

Tested Plants Used in Cosmetics

T. Bombeli, MD BBA. **Herbal ingredients are increasingly being used in cosmetics mostly because of the poor image of animal-derived products. Herbs can be utilized for cosmetics in three forms: as total extracts, selective extracts or single molecules purified from extracts. Total extracts (e.g. aloe vera gel, teas, plant extracts) are applied mainly according to the historical tradition of their use, whereas selective extracts (e.g. licorice, ginkgo, wheat germ) or single natural molecules (e.g. vitamins, coenzyme Q10) are used more based on their tested specific activity.** (Source: *Phytotherapy Res.* 2003;17:987)

Many herbal agents used in cosmetics have been selected by a process of 'trial and error' and thus are used based on experience rather than experimental investigation. There is now, however, growing scientific evidence that plants possess a vast and complex arsenal of active ingredients (phytochemicals) able not only to calm or smooth the skin but actively restore, heal and protect the skin. The following summary shows only plants that have been shown to be effective in scientific studies.

Dry Skin Treatment

The binding of water in the horny, outermost layer of the skin can be compromised so that it is necessary to reduce the transepidermal water loss by applying a protective film. Tested herbal agents are:

- Castor Oil
- Mango Kernel Oil
- Cacao (Cocoa) Butter
- Shea Butter
- Coconut Oil
- Sunflower Oil
- Olive Oil

Eczema Treatment

Eczema or atopic dermatitis is a skin condition characterized by redness, scaling and itching. Although eczema should first be diagnosed and treated by a dermatologist, supportive treatment with herbal agents may be very helpful. Tested herbal agents are:

- Turmeric (*curcuma longa*): used as processed rhizome (yellow powder). Active component is curcumin (anti-inflammatory),

Acne Treatment

Acne is a skin condition that affects the sweat glands and hair follicles causing inflammation & pus (white heads). Tested herbal agents are:

- Artemisia (*artemisia vulgaris* & *absinthum*): Used are the decoction of the entire plant or the dried leaves.
- Basil (*basileus*): fixed oil has potent anti-inflammatory & anti-bacterial properties
- Pea (*pisum sativum*): used as face masks from crushed peas.
- Pumpkin (*cucurbita pepo*): used is the seed oil, dried leaves or infusions of the roots
- Onion (*allium cepa*): used as onion juice. Anti-microbial & anti-inflammatory effects due to the high content of flavonoids

Anti-Aging Treatment

Aging skin is characterized by thinning and wrinkling of the epidermis together with the appearance of lines, crevices and furrows. Anti-aging effects are based on increased blood flow in the skin and scavenging of free radicals (highly reactive, natural molecules formed in the body causing tissue degeneration). Tested herbal agents are:

- Ginseng (*panax ginseng*): activates the skin metabolism and blood flow, reduces keratinisation, moisturizes and softens, alleviates wrinkling and enhances skin whiteness.
- Green / Black Tea: contains polyphenols like catechins that neutralize free radicals
- Grape Seed Extract (*vitis vinifera*): contains procyanidins with strong anti-oxidant and anti-degenerative activity. Also useful in skin-lightening cosmetics.
- Coenzyme Q10: ubiquinone purified from plant material. Has potent anti-aging effect.

Anti-Inflammatory Treatment

Inflammation is a common feature in many pathologic skin conditions. Its control is therefore important. Tested herbal agents are:

- Red Clover (*trifolium pretense*): contain isoflavones. Widely used after sunburns and prophylactically in sunlotions
- Chamomile (*matricaria recutita*): active ingredients are flavonoids, apigenin and bisabolol (inhibit inflammatory leukotriens). Chamomile is processed in many forms as extracts, infusions, or essential oils.

- Fenugreek (*trigonella foenum*): seeds have potent anti-inflammatory activity.
- Jojoba (*buxus chinensis*): liquid wax containing various fatty acids with anti-inflammatory, anti-oxidant & anti-microbial effect. Also useful as non-greasy lubricant.
- Licorice Root (*glycyrrhiza glabra*). Active agent is glycyrrhizin.

Skin Protection

Many cosmetics are formulated to protect the skin from exogenous harmful agents. Tested herbal agents are:

- Aloe Vera (*aloe barbadensis*): vast experience as anti-oxidant, anti-inflammatory and wound-healing agent.
- Oats like oatmeal, bran (=colloidal oatmeal), oat flower, oat oil, hydrolysed oat protein, or oat beta-glucan are used as effective moisturizing & protecting agents.

Dandruff Treatment

Dandruff is characterized by flaking and scaling of the scalp associated with a decrease of skin lipids, ceramides and fatty acids making the skin prone to microbial and fungal infections.

Tested herbal agents are:

- Sage (*salvia officinalis*)
- Rosemary
- Thyme
- Garlic
- Walnut

Essential Oils (EO) in Cosmetics

EO are natural fragrances extracted from virtually every part of a plant. EO contain mainly volatiles as terpenoids, benzenoids, fatty acid derivatives and alcohols. The FDA and other authorities recognize EO generally as safe.

Although EO are widely used in cosmetics their actual mode of action is not fully understood.

Most often EO are used as:

- Co-preservatives: many EO have anti-bacterial activity and are added as supportive agents to synthetic preservatives.
- Fragrance: perfumery is the main use of EO in cosmetics although synthetic fragrances are more stable and have better longevity.
- Hair care: EO are used as conditioning, anti-dandruff & permanent waving agents.
- Skin care: EO are the ideal topical active ingredients for any skin care product since they can penetrate the skin and bind to the membranes of skin cells. EO can thus have sustained effects in the skin.