is obtained by steam distillation of leaves (Bruneton & Scancur, 1995). The main constituent in tea tree essential oil is terpin-4-ol, present in concentrations of 40% or more. Tea tree oil is effective against a wide range of organisms including twenty seven of the 32 strains of *P. acnes* (Carson & Riley, 1994; Basset *et al.*, 1990). It has good penetration and is non-irritating to the skin.

**Turmeric**

Turmeric consists of dried rhizomes of *Curcuma longa* Linn. (Family: *Zingiberaceae*). The plant is cultivated widely throughout Asia, India, China and Tropical countries. The major chemical constituents include curcuminoids, the yellow colouring principle, of which curcumin constitutes 50-60%; essential oil (2-7%) with high content of bisatiolane derivatives (Ohshiro *et al.*, 1990). Turmeric exhibits remarkable anti-inflammatory activity which is attributed to curcumin (Rao *et al.*, 1982; Ammon & Wahl, 1991).

**Walnut**

Different species like *Juglans nigra* Linn. and *J. regia* Linn. (Family: *Juglandaceae*) are indigenous to East Asia, South-east Europe, North and South America. The tree of walnut makes an excellent wash for a variety of skin infections including the bad cases of *Acne vulgaris* (Heinerman, 1996). The main constituents include tannins elagitanin; naphthalene derivatives juglone, flavonoids hyperoside and quercitin (Nahastedt *et al.*, 1981).
Home Remedies

Coriander and Turmeric

Take 2 teaspoons of fresh coriander leaf juice. To this add a pinch of turmeric powder and apply it on face 2 to 3 times daily after face wash (Supreeja, 2001).

Neem

Crush some leaves to form a paste; apply to acne affected areas on face. Leave for 5 to 10 minutes then wash off.

Orange/ Lemon peels

Take few orange peels and dry it under shade. Powder the dried peels and sieve them. Take one teaspoon of this powder and mix it with fresh milk to make a paste. Before going to bed, apply this paste on the face. Keep it for 10 – 15 minutes and wash it off (Supreeja, 2001). Take the peel from an orange or lemon or both and put in a blender. Apply the juice several times daily to the acne affected areas for about 5 to 10 minutes then wash off.

Rose water

Put a handful of dried rose petals into little boiling water. Cover and let steep until cool. Drink two cupfuls a day or use externally as a wash or wet pack (Heinerman, 1996).

Thyme salve

A nice salve can be made at home for helping to heal cuts, bruises, acne, rash, etc. Ghee is used as an excellent base for many herbal salves and oils in India by Ayurvedic folk healers. The method involves heating the ghee to just below the point where it will bubble without burning and smoking. Add 2 handfuls coarsely chopped and slightly crushed garden thyme to the pot. When the ghee is heated, and during the gentle cooking of the thyme for an hour, the pot should remain covered. After this, briefly uncover just long enough to strain through a coarse, wire sieve. Return to the stove and cover again to reheat for about 5 minutes. Then remove the lid and add between 1-2 tablespoons of melted bees wax and stir thoroughly. Also add ½ tsp of pure vanilla when putting the bees wax in. Finally, pour the entire contents from the pot into clean jars that are not too deep. Allow setting up before screwing the lids on. Store in a cool, dry place. Massage some of this salve on the skin each day after showering and again in the evening before retiring for the night (Heinerman, 1996).

Walnut

Boil the walnut husks with enough water to cover them to a depth of about 2 inches for 1 hour or until half the liquid remained (no lid should be put on the pot). This is then strained and stored in corked jugs until ready to be used. The extract can be put on acne affected areas of the skin (Heinerman, 1996).

Conclusion

There are many important aspects to be considered in the treatment of acne. An integrated therapeutic approach is required in order to attain the desired results. Although there are many medicines to choose from, plants are the natural source of medicines, which play an important role in the treatment of acne, without side effects. Hence, they are the commonly used alternatives to synthetic medicines for acne.

References


34. Schratt VE and Qadry SMJS, Planta Med, 1966, 14, 310.


