



• Vari® Stan PE

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Active specialty with antibacterial and soothing properties



Renewable vegetal source



Antibacterial for acne prone skin



Antioxidant

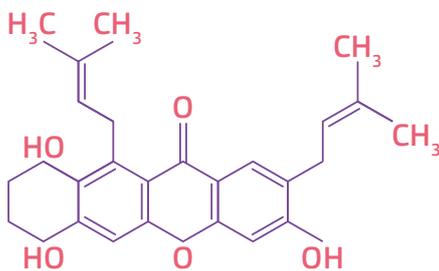


Antibacterial for deodorant application



Soothing

Queen of beauty



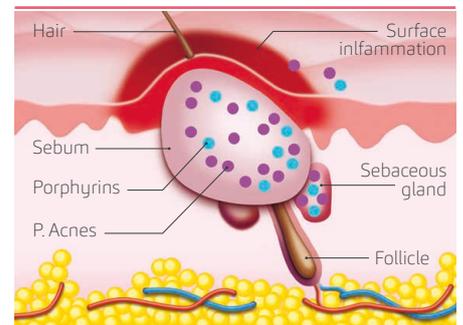
The fruit of the *Garcinia mangostana* or fruit mangosteen is known as the "queen of the fruit" due to its delicious taste and pleasant aroma.

The origin of this plant is in the Southeast Asia. The fruit rind of *Garcinia mangostana* has been used in Asian traditional medicines for the treatment of skin infection. It contains high amount of xanthenes, such as α -mangostin, which is the major component and other bioactive substances including tannins, flavonoids and polyphenolic compounds, which justify its well known antioxidant properties. The extract of *Garcinia mangostana* shows a widely documented antibacterial activity. Scientific studies confirm that the extract of *Garcinia mangostana* is an excellent choice for antibacterial, anti-inflammatory and anti-acne cosmetic treatments.

INCI Name

Propanediol,
Garcinia Mangostana Peel Extract

Antimicrobial efficacy



The extract of *Garcinia mangostana* has antibacterial properties against *S. aureus*, *Bacillus subtilis* and *Propionibacterium acnes* with a very low MIC values (1-10 ppm). The in vivo analysis on female volunteers with acne-prone skin also showed a significant decrease in acne lesions, including comedones, microcysts, papules and pustules after 28 days of treatment⁽¹⁾.

⁽¹⁾ Kristaphong T, Jedsadapaisid S. Antimicrobial Activity of *Garcinia mangostana* Extract for Anti-Acne Therapy. IFSCC Magazine 1, 2012.

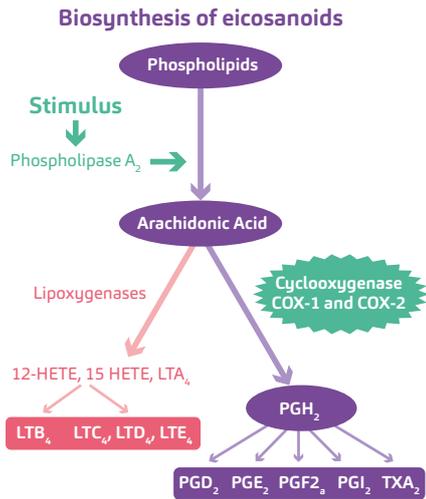
Antibacterial for acne prone skin - in vitro test

Following the above considerations, the product **Vari® Stan PE** was tested against *Propionibacterium acnes* and *Staphylococcus epidermidis*, giving optimal results in terms of MIC values (**Tab. 1**).

	MIC
» Propionibacterium acnes ATCC 11827	0,005%
» Staphylococcus epidermidis ATCC 12228	0,01%

Tab. 1
MIC values of **Vari® Stan PE** against *P. acnes* and *S. epidermidis*.

Soothing effect - clinical test



Mangosteen extracts has reported in literature to strongly inhibit the prostaglandin E2 release. Particularly, α -mangosteen inhibits both COX-1 and COX-2 activities in vitro. To confirm this, the evaluation of the soothing effect of **Vari® Stan PE** was carried out on irradiated skin of 20 volunteers with phototype I, II, III. The product was tested at 0.5% (sample A) and 1% (sample B) and measures were carried out 30 min, 1, 2, 3, 4, and 24 hours after the application of the product. A significant decrease in erythema index was evidenced already after 30 minutes from the treatment with **Vari® Stan PE** at both concentrations (Figure 1 and 2).



