PALM-BASED ANTI-ACNE CREAM

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Acne vulgaris or common acne is a regular skin disorder that affects virtually all individuals at least once during their lifetime. The incidence of acne peaks at 18 years of age but quite a numbers of men and women aged 20-40 are also affected by the disorder (Cunliffe and Gould, 1979). Treatment of acne is important as acne is normally associated with negative consequences to the individual, including diminished self-esteem, embarrassment and depression. Proper treatment with topical anti-acne creams normally can be achieved in most cases.

PATHOGENESIS OF COMMON ACNE

Acne is a disorder of sebaceous follicles, which are special pilosebaceous units located on the face, chest and back. They consist of sebaceous glands associated with small hair follicles. Several factors contribute to the pathogenesis of acne (Rothman and Lucky, 1993; Shalita and Lee, 1983; Sonya and Shalita, 1998):

- sebum - the lipid rich secretion product of sebaceous glands has a central role in the pathogenesis of acne and provides a growth medium for *Propionibacterium acnes*. People with acne have higher rates of sebum production than unaffected individuals. The severity of acne is generally proportional to the amount of sebum production;
- follicular differentiation - acne is also due to the desquamated cornified cells of the follicle canal leading to obstruction and resulted in microcomedones;
- *Propionibacterium acnes* – anaerobic bacteria that is a normal constituent of cutaneous flora. Individuals with acne have higher counts of *P. acnes* than those without acne; and
- inflammation – inflammation is a direct or indirect result of the proliferation of *P. acnes*.

PALM-BASED ANTI-ACNE CREAM

The anti-acne cream is developed using palm-based ingredients with actives such as essential oil and tocotrienol-rich fractions (*Figure 1*). It is specially developed to counter the factors contributing to pathogenesis of acne. The cream contains essential oil, which is proven to be effective against *Propionibacterium acnes* as shown in *Figure 2*. *In vitro* test using essential oil could significantly reduce the bacterial population. The acne inflammation due to direct or indirect proliferation of *P. acnes* can be reduced by application of tocotrienol-rich fraction. *In vivo* tests showed that the cream can reduce up to 9% of sebum (*Figure 3*) after the first week of application while lesion count showed a 41% and 30% reduction in open and closed comedones respectively (*Figure 4*).

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Figure 1. Palm-based anti-acne cream.

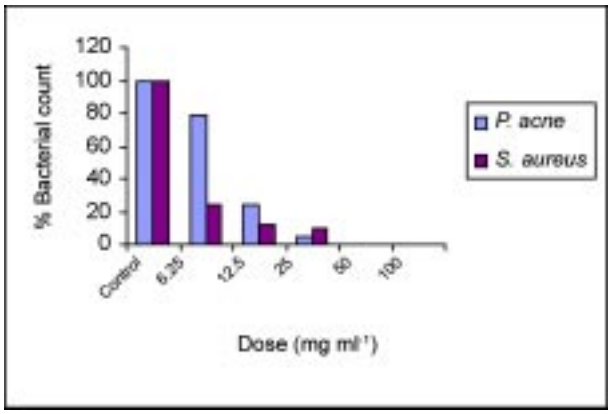

Figure 2. In vitro *anti-microbial test of essential oil against* P. acne *and* S. aureus.

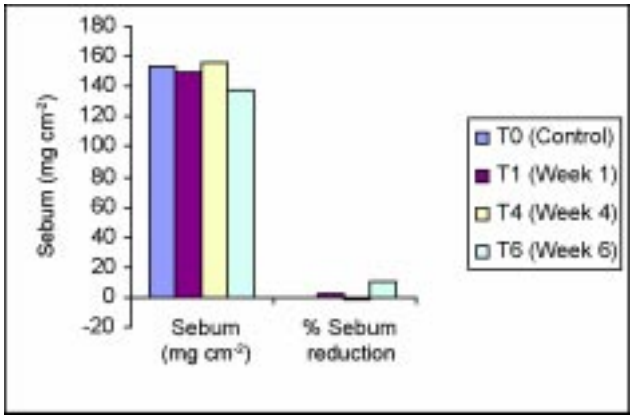

Figure 3. In vivo s*tudy on the effect of anti-acne cream on sebum production against time.*

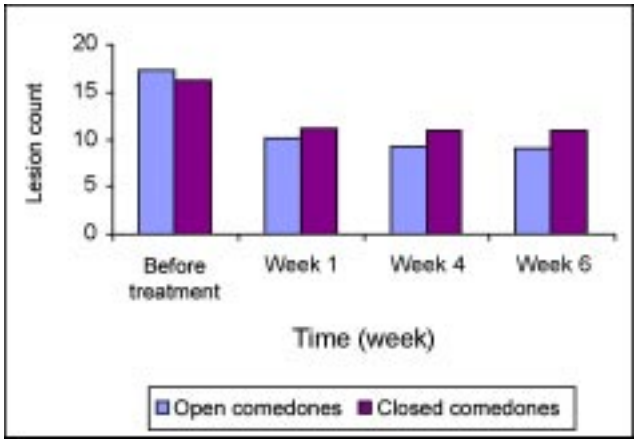

Figure 4. In vivo s*tudy on the effect of anti-acne cream on comedones against time.*

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