



HERBAL EXTRACT
COMPANY

THE NATUROPATH'S GUIDE — ACNE

A focus on the herbal approach
for managing acne

WRITTEN BY CHRISTINE THOMAS
PUBLISHED JULY 2023

CALENDULA
(*Calendula officinalis*)

ACNE

Acne is a common skin condition that can affect people of all ages. It is an inflammatory rash, on the sebum-producing areas of the skin (face, neck, back, chest), that causes pimples (sometimes called zits or blemishes), blackheads, whiteheads and cysts. ¹

More than just a stray pimple, acne is a skin condition that occurs when multiple breakouts emerge on the skin. The hair follicle and its associated oil (sebaceous) gland become blocked and inflamed by oil, bacteria, dead skin cells and dirt. Whiteheads, blackheads and inflamed pus-filled spots develop on the face, neck, back and chest because this is where oil glands are largest and most active. While acne does not pose a serious overall health risk it can still be painful, particularly with severe acne. Over time, acne might also cause scarring. ²

Condition Overview

Acne is a very common skin condition that usually begins in adolescence. It is so common it can be considered almost universal in teenagers, with a prevalence of 93.3% in people aged 16 to 18 years in Australia, but it can also affect adults. Acne improves and, in most cases, disappears after adolescence. Some people with a family history of difficult acne, or those associated with hormonal flare-ups, may continue to have acne well into their forties. Whilst there are many types of acne, acne vulgaris accounts for 99% of clinical presentations so it will be the focus of this guide. ^{3 4}

Despite being a near-universal problem in adolescence, the reason why such troublesome sebaceous glands exist at all is not well understood. This scourge of adolescence appears to be a multifactorial disease in which both genetic and environmental factors have pivotal roles and some interesting theories have been postulated including skin maintenance, immunological function and perhaps even pheromones. The development of acne is an interplay between four key processes: increased production of sebum (sebum is the fuel for the fire of acne), blockage of the pilosebaceous unit (composed of a hair follicle, arrector pili muscle and sebaceous gland), increased inflammation and increased amounts of bacteria, however, the exact sequence of events is still unknown due to the complexity of this disease. ⁵

The blocked pilosebaceous unit, and the presence of sebum, provide an anaerobic environment for *Cutibacterium acnes* (*C. acnes* formerly *Propionibacterium acnes*) growth which assists in the inflammatory phase of acne, characterised by inflamed lesions, papules and pustules. Increased numbers of *C. acnes* have been reported in acne patients but their numbers do not correlate with clinical severity. It is thought that *C. acnes* triggers skin inflammation and an immune response in acne through a range of different mechanisms. The type of inflammatory response determines the clinical lesions that are seen. ⁶

It has been hypothesised that there may be an

increased local production of androgens within the sebaceous glands of people with acne or that the sebaceous glands of people with acne may be more sensitive to the effects of androgens. Skin from acne-prone regions has been found to have higher levels of androgen receptors and increased activity of the enzyme that converts androgens to testosterone and dihydrotestosterone. Medical conditions that commonly cause a high androgen state, such as polycystic ovary syndrome (PCOS), can cause acne in affected individuals.⁷

Skin is the most noticeable organ as it covers the entire body. Because acne is so visible it can have a major impact on confidence and this effect should not be underestimated. Acne and acne scars on the face, and other visible body locations, can affect self-esteem and they can even contribute to feelings of anxiety or depression. Invisible psychological scars can be left by the disease. It can have a significant impact emotionally and affect all areas of life including employment and socialising.⁸

As the largest organ of the body, the skin can both protect and reflect the health of the interior. Although acne manifests itself on the skin it is caused by internal imbalance rather than anything external. Therefore, a skin issue is often not just skin deep, but a reflection of inner health, and is the body signalling that something needs to be supported on the inside. Most common practices attempt to address acne using only topical methods while ignoring the root cause of the problem. What is often missed in the mass marketing of beauty products, promising a radiant complexion and perfect skin, is that true skin care is about health and that healing starts from within.⁹

Common Symptoms

The symptoms of acne can vary from person to person depending on the severity of the condition. Symptoms are most commonly seen on the face but acne can also affect the back, chest, shoulders or neck. Severe acne can cause scarring such as when there is deep or severe inflammation of nodules. Occasional spots or pimples are not considered to be acne.

- Whiteheads: closed plugged pores which show as small white spots under the surface of the skin
- Blackheads: small, blocked pores with a black 'plug'
- Pimples (or pustules): inflamed red spots which can have yellow pus in the middle
- Papules: small, red, tender bumps
- Nodules: large, solid red bumps under the skin which can be painful
- Cystic lesions: Painful, pus-filled lumps under the skin
- Emotional distress

Risk Factors

Genetics (Hereditary Predisposition)

Acne can run in families and people who have a family history of acne are at an increased risk of developing it. Twin and family studies have established that acne susceptibility has a strong genetic component. Multiple case-control familial studies, and twin studies, involving numerous ethnicities showed strong heritability with estimates upwards of 78%. Recent findings lead to speculation that epigenetic mechanisms (environmental influences) may play an important role in the development of severe acne. This means the genes can be influenced and modified (switched on or off) by the environment (e.g. diet), making acne more or less likely in any one person. In other words, lifestyle choices can change the expression of genes without changing the DNA.^{10 11}

Gender

Studies have indicated that more males than females suffered from acne during adolescence and more females than males suffered from acne during post-adolescence.¹²

Age

While acne can be experienced into adulthood, studies confirm that acne is more common during adolescence.¹³

Hormonal Fluctuations

Hormones play a huge role in acne development.

The major players are androgen, oestrogen and testosterone (an androgen). Thyroid hormone action on sebaceous glands is unclear however there is an association between changes in thyroid function and the severity of acne in young patients. Androgens are hormones that increase during puberty and cause the sebaceous glands to enlarge and make more sebum. Hormonal acne may be caused by influxes of hormones from menstruation, polycystic ovarian syndrome, menopause and increased androgen levels, sometimes in response to stress. These hormone fluctuations may aggravate acne trigger factors by increasing overall skin inflammation, oil (sebum) production in the pores, clogged skin cells in hair follicles and production of acne-causing bacteria *C. acnes*. According to the author of *Women, Hormones and the Menstrual Cycle*, Ruth Trickey, the “curious thing about acne is that some people have hormonal imbalances, but don’t get any pimples. When researchers look at the levels of androgens in the blood if someone has acne and compares these to someone who does not, the levels are the same. This may be related to the individual’s sensitivity to androgens—some people’s skin just seems to be more likely to respond adversely to androgens. Another reason that androgens may cause acne is because weak androgens can be converted into stronger ones in the hair follicle. This does not result in large amounts of androgens in the blood—the effect is much more localised—but the increased levels in the skin can cause an increase in sebum production, and acne. This seems to be an inherited trait.”^{14 15 16 17}

