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The study of mRNA expression, skin hydration, shrink pores and smooth skin function of Lens esculenta seed extract in cosmetics

Poster ID 61

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Introduction:

