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CENTRE FOR SCIENCE AND RESEARCH

Restoring barrier function of micro-damaged epidermis with topical application of sucralfate, oligofructans (*Ophiopogon japonicus*) and probiotics (Lactobacillus ferment lysate).

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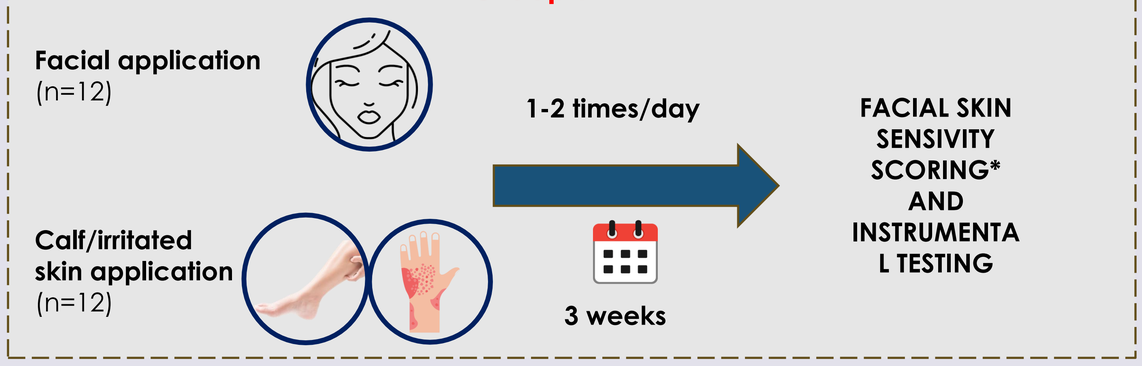
Objectives

The objective of this study was to assess tolerability and efficacy of an innovative dermocosmetic formulation containing probiotics, oligofructans and patented sucralfate encapsulated in microspheres. The emulsion was designed for regular care of sensitive, allergic and hyperreactive skin, for body and face (including eyelids). It can also repair and regenerate micro-damage in stratum corneum in patients after various aesthetic treatments.

Materials & Methods – in vitro

The safety of a product was evaluated by performing irritation (MTT assay after 1 h stimulation and 42 h post-treatment incubation) and sensitization potential (ELISA after 1 h stimulation and 18 h post-treatment incubation) on Epiderm skin model. The medium was collected to perform an ELISA for the presence of interleukin IL-18.

Materials & Methods – in vivo



Results

In vitro

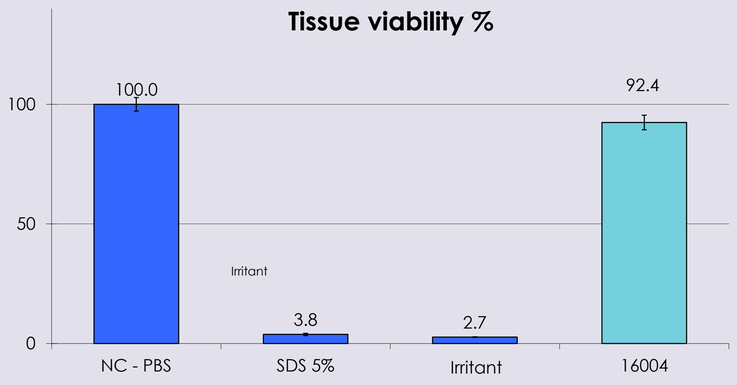


Figure 1. Skin irritation potential of the product (16004) on EpiDerm model. PC – positive control (5% SDS); NC – negative control (PBS); Irritant – blend of parabens (methylparaben, ethylparaben, propylparaben, butylparaben). Tissue viability ≤ 50% of the NC — irritant. Tissue viability ≥ 50% of the NC — non-irritant. **The study product is non-irritating (tissue viability – 92.4%).**

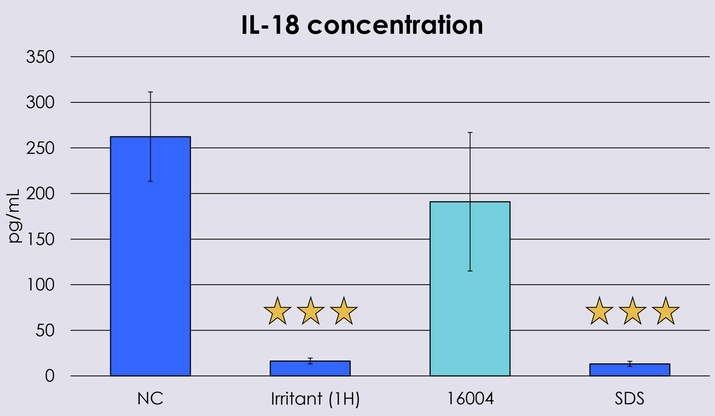


Figure 2. Expression of proinflammatory interleukins in culture medium of EpiDerm after treatment with the product (16004).
Abbreviations as on Fig. 1. ★corresponds to p value (★★★ <0.001).
The tested product can be classified as non-sensitizing.

In vivo

Group I

Facial application
(n=12)

Calf/irritated skin application
(n=12)

- **Skin hydration (Corneometer) increased by 45%** in **70%** of participants
- **Erythema (Mexameter) reduced by 5%** in **70%** of participants
- **Skin sensitivity rating scale reduced by 72%** in all participants

- **Skin hydration (Corneometer) increased by 27%** in **90%** of participants
- **Oil content (Sebumeter) increased by 1057%** in **70%** of participants
- **Reduction of melanin content (Mexameter) by 12%** in 80% of participants

Group II

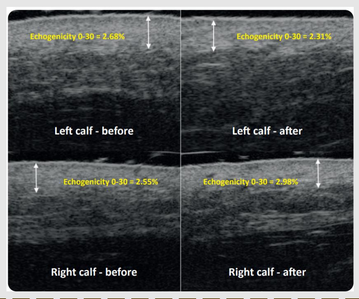


Figure 3. Evaluation of the product (16004) efficacy based on high-frequency ultrasound echogenicity measurement. The white arrow indicates the dermis. On the left calf, which was not lubricated with moisturiser, there were no significant changes in the echogenicity of the dermis. On the right calf, which was treated with moisturiser, an increase in the echogenicity of the dermis after the experiment was noticeable

Group III

The product has been shown to be effective in caring for skin under the nappy (**100% of respondents**), promotes regeneration of skin irritated in the nappy area (**86% of respondents**) and repairs and regenerates damaged epidermis including micro-damage, abrasions, epidermal scratches (**71% respondents**).

Group IV

The product has been granted a favourable dermatological assessment for its potential use in the alleviation of lesions resulting from aesthetic medicine procedures (dermabrasion, needle mesotherapy treatment, laser therapy). It may be employed in the management of scars, tattooed skin, and cutaneous lesions associated with facial herpes.

Conclusions

The obtained results demonstrate that the use of cream with encapsulated sucralfate, probiotics, oligofructans improves the skin's barrier function in patients with micro-damages in the stratum corneum.

* Misery L. et al. J Eur Acad Dermatol Venereol. 2016 Feb:30 Suppl 1:2-8.