Topical Agents

Certain cleansers, creams, moisturisers, makeup and other beauty products, especially those that are oil-based (not non-comedogenic oil) or contain harsh chemicals, can clog pores and trigger acne. Excessive cleansing of the skin, and soaps with pH 8.0, can modify skin barrier function and skin sebum areas, especially the microbiome balance, thereby activating innate immunity to trigger inflammation.¹⁸

Medications and Nutritional Supplements

Multiple prescription medications may cause or aggravate acne including hormonal birth control,

corticosteroids, anticonvulsants and lithium (used to treat some forms of depression). A number of dietary supplements have also been linked to acne including those containing vitamins B6/B12, iodine and whey protein, as well as “muscle-building supplements” that may be contaminated with anabolic-androgenic steroids. Acne linked to dietary supplements generally resolves following supplement discontinuation.²⁰

Dietary Factors

A Western diet characterised by high consumption of processed foods, saturated fats and refined sugars is a risk factor for acne aggravation. A recent systematic review has shown that foods with a high glycemic index (GI)/load, dairy products (particularly homogenised and skim milk), fatty foods and chocolate promote the formation of acne lesions, while the intake of fruits and vegetables was protective. A typical Western pattern diet which includes foods with a complex mixture of fat (i.e., red meat), high GI and dairy may aggravate acne by raising the levels of insulin-like growth factor-1 (IGF-1) and insulin. Acne has been called the “diabetes of the skin” supported by the involvement of insulin in the modern understanding of the development of acne. A diet characterised by increased dairy intake and high GI content has also been shown to affect the levels of hormones implicated in the development of acne. In one notable study the members of two indigenous peoples, the Kitavans of Papua New Guinea and the Aché of Paraguay, were followed-up. In contrast to Western diets both the groups adhered to low-GI diets consisting of fish, wild game, tubers and foraged foods and consumed almost no dairy, alcohol, coffee, tea, oils, sugar and salt. After many months of observation, the researchers found no cases of acne among adolescents or adults. Interestingly, genetically similar Pacific Islanders and South American Indians who have adopted a more Westernised lifestyle have much higher incidences of acne. Similar trends were observed among other peoples, such as Okinawans and the Inuit, in whom acne prevalence increased after the adoption of a Western lifestyle. These comparisons suggest that environmental factors present in a rural, non-industrialised lifestyle protect people from the development of acne. Alternatively,

an industrialised lifestyle, specifically the adoption of a Western diet high in sugar/glycemic and dairy content, may promote acne.^{21 22 23 24}

Stress

While stress cannot cause acne, stress may worsen existing acne. Results from studies suggest that when stress intensifies, the severity of the acne increases. Stress increases the production of hormones like cortisol, which in turn, increases oil production in the skin, leading to acne breakouts.²⁵

Sleep

Good sleep is also essential for good health. Research has shown that sleep disturbance does impact skin disease and that there is a potential relationship between sleep quality and acne. This is likely the consequence of a dynamic interplay of both psychiatric and physical mechanisms.²⁶

Imbalanced Gut Bacteria

Acne has close connections with the gastrointestinal

tract and studies show that the gut microbiome of acne patients is distinct and depicts less microbial diversity compared to individuals without acne. The emotions of stress (e.g., depression and anxiety), for instance, have been hypothesised to aggravate acne by altering the gut microbiota and increasing intestinal permeability, potentially contributing to skin inflammation. Over the years, an expanding body of research has highlighted the presence of a gut–brain–skin axis that connects gut microbes, oral probiotics and diet to acne severity. The diet shapes the gut microbiota. A large body of evidence indicates that a low-fibre-high-fat Western diet causes fundamental changes in the intestinal microbiota, producing metabolic and inflammatory skin diseases. Although the exact mechanisms by which the intestinal microbiota can influence the development and evolution of acne are unknown, studies in this regard have shown intestinal dysbiosis in these patients. Current data indicates that modulation of the intestinal microbiota could potentially influence the appearance and evolution of acne.^{27 28 29}



Echinacea
(*Echinacea* spp.)

Environmental Factors

Exposure to pollution, chemicals, cigarette smoking, differences in temperature and high levels of humidity can trigger acne. Smoking tobacco can trigger acne by affecting the immune system and increasing inflammation in the skin. Visible light emitted by electronic products is also a risk factor for acne.³⁰

Physical Irritation

Physical factors of pressure, friction, repeated rubbing or touching of the skin, and heat acting upon the skin, either separately or in unison, can be aggravating factors. Athletes in certain sports are at particular risk for this condition. Irritation can come from headbands, helmets, shirt collars, shoulder pads, backpacks or under-wire bras. During the COVID-19 pandemic, a condition known as “maskne” (mask-related acne) was a common side effect of using a mask and was known as “the epidemic within the pandemic”.^{31 32}

Economic Level

Acne patients are more likely to live in urban areas with higher socio-economic status.³³

How To Get The Correct Diagnosis

If self-care remedies have not cleared acne then people are recommended to see their primary care doctor. If acne persists, or is severe, then a person may need a referral to a dermatologist who can help identify the types of lesions and their severity to develop a treatment plan. This includes people who have large, deep acne spots or those who are not responding to antibiotics, oral contraceptives or anti-androgens. The evaluation of any patient with acne includes a physical examination and thorough medical history including medications and supplement use, social history including tobacco and illicit drug use, menstrual history (i.e., age of menarche, regularity of menses, history of infertility), and prior or current acne treatments. This can help determine if there is an underlying cause of acne, such as an exacerbating medication or endocrine abnormality such as PCOS. Hirsutism is the most common manifestation of hyperandrogenism and 70% of women with hirsutism have hyperandrogenism. Hirsutism is highly associated with elevated serum levels of free testosterone. Given that hair removal may obscure a clinician’s recognition of hirsutism, patients should be asked about the nature and frequency of hair



Gotu Kola
(*Centella asiatica*)

removal practices as well as the locations of hair overgrowth. If patients exhibit signs or symptoms of hyperandrogenism thorough endocrine testing should be initiated. While *C. acnes* is thought to be an important pathogen in the development of acne, routine cultures are not done unless gram-negative folliculitis or *Staphylococcus aureus* folliculitis are considered in the differential diagnosis. In older adults, a sudden onset of severe acne may signal an underlying disease requiring medical attention.^{34 35}

Conventional Treatment & Prevention

Treatment for acne generally depends on its severity. There are many treatments available however acne can be persistent. Conventional acne treatments include topical treatment (such as medicated creams, cleansers and spot treatments), antibiotics by mouth, hormonal therapy or systemic retinoids. Regardless of the treatment method it takes patience and persistence, at least six to eight weeks, to see improvement. Treatment aims to reduce the number of comedones (blackheads and whiteheads), reduce inflammation (pimples and red bumps), reduce the likelihood of permanent pigmentary changes (skin discolouration) and prevent scarring.³⁶

Treatment for mild acne is usually topical acne creams and gels including over-the-counter (OTC), non-prescription products such as benzoyl peroxide, which helps dry out existing pimples, prevents new ones from forming and kills acne-causing bacteria. While salicylic or glycolic acid preparations help exfoliate the skin to prevent pores from getting clogged with acne-causing bacteria and azelaic acid preparations which have antimicrobial and anti-inflammatory properties. These may cause irritation and dryness in some people.³⁷

Prescription leave-on products are usually prescribed by a doctor or dermatologist when non-prescription products have not been effective. These include topical antibiotics (either alone or combined with benzoyl peroxide) to reduce inflammation in pimples or pustules, and topical retinoids (either alone or combined with benzoyl peroxide) to help remove the skin plugs (whiteheads and blackheads). This is also known as a

comedolytic treatment. These preparations may also cause dryness in some people. Typically, antibiotics are only used for a short time so the body does not build up resistance and leave people prone to infections.³⁸

Prescription oral preparations are prescribed by a doctor or dermatologist to suppress acne which has more widespread comedones and acne pimples that are more inflamed, deeper and larger. Oral prescription-only medications include antibiotics (such as doxycycline or minocycline) and hormonal therapy (such as the oral contraceptive pill and anti-androgens such as spironolactone or cyproterone acetate). A topical comedolytic treatment is usually prescribed concurrently.³⁹

In severe acne cases doctors consider high-dose, long-term oral antibiotics or oral isotretinoin, also known by the brand name Accutane. Accutane is a vitamin-A medication used to treat certain cases of severe nodular acne. It can cause serious side effects, and doctors usually only prescribe it when other treatments do not work.⁴⁰

While not suitable for persistent, severe or scarring acne, light microdermabrasion, chemical peels or laser and light systems may help mild acne. However, these treatments may not be effective long-term and may need to be repeated regularly. Larger nodules and cysts may be injected with steroids to reduce the inflammation. Sometimes treatment needs to be reviewed by the prescribing doctor to “fine tune” management and alter treatment if it is not effective. It is always important that the doctor explains why any treatment is recommended and what can be expected.⁴¹

*It's hard to wear your
health problems on your
face!*

INTERVENTION	Adaptogens, Relaxing Nervines	Alteratives (Depuratives), Hepatics, Lymphatic Tonics, Relaxing Diaphoretics	Antimicrobial, Astringent, Vulnerary	Antioxidant, Anti- inflammatory	Hormone Regulators, Antidiabetic
Burdock		✓		✓	
Calendula		✓	✓	✓	
Chastetree					✓
Dandelion Root		✓		✓	
Echinacea		✓	✓	✓	
Gotu Kola	✓	✓		✓	✓
Green Tea		✓	✓	✓	
Hemidesmus		✓	✓	✓	
Liquorice		✓	✓	✓	✓
Poke Root		✓		✓	
Withania	✓			✓	
Yarrow		✓	✓	✓	

Natural Therapies For Treatment & Prevention

When it comes to acne and breakouts it is largely a condition of prevention by addressing the foundations of health, including diet, lifestyle and exercise. Failing this then it becomes a matter of investigating the underlying cause. Skin diseases are almost always an internal problem so they are best addressed through the root cause. Natural therapies offer a holistic approach to managing acne by addressing this. When thinking about chronic care the question should always be (in this case): What is causing the acne? Therefore a comprehensive assessment of the person's medical, environmental, family and clinical history can assist the practitioner in identifying the triggers and therefore help minimise the disease severity and recurrence, as well as the physical and emotional distress experienced by the person. General management of inflammation and androgen excess, along with targeted individual treatment, will form the basis of the approach. The complex nature of skin health means it can be difficult to treat. It can take up to six months to fully resolve moderate to severe acne. It is important for a practitioner to be upfront about treatment and help the person understand that improvements will not happen immediately, however, the practitioner is there to hold their hand through this process. This is typical of most skin problems. Symptoms can initially get worse and the person may need to expect that to happen for a week to a month. This can be avoided by using lower doses of herbs. ^{42 43 44}

The key treatment goals include:

- Address hormone imbalance
- Address insulin resistance, regulate blood sugar levels
- Address digestive health, bowel function and increase detoxification through all channels of elimination
- Reduce oxidative load and improve antioxidant status
- Reduce inflammation
- Address infection, facilitate wound healing and enhance immunity to prevent infection

- Regulate the nervous system and address emotional stressors.
- Emphasise diet: it will be difficult to help a person move through their acne if they are eating a lot of processed foods.
- Appropriate herbs
- Topical applications: depending on what people are willing to do.

Diet

A healthy diet can go a long way in managing acne. The proverbial saying “you are what you eat” has never rung so true. As American physician, bestselling author and international leader in the field of Functional Medicine, Dr Mark Hyman, says: “One patient recently told me he would give a million dollars for a pill to cure acne. He doesn't need to. It seems that for many the cure to acne is at the end of their fork, not in a prescription pad.” Observational studies indicate that a low-fat, high fibre and low-refined carbohydrate diet may be beneficial for acne. The skin is often referred to as the second liver, or the third kidney, based on the role skin plays in detoxification. The dietary approach should incorporate foods that facilitate normal skin function by maximising the intake of anti-inflammatory and antioxidant foods combined with following a well-balanced, unrefined, chemical-free (organic where possible) and low GI diet. ^{45 46}

Include:

- A low GI diet has the strongest evidence available when it comes to diet and acne, according to a recent research review. This is a diet high in wholegrains, fruits with edible skin and high in protein such as eggs and lean meat.
- Antioxidant-rich fruits and vegetables such as dark green leafy vegetables, berries, parsley.
- Cooling and draining foods including cucumbers, celery, leafy greens, carrots.
- Cruciferous vegetables such as broccoli, cauliflower and rocket to support both the liver and gut, facilitating efficient hormone and toxin breakdown by the liver and elimination by the gut.
- Foods which have high levels of beta-carotene, such as yellow and orange fruit and vegetables,

and dark green leafy vegetables, to reduce inflammation and encourage cell turnover (natural exfoliation).

- Zinc seems to be very useful in acne, especially where the lesions are excessively inflamed. Zinc should be included to reduce inflammation, assist with healing and to help regulate hormone levels. Zinc can be found in oysters, oats, meat, poultry, nuts and beans.
- Low allergenic nuts and seeds for minerals, fatty acids and zinc.
- Pro-biotics and fermented foods for balanced gut bacteria, particularly if antibiotics have been used and which also address constipation.
- Vitamin A is important for the skin: cod liver oil and eating healthy animal liver.
- Increase fibre intake which can also improve glycaemic control.
- Consume bone broth. It contains collagen which can help repair scarring.
- Restore the balance of essential fatty acid intake favouring Omega 3 (cold water fish such as salmon, mackerel, herring, tuna and anchovies, grass-fed meat, flaxseed oil) over Omega 6 (seed and vegetable oils and processed foods). Supplements may be necessary if the person is unable to comply with dietary recommendations.

Avoid:

- Aggravating pro-inflammatory foods such as processed foods and refined carbohydrates. Especially industrial seed oils (e.g., canola, vegetable oil, corn oil, cottonseed oil) and refined sugar which radically destroy and age the skin. Avoid a diet that is heavy in high GI foods as this can also elevate insulin levels.
- Common food intolerances such as gluten, dairy, corn and soy etc. This will be important if someone is relying heavily on these types of food. Fermented dairy such as yoghurt and cheese and full fat, unhomogenised milk are less reactive forms of dairy.
- Excessive alcohol, spicy foods and hot beverages. Healthy swap to raw cacao powder, matcha, medicinal mushrooms, green tea etc.

Hydration

Drinking plenty of filtered water is important for keeping the skin hydrated and for flushing out toxins. Aim for at least eight to 10 glasses of water a day. This can assist with healthy bowel habits by regulating bowel transit time. Spearmint herbal tea was shown to have significant anti-androgen effects in PCOS in a recent randomised controlled trial.⁴⁸

Lifestyle

Prioritising a healthy lifestyle helps to manage acne effectively.

Hygiene

Having a simple routine that works on reprogramming the skin cells to stop congestion leads to clearer skin.

- Healthy swap all conventional personal care products (shampoo, conditioner, body lotions, face moisturisers, make-up, leave-in hair styling products, perfumes etc.) with all-natural, toxic-free versions. Toxins in conventional products wreak havoc on the body ranging from endocrine disruptors, carcinogens, allergens and neurotoxins.
- Use makeup, skincare or haircare products labelled as non-comedogenic or water-based as they are less likely to clog up skin pores. Cleansing and moisturising twice a day with non-comedogenic nourishing oils on the skin can lift excess sebum, clean out clogged pores and remove dead skin, pollutants and makeup. Witch hazel distillate is a popular astringent toner.
- Always remove makeup and cleanse the skin thoroughly before bed.
- Apply face packs. Consider powdered herbs (such as rose or lavender) with clay (French green clay, bentonite, kaolin). Mix 2/3 clay and 1/3 powdered herb. Mix with hydrosol, honey, aloe vera gel or water until moist then thickly apply to the face and let sit for about 20 minutes. Rinse with warm water to remove then finish with cold water.
- Make a tea of antimicrobial and vulnerary herbs and apply it as a fomentation (warm/hot) to the face.

Avoid

- Applying greasy cosmetics or greasy sunscreens to acne prone areas.
- Abrasive scrubs, toners and cleansers.
- Squeezing and picking pimples as this can exacerbate the infection and inflammation and is more likely to lead to scarring.
- Tight-fitting hats, headbands, masks and clothing that covers breakout-prone areas.

Rest

Make sleep a priority to give the body the rest it needs and the acne a chance to heal. A non-restorative sleep could kick-start a cortisol surge, which could risk more acne.

Stress Management

Stress can contribute to acne causing hormonal imbalances. Incorporate stress-reducing activities into the daily routine such as yoga, meditation or deep breathing exercises.

Psychotherapy

Feeling self-conscious about problem skin can

be very challenging. Acne causes psychological distress in many people. Many people are increasingly concerned with their physical appearance including having clear skin. Ideas around body image have changed significantly to become unrealistic and harmful with the use of social media, particularly for young adults. Consider referral to mental health services where appropriate.

Connect with Nature

Sunshine therapy is key for skin healing. Sunlight is the best way to raise the levels of Vitamin D3 and if that is not possible then supplements may be required.

Environment

Avoid hot humid areas and tight clothing in acne prone areas. Avoid smoking. Clean phone screens.

Exercise

Regular exercise and working out is a good way to handle stress, taking a shower as soon as possible after working out.

Potential Treatment Plans

Acne	Burdock	Echinacea	Green Tea	Yarrow	Gotu Kola
Hormonal Acne	Chastetree	Liquorice	Calendula	Hemidesmus	Withania
Acne with Stress	Gotu Kola	Withania	Green Tea	Liquorice	Echinacea
Acne with Digestive Issues	Calendula	Dandelion Root	Hemidesmus	Poke Root	Burdock

Desired Herbal Actions and Potential Herbs Include:

Adaptogens, Relaxing Nervines

These herbs help with the emotional component. They can be used for support if there is a lot of stress or other lifestyle problems to adjust such as lack of sleep. Acne can be difficult for teenagers and adults alike, and problematic for self-esteem associated with visible acne, especially in teenagers. These herbs can be seen as a big hug. Herbs such as astragalus, baical scullcap, chamomile, damiana, gotu kola, holy basil, Korean ginseng, liquorice, motherwort, oats seed, rehmannia, reishi, rhodiola, St. John's wort, St. Mary's thistle, schizandra, scullcap, vervain, withania.

Alteratives (Depuratives), Hepatics, Lymphatic Tonics, Relaxing Diaphoretics

These herbs are the core of the treatment. They have a specific role in detoxification and digestive imbalance. They increase the natural metabolic processes to clear stagnancy and get things moving especially clearing excess hormones and other aggravating substances. They also support lymphatic drainage from the skin and underlying tissues. Relaxing diaphoretics directly open the pores on the surface of the skin and address elimination to let the heat out. Herbs include andrographis, bupleurum, burdock, calendula, chickweed, clivers, dandelion root, echinacea, elder flowers, globe artichoke, gotu kola, green tea, heartsease, hemidesmus, nettle leaf, poke root, red

clover, sarsaparilla, vervain, yarrow, yellow dock.

Antimicrobial, Astringent, Vulnerary

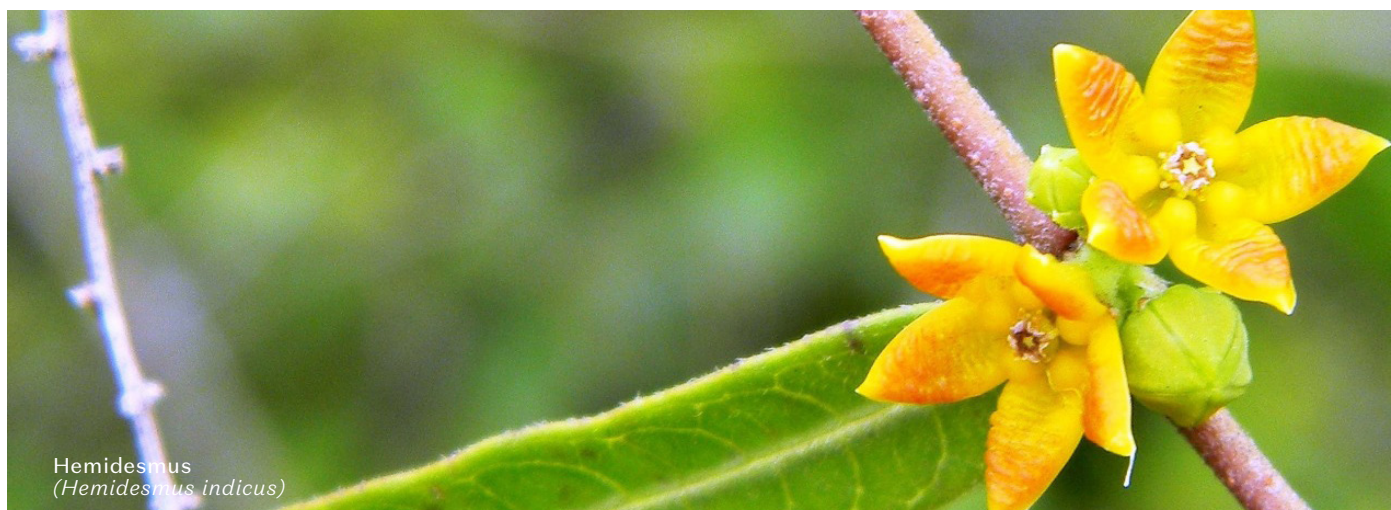
These actions help the body deal with secondary infection and help to heal the skin. They can be used internally and topically and are indicated for hot, red acne that easily gets infected. Herbs such as andrographis, baical scullcap, calendula, chickweed, comfrey (external use only), echinacea, garlic, green tea, gymnema, hemidesmus, lavender, liquorice, ribwort, rosemary, sage, thyme, white willow, yarrow.

Antioxidant, Anti-inflammatory

To help deal with systemic inflammation. Herbs include baical scullcap, burdock, calendula, chickweed, damiana, dandelion root, echinacea, garlic, golden rod, gotu kola, green tea, heartsease, hemidesmus, holy basil, lemon balm, liquorice, magnolia, maritime pine, nettle leaf, nigella, pomegranate, reishi, rhodiola, ribwort, rosemary, sage, schizandra, turmeric, withania, yarrow.





Hormone Regulators, Antidiabetic

These are indicated because of the androgen involvement however impacting them in an appropriate way is not a straightforward matter. The oral use of herbs used to treat diabetes may cause clinical improvement in acne when insulin is suspected to be involved in its development. Herbs such as chastetree, false unicorn, gotu kola, gymnema, liquorice, paeonia, poke root, rhodiola, saw palmetto, wild yam.







Hemidesmus
(*Hemidesmus indicus*)




Herbal Support Could Include:

HERB NAME	DESCRIPTION	ACTIONS
Burdock <i>(Arctium lappa)</i> 	Burdock is the archetypal alterative herb, a revered blood cleanser and detoxifying remedy which accelerates the elimination of toxins from the body. Cooling and drying, burdock is a classic liver herb which can be used to address chronic and acute skin rashes such as acne. ⁴⁹	Alterative Anti-inflammatory Diaphoretic
Calendula <i>(Calendula officinalis)</i> 	Calendula is one of the best remedies for infected or slow-healing wounds. Calendula liquid extract can be applied directly to acne to ease eruptions. Calendula's bitter tonic properties enhance the function of the liver, helping to cleanse the body of toxins. ⁵⁰	Antimicrobial Anti-inflammatory Antioxidant Vulnerary Hepatic
Chastetree <i>(Vitex agnus-castus)</i> 	Chastetree is used for acne before menstruation. It acts on follicle-stimulating and luteinizing hormone levels in the pituitary gland leading to an increase in progesterone and decrease in oestrogen levels through the dopaminergic mechanism, declining the level of premenstrual prolactin. German Commission E has recommended a daily intake of 40mg of chastetree for the treatment of acne. ⁵¹	Hormone Regulator
Dandelion Root <i>(Taraxacum officinale)</i> 	Dandelion root has been used for centuries as a traditional medicine in the relief and treatment of several diseases, particularly involving the liver where it increases function and decreases inflammation. A sluggish liver is related to poor digestion, eruptive skin conditions such as acne and hormonal imbalances. It is gently stimulating and moves stagnation. Dandelion root can detoxify, support digestion and a diverse gut microbiome. ^{52 53}	Alterative Antioxidant Anti-inflammatory Hepatoprotective


Herbal Support Could Include: (Cont.)

HERB NAME	DESCRIPTION	ACTIONS
<p>Echinacea (<i>Echinacea spp.</i>)</p> 	<p>A more effective immune response will help control levels of <i>C. acnes</i> so echinacea has possibly been used traditionally in acne for this reason. Preclinical studies have reported that echinacea was able to inactivate <i>C. acnes</i> and inhibit the resulting proinflammatory cascade. It was also reported to exhibit antioxidant activity, which could be useful to reduce the free radical production in acne.⁵⁴</p>	<p>Anti-inflammatory</p> <p>Antimicrobial</p> <p>Lymphatic</p> <p>Alterative</p> <p>Antioxidant</p> <p>Vulnerary</p>
<p>Gotu Kola (<i>Centella asiatica</i>)</p> 	<p>Gotu kola is recognised for its rapid healing qualities. It is one of the chief herbs for treating skin problems and healing wounds. It is also widely used as a blood purifier. Regarding the emotional aspect of acne, gotu kola has been used for centuries for the treatment of anxious and depressive complaints. An open-label study, using 500mg of gotu kola twice daily for two months, in 33 patients with generalised anxiety disorder revealed significant improvements in anxiety following 60 days of treatment, along with significant reductions in secondary measures of stress and depression.⁵⁵</p>	<p>Adaptogen</p> <p>Antioxidant</p> <p>Anti-inflammatory</p> <p>Alterative</p> <p>Antidiabetic</p>
<p>Green Tea (<i>Camellia sinensis</i>)</p> 	<p>Green tea is loaded with antioxidants and may have beneficial effects in the prevention and treatment of acne. Researchers have found that, for some people, the consumption or topical application of green tea or green tea extract can help improve the lesions, redness and irritated skin that acne causes.⁵⁶</p>	<p>Antioxidant</p> <p>Anti-inflammatory</p> <p>Antimicrobial</p> <p>Hepatoprotective</p>
<p>Hemidesmus (<i>Hemidesmus indicus</i>)</p> 	<p>The root of hemidesmus, commonly known as Indian sarsaparilla, is traditionally used in Ayurveda to treat a wide variety of illnesses including skin infections, such as acne, and female hormonal disturbance-related disorders. In Sri Lanka hemidesmus is used for cooling, blood cleansing and detoxing (diphoretic and diuretic via sweat and urine). In preclinical trials hemidesmus has shown strong inhibitory effects on the inflammation caused by <i>C.acne</i>.^{57 58 59}</p>	<p>Anti-inflammatory</p> <p>Alterative</p> <p>Antioxidant</p> <p>Astringent</p> <p>Diaphoretic</p>

Herbal Support Could Include: (Cont.)