Figure 1
Tuv (UVA/UVB irradiated skin; T30 min)
Soothing effect of **Vari® Stan PE** (sample A) after 30 minutes.

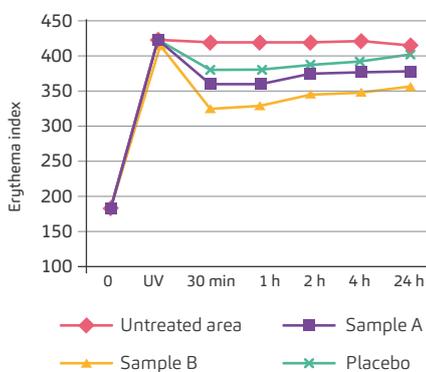


Figure 2
Mean values of the erythema index obtained at all test times.

In vitro test on resident axillary strains

Variati research also evaluated the antimicrobial properties of **Vari® Stan PE** against microbial strains isolated from axillary plug of volunteers. The microorganisms had previously been identified and were found to be principally *Staphylococcus epidermidis*.

Vari® Stan PE has been evaluated at different concentrations and at two different times of contact, 6 h and 18 h respectively. Results show a good antimicrobial efficacy already after 6 hours of contact with an increase of the logarithmic reduction after 18 hours (Figure 3), suggesting a long lasting efficacy for deodorant application.

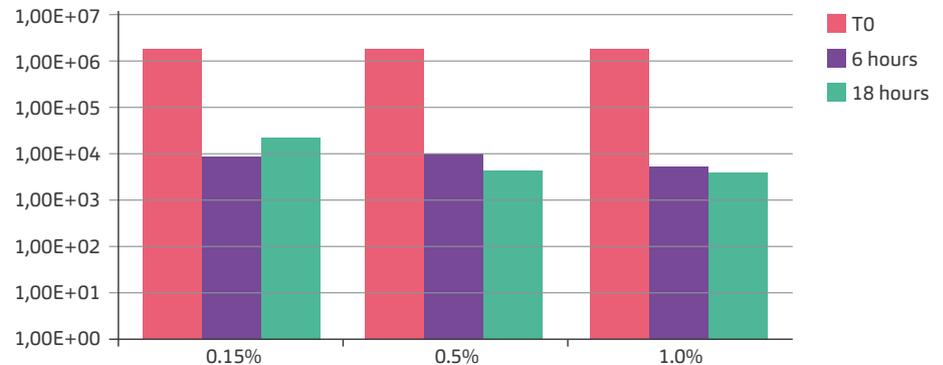


Figure 3
Antimicrobial efficacy of **Vari® Stan PE** against axillary microbial strains after 6 h and 18 h.

Deodorant activity - In vivo, Sniff test

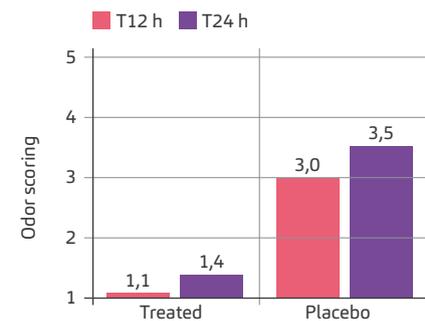


Figure 4
Odor intensity after 12 h and 24 h.

Results obtained upon application of a deodorant formulation, after 12 and 24 h vs placebo, classify the smell intensity recorded on the volunteers as "no odor" (Figure 4).

10 volunteers,
1% **Vari® Stan PE** Deodorant gel

1. No odor
2. Clearly perceptible odor
3. Moderate odor
4. Strong odor

Applications

Studies have demonstrated that **Vari® Stan PE** can be considered an effective natural alternative in deodorant products and in the treatment of acne or inflammation prone skin. Thanks to its soothing action, **Vari® Stan PE** is also suggested for after shave, after depilatory and after sun cosmetic products.

Suggested dosages: 0,5 - 1%

Toxicological profile

Results from in vitro/in vivo tests show no evidence of adverse effects. For specific details, refer to the toxicological dossier.



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