

Acne is a common skin disorder which is a visible end result of hormonal, bacterial and inflammatory disturbances that take place at the level of the oil pore (*pilosebaceous follicle*). It is characterized by presence of open comedones (black heads) and closed comedones (microcysts).

Some of the common causes of acne

- Growth and multiplication of acne causing bacterium *Propionibacterium acnes*.
- Higher levels of the hormone Dihydrotestosterone by the activity of the enzyme 5-alpha reductase.
- Increase in androgens during puberty and adolescence which in turn, triggers an enlargement of the sebaceous glands.

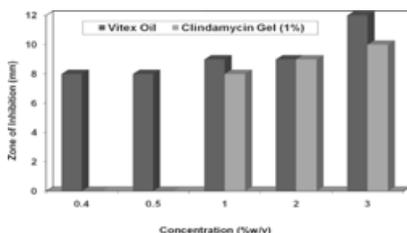
Prevention of acne

Acne may be prevented by:

- Reducing sebum production (secreted by sebaceous glands)
- Reducing bacteria (*P. acnes*) on the skin
- Reducing the inflammation
- Exfoliation-peeling of the skin which unclogs pores

Anti-microbial Vitex

Vitex oil is extracted from the berries of *Vitex agnuscastus* and is standardized for 0.40% of Artemetin. It is made up of long chain fatty alcohols and long chain fatty acids like lauric, myristic, palmitic, stearic, oleic, linoleic and linolenic acids. The oil has potential anti-microbial activity. Vitex oil inhibits the growth of *Propionibacterium acnes* (anaerobic bacteria), *E. coli* (from 0.1%) and *S. aureus* (aerobic bacteria, from 0.5%).

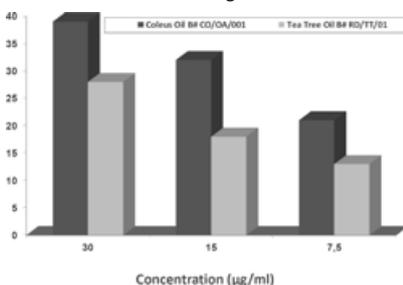


At concentrations above 0.4%, it effectively inhibits the *P. acnes* bacteria and the activity is well comparable to 1% Clindamycin gel.

Anti-microbial Coleus oil

Coleus oil is an oil obtained from the fresh roots of *Coleus forskohlii*. It is standardized to 15% Bornyl acetate and 15% Decanal. The oil having good anti-microbial activity is a potent anti-acne ingredient. Coleus oil was found to effectively inhibit the growth of skin pathogens such as:

- *Propionibacterium acnes* (associated with acne) : Inhibition of more than 25% at 1.25µg/ml (versus 15% for tea tree oil), and still 15% at 0,5 mg/ml



- *Staphylococcus aureus* (a bacterial strain found in infected wounds and skin eruptions including acne) : Inhibition by 40% at 30µg/ml, so about 3x more than tea tree oil, and still 30% at 7,5 mg/ml when tea tree oil is then not active anymore
- *Staphylococcus epidermidis* (a bacterial strain occurring in a variety of opportunistic bacterial skin infections): inhibition by ca. 30% at 30µg/ml, so double than tea tree oil, and still 15% at 7,5 mg/ml when there's no more activity from tea tree oil.
- *Candida albicans* : Inhibition by 40% at 30µg/ml and ca. 20% at 15µg/ml, so always more than Tea Tree Oil, without the unpleasant odor.

Sebum control Policosanol

Policosanol is a mixture of fatty alcohols derived from waxy extract of sugarcane. It contains a minimum of 55 – 60% Octacosanol. Policosanol was found to have anti-microbial and sebum control effects that are potentially

A unique formulation to fight the various form of acne and work on the sebum control

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Formulations may include as well the Cosmoperine - our Dermal Penetration Enhancer for a better efficacy, or Monolaurin , potent against *P. acnes*

useful in managing inflammatory skin conditions, particularly acne.

In a 2 week study on 16 human subjects between 8 and 25 yrs of age, 2% and 5% Policosanol colloidal solutions were found to be safe for local application. Topical applications of the Policosanol colloidal solutions were found to decrease the sebum secretion in a concentration dependent manner. (Reduction from 11.6% to 27.6%). Policosanol effectively compared with Clindamycin.



Cosmoperine

Cosmoperine is a 95% tetrahydropiperine, prepared from pepper by a patented proprietary process. It may operate by increasing the membrane fluidity and affinity of drug / nutrient to the cell membrane, for a broad range of delivery through the skin.

Cosmoperine has been subject to various studies : for instance, it has been found to enhance the Tetrahydrocurcuminoids (THC) due to increase penetration by min. 30% of the active across the barrier. Even at the highest dilution of 0.0001%. Other actives such as green tea polyphenols, syn-

Cosmoperine Tetrahydropiperine (THP) as enhancers of nutrient and drug bioavailability

thetic pyrethroid, Albendazole, Betamethasone Dipropionate, etc... have been also performed with same proofs of efficacy (absorbed faster rate and more completely)

Recommended use : 0.01% to 0.1%