HERB NAME	DESCRIPTION	ACTIONS
<p>Liquorice (<i>Glycyrrhiza glabra</i>)</p> 	<p>A powerful ability to modulate inflammation makes liquorice an ally both externally and internally to support skin health. Liquorice is especially supportive of the endocrine system particularly when it comes to long term, everyday stress. It nourishes the adrenal glands and is thought to help them produce the right level of hormones, especially cortisol. Cortisol is a potent anti-inflammatory that prevents the widespread tissue and nerve damage associated with inflammation. A method to treat excess androgen (sometimes implicated in acne) is to increase the rate at which androgens are converted (aromatised) to oestrogens. Liquorice, in combination with <i>Paeonia lactiflora</i>, can increase the aromatisation process and reduce testosterone levels. Peony and Lliquorice Combination, a formula used in traditional Chinese medicine, is suitable for excess production of ovarian androgens. ^{60 61 62}</p>	<p>Anti-inflammatory</p> <hr/> <p>Antioxidant</p> <hr/> <p>Antimicrobial</p> <hr/> <p>Hepatoprotective</p> <hr/> <p>Hormone Modulator</p> <hr/>
<p>Poke Root (<i>Phytolacca americana</i>)</p> 	<p>Poke root is a powerful, low dose plant which is one of the best blood purifying herbs. It is an excellent remedy for the lymphatic system where it relieves lymphatic congestion and cysts. It helps clear the skin of inflammatory problems, such as acne, promotes digestion and is useful in conditions associated with a sluggish liver such as acne and constipation. For acne it can be taken internally and also applied externally as a compress. ⁶³</p>	<p>Alterative</p> <hr/> <p>Lymphatic</p> <hr/> <p>Anti-inflammatory</p> <hr/>
<p>Withania (<i>Withania somnifera</i>)</p> 	<p>Withania, widely used as an adaptogen in Ayurveda, helps acne sufferers to cope with stressors and prevent potential physiological consequences related to stress. Several studies report its efficacy and safety in conditions associated with chronic stress and anxiety. It also improves the body's defence against disease by improving cell-mediated immunity and it possesses potent antioxidant properties that help protect against cellular damage caused by free radicals. It also works well with the endocrine system, enhancing hormonal profiles. In this instance it works well for balancing mood swings due to hormonal fluctuations and for balancing blood sugar. ^{64 65 66}</p>	<p>Adaptogen</p> <hr/> <p>Anti-inflammatory</p> <hr/> <p>Antioxidant</p> <hr/>

Herbal Support Could Include: (Cont.)

HERB NAME	DESCRIPTION	ACTIONS
<div>Yarrow</div> <div>(<i>Achillea millefolium</i>)</div> <div></div>	Yarrow is a fabulous plant for acne. Yarrow's vulnerary properties mean it is widely regarded as one of the best wound care plants available. Not only can it arrest bleeding but its antimicrobial effect can promote the healing of anti-inflammatory skin conditons. As a diaphoretic it opens the pores and can be applied as a facial toner to help tighten and tone the pores and clear up secretions on the skin.	<div>Antimicrobial</div> <div>Anti-inflammatory</div> <div>Diaphoretic</div> <div>Vulnerary</div> <div>Astringent</div>



Conclusion

Acne is a complex condition, that can be tough to treat, but there are many effective treatments which can help ease breakouts and heal the skin.

Overall, its management requires a holistic approach that addresses underlying causes rather than just suppressing the symptoms. The key is to take small

steps by slowly making lifestyle changes, following a healthy diet, practicing stress-reducing techniques and using natural remedies.

Resources

- Kraft J, Freiman A. Management of acne. CMAJ. 2011 Apr 19;183(7):E430-5. doi: 10.1503/cmaj.090374. Epub 2011 Feb 28. PMID: 21398228; PMCID: PMC3080563.
- Burke D, Coelho S. Everything You Want to Know About Acne Healthline Media c2023 (updated Feb 23 2022; accessed 26 Apr 2023) Available from <https://www.healthline.com/health/skin/acne>
- Brown H, Tapley A, van Driel ML, Davey AR, Holliday E, Ball J, Morgan S, Patsan I, Mulquiney KJ, Spike N, FitzGerald K, Magin P. Acne in primary care: A cross-sectional analysis. Aust J Gen Pract. 2019 Nov;48(11):781-788. doi: 10.31128/AJGP-02-19-4864. PMID: 31722466.
- Shannon JF. Why do humans get acne? A hypothesis. Med Hypotheses. 2020 Jan;134:109412. doi: 10.1016/j.mehy.2019.109412. Epub 2019 Sep 27. PMID: 31622924.
- Shannon JF. Why do humans get acne? A hypothesis. Med Hypotheses. 2020 Jan;134:109412. doi: 10.1016/j.mehy.2019.109412. Epub 2019 Sep 27. PMID: 31622924.
- Shannon JF. Why do humans get acne? A hypothesis. Med Hypotheses. 2020 Jan;134:109412. doi: 10.1016/j.mehy.2019.109412. Epub 2019 Sep 27. PMID: 31622924.
- Shannon JF. Why do humans get acne? A hypothesis. Med Hypotheses. 2020 Jan;134:109412. doi: 10.1016/j.mehy.2019.109412. Epub 2019 Sep 27. PMID: 31622924.
- Gallitano SM, Berson DS. How Acne Bumps Cause the Blues: The Influence of Acne Vulgaris on Self-Esteem. Int J Womens Dermatol. 2017 Dec 6;4(1):12-17. doi: 10.1016/j.ijwd.2017.10.004. PMID: 30023422; PMCID: PMC6047192.
- Klenner A. Herbs for Skin: Part 1 The Herbarium Herbal Academy (accessed 21 Apr 2023). Available from <https://herbarium.theherbalacademy.com/2015/12/herbs-for-skin-part-1/>
- Heng AHS, Say YH, Sio YY, Ng YT, Chew FT. Gene variants associated with acne vulgaris presentation and severity: a systematic review and meta-analysis. BMC Med Genomics. 2021 Apr 13;14(1):103. doi: 10.1186/s12920-021-00953-8. PMID: 33849530; PMCID: PMC8045239.
- Wang H, Dang T, Feng J, Wu W, He L, Yang J. Identification of differentially methylated genes for severe acne by genome-wide DNA methylation and gene expression analysis. Epigenetics. 2023 Dec;18(1):2199373. doi: 10.1080/15592294.2023.2199373. PMID: 37018476; PMCID: PMC10078136.
- Yang J, Yang H, Xu A, He L. A Review of Advancement on Influencing Factors of Acne: An Emphasis on Environment Characteristics. Front Public Health. 2020 Sep 17;8:450. doi: 10.3389/fpubh.2020.00450. PMID: 33042936; PMCID: PMC7527424.
- Yang J, Yang H, Xu A, He L. A Review of Advancement on Influencing Factors of Acne: An Emphasis on Environment Characteristics. Front Public Health. 2020 Sep 17;8:450. doi: 10.3389/fpubh.2020.00450. PMID: 33042936; PMCID: PMC7527424.
- Acne. Mayo Foundation for Medical Education and Research c1998-2023. (accessed 26 Apr 2023). Available from <https://www.mayoclinic.org/diseases-conditions/acne/symptoms-causes/syc-20368047>
- Stewart TJ, Bazergy C. Thyroid autoimmunity in female post-adolescent acne: A case-control study. Dermatoendocrinol. 2017 Dec 12;9(1):e1405198. doi: 10.1080/19381980.2017.1405198. PMID: 29484104; PMCID: PMC5821156.
- Endres L, Tit DM, Bungau S, Pascual NA, Todan LM, Bimbo-Szuha E, Iancu GM, Negrut N. Incidence and Clinical Implications of Autoimmune Thyroiditis in the Development of Acne in Young Patients. Diagnostics (Basel). 2021 Apr 28;11(5):794. doi: 10.3390/diagnostics11050794. PMID: 33924808; PMCID: PMC8145646.
- Trickey R. Women, Hormones and the Menstrual Cycle. 3rd edn. Fairfield: Melbourne Holistic Health Group. 2011. p. 109
- Sutaria AH, Masood S, Schlessinger J. Acne Vulgaris. [Updated 2023 Feb 16]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK459173/>
- Yang J, Yang H, Xu A, He L. A Review of Advancement on Influencing Factors of Acne: An Emphasis on Environment Characteristics. Front Public Health. 2020 Sep 17;8:450. doi: 10.3389/fpubh.2020.00450. PMID: 33042936; PMCID: PMC7527424.
- Zamil DH, Perez-Sanchez A, Katta R. Acne related to dietary supplements. Dermatol Online J. 2020 Aug 15;26(8):13030/qt9rp7t2p2. PMID: 32941710.
- Penso L, Touvier M, Deschasaux M, et al. Association Between Adult Acne and Dietary Behaviors: Findings From the NutriNet-Santé Prospective Cohort Study. JAMA Dermatol. 2020;156(8):854-862. doi:10.1001/jamadermatol.2020.1602
- Meixiong J, Ricco C, Vasavda C, Ho BK. Diet and acne: A systematic review. JAAD Int. 2022 Mar 29;7:95-112. doi: 10.1016/j.jdin.2022.02.012. PMID: 35373155; PMCID: PMC8971946.
- Lee YB, Byun EJ, Kim HS. Potential Role of the Microbiome in Acne: A Comprehensive Review. J Clin Med. 2019 Jul 7;8(7):987. doi: 10.3390/jcm8070987. PMID: 31284694; PMCID: PMC6678709.
- Sánchez-Pellicer P, Navarro-Moratalla L, Núñez-Delegido E, Ruzafa-Costas B, Agüera-Santos J, Navarro-López V. Acne, Microbiome, and Probiotics: The Gut-Skin Axis. Microorganisms. 2022 Jun 27;10(7):1303. doi: 10.3390/microorganisms10071303. PMID: 35889022; PMCID: PMC9318165.
- Zari S, Alrahmani D. The association between stress and acne among female medical students in Jeddah, Saudi Arabia. Clin Cosmet Investig Dermatol. 2017 Dec 5;10:503-506. doi: 10.2147/CCID.S148499. PMID: 29255370; PMCID: PMC5722010.
- Schrom KP, Ahsanuddin S, Baechtold M, Tripathi R, Ramser A, Baron E. Acne Severity and Sleep Quality in Adults. Clocks Sleep. 2019 Dec 6;1(4):510-516. doi: 10.3390/clockssleep1040039. PMID: 33089183; PMCID: PMC7445853.
- Lee YB, Byun EJ, Kim HS. Potential Role of the Microbiome in Acne: A Comprehensive Review. J Clin Med. 2019 Jul 7;8(7):987. doi: 10.3390/jcm8070987. PMID: 31284694; PMCID: PMC6678709.
- Siddiqui R, Makhlof Z, Khan NA. The increasing importance of the gut microbiome in acne vulgaris. Folia Microbiol (Praha). 2022 Dec;67(6):825-835. doi: 10.1007/s12223-022-00982-5. Epub 2022 Jun 16. PMID: 35711021.

Resources (Cont.)

29. Sánchez-Pellicer P, Navarro-Moratalla L, Núñez-Delegido E, Ruzafa-Costas B, Agüera-Santos J, Navarro-López V. Acne, Microbiome, and Probiotics: The Gut-Skin Axis. *Microorganisms*. 2022 Jun 27;10(7):1303. doi: 10.3390/microorganisms10071303. PMID: 35889022; PMCID: PMC9318165.
30. Yang J, Yang H, Xu A, He L. A Review of Advancement on Influencing Factors of Acne: An Emphasis on Environment Characteristics. *Front Public Health*. 2020 Sep 17;8:450. doi: 10.3389/fpubh.2020.00450. PMID: 33042936; PMCID: PMC7527424.
31. Basler RS. Acne mechanica in athletes. *Cutis*. 1992 Aug;50(2):125-8. PMID: 1387355.
32. Spigariolo CB, Giacalone S, Nazzaro G. Maskne: The Epidemic within the Pandemic: From Diagnosis to Therapy. *J Clin Med*. 2022 Jan 26;11(3):618. doi: 10.3390/jcm11030618. PMID: 35160071; PMCID: PMC8836723.
33. Yang J, Yang H, Xu A, He L. A Review of Advancement on Influencing Factors of Acne: An Emphasis on Environment Characteristics. *Front Public Health*. 2020 Sep 17;8:450. doi: 10.3389/fpubh.2020.00450. PMID: 33042936; PMCID: PMC7527424.
34. Kraft J, Freiman A. Management of acne. *CMAJ*. 2011 Apr 19;183(7):E430-5. doi: 10.1503/cmaj.090374. Epub 2011 Feb 28. PMID: 21398228; PMCID: PMC3080563.
35. Tan AU, Schlosser BJ, Paller AS. A review of diagnosis and treatment of acne in adult female patients. *Int J Womens Dermatol*. 2017 Dec 23;4(2):56-71. doi: 10.1016/j.ijwd.2017.10.006. PMID: 29872679; PMCID: PMC5986265.
36. Acne. Mayo Foundation for Medical Education and Research c1998-2023. (accessed 26 Apr 2023). Available from <https://www.mayoclinic.org/diseases-conditions/acne/symptoms-causes/syc-20368047>
37. Acne. Mayo Foundation for Medical Education and Research c1998-2023. (accessed 26 Apr 2023). Available from <https://www.mayoclinic.org/diseases-conditions/acne/symptoms-causes/syc-20368047>
38. Tan AU, Schlosser BJ, Paller AS. A review of diagnosis and treatment of acne in adult female patients. *Int J Womens Dermatol*. 2017 Dec 23;4(2):56-71. doi: 10.1016/j.ijwd.2017.10.006. PMID: 29872679; PMCID: PMC5986265.
39. Burke D, Coelho S. Everything You Want to Know About Acne. *Healthline Media* c2023 (updated 23 Feb 2022; accessed 4 May 2023). Available from <https://www.healthline.com/health/skin/acne#diagnosis>
40. Burke D, Coelho S. Everything You Want to Know About Acne. *Healthline Media* c2023 (updated 23 Feb 2022; accessed 4 May 2023). Available from <https://www.healthline.com/health/skin/acne#diagnosis>
41. See JA. Acne vulgaris. *Australasian College of Dermatologists*. c2019 (updated 10 Aug 2015; accessed 21 Apr 2023). Available from <https://www.dermcoll.edu.au/atoz/acne-vulgaris/>
42. Hechtman L. *Clinical Naturopathic Medicine*. Sydney:Churchill Livingstone Elsevier. 2012. p. 662
43. Sarris J, Wardle J. *Clinical Naturopathy*, 2nd ed. Chatswood:Elsevier. 2014. p.465
44. de la Forêt R. Acne. *Herbs in Practice Herb Mentor* c2023 Learning Herbs (updated 14 Feb 2013; accessed 28 Apr 2023). Available from
45. Hyman M. Do Milk and Sugar Cause Acne? Dr. Mark Hyman c2023 (updated; accessed 26 Apr 2023). Available from <https://drhyman.com/blog/2011/02/11/do-milk-and-sugar-cause-acne/>
46. Sarris J, Wardle J. *Clinical Naturopathy*, 2nd ed. Chatswood:Elsevier. 2014. p.465
47. Meixiong J, Ricco C, Vasavda C, Ho BK. Diet and acne: A systematic review. *JAAD Int*. 2022 Mar 29;7:95-112. doi: 10.1016/j.jdin.2022.02.012. PMID: 35373155; PMCID: PMC8971946.
48. Grant P. Spearmint herbal tea has significant anti-androgen effects in polycystic ovarian syndrome. A randomized controlled trial. *Phytother Res*. 2010 Feb;24(2):186-8. doi: 10.1002/ptr.2900. PMID: 19585478.
49. Weed SS. *Healing Wise*. Ash Tree Publishing:New York. 1989. p. 96
50. Mills S. *The Essential Book of Herbal Medicine*. Penguin:London. 1991. p.542-4
51. Nasri H, Bahmani M, Shahinfard N, Moradi Nafchi A, Saberianpour S, Rafieian Kopaei M. Medicinal Plants for the Treatment of Acne Vulgaris: A Review of Recent Evidences. *Jundishapur J Microbiol*. 2015 Nov 21;8(11):e25580. doi: 10.5812/jjm.25580. PMID: 26862380; PMCID: PMC4740760.
52. de la Foret R, Han E. *Wild Remedies*. Hay House:California. 2020. p. 293-8
53. de la Forêt R. Dandelion monograph. [Internet] *Herb Mentor:Learning Herbs* c2023 [updated 30 July 2017; accessed 9 May 2023] Available from <https://herbmentor.learningherbs.com/herb/dandelion/>
54. Rinaldi F, Marotta L, Mascolo A, Amoroso A, Pane M, Giuliani G, Pinto D. Facial Acne: A Randomized, Double-Blind, Placebo-Controlled Study on the Clinical Efficacy of a Symbiotic Dietary Supplement. *Dermatol Ther (Heidelb)*. 2022 Feb;12(2):577-589. doi: 10.1007/s13555-021-00664-z. Epub 2022 Jan 21. PMID: 35061237; PMCID: PMC8850513.
55. Jana U, Sur TK, Maity LN, Debnath PK, Bhattacharyya D. A clinical study on the management of generalized anxiety disorder with *Centella asiatica*. *Nepal Med Coll J*. 2010 Mar;12(1):8-11.
56. Lu PH, Hsu CH. Does supplementation with green tea extract improve acne in post-adolescent women? A randomized, double-blind, and placebo-controlled clinical trial. *Complement Ther Med*. 2016 Apr;25:159-63. doi: 10.1016/j.ctim.2016.03.004. Epub 2016 Mar 7. PMID: 27062963.
57. *Compendium of Medicinal Plants A Sri Lankan study*. Volume 1. Department of Ayurveda, 2004. p. 104.
58. Priyantha KM. Know your herbs Iramusu (Hemidesmus Indicus). [Internet]. [Updated 13 Jan 2020]. Available from <http://www.dailymirror.lk/medicine/Know-your-herbs-Iramusu-Hemidesmus-Indicus/308-181162>

Resources (Cont.)

59. Jain A, Basal E. Inhibition of *Propionibacterium acnes*-induced mediators of inflammation by Indian herbs. *Phytomedicine*. 2003 Jan;10(1):34-8. doi: 10.1078/094471103321648638. PMID: 12622461.
60. Trickey R. *Women, Hormones and the Menstrual Cycle*. 3rd edn. Fairfield: Melbourne Holistic Health Group. 2011. p. 83
61. Licorice monograph. Herb Mentor. c2023 Learning Herbs (updated Jan 1 2021; accessed May 9 2023). Available from <https://herbmentor.learningherbs.com/herb/licorice/>
62. Hannibal KE, Bishop MD. Chronic stress, cortisol dysfunction, and pain: a psychoneuroendocrine rationale for stress management in pain rehabilitation. *Phys Ther*. 2014 Dec;94(12):1816-25. doi: 10.2522/ptj.20130597. Epub 2014 Jul 17. PMID: 25035267; PMCID: PMC4263906.
63. McIntyre A. *The Complete Woman's Herbal*. Gai Books Limited:London. 1994. p. 179.
64. Singh N, Bhalla M, de Jager P, Gilca M. An overview on ashwagandha: a Rasayana (rejuvenator) of Ayurveda. *Afr J Tradit Complement Altern Med*. 2011;8(5 Suppl):208-213. doi:10.4314/ajtcam.v8i5S.9
65. Maier K. *Energetic Herbalism*. Vermont: Chelsea Green Publishing. 2021. p. 227-8
66. Narra K, Naik SK, Ghatge AS. A Study of Efficacy and Safety of Ashwagandha (*Withania somnifera*) Lotion on Facial Skin in Photoaged Healthy Adults. *Cureus*. 2023 Mar 15;15(3):e36168. doi: 10.7759/cureus.36168. PMID: 36937128; PMCID: PMC10017910.

PURE PLANT
POWER



GROUNDING
IN TRADITION

Our powerful herbal healing is grounded in tradition, and we are devoted to sharing this with you.

Our practitioner-quality herbal extracts are handmade to harness the pure power of nature.

To learn more about this condition and potential remedies please contact us:

1300 443 727

pracsupport@herbalextracts.com.au



HERBALEXTRACTS.COM.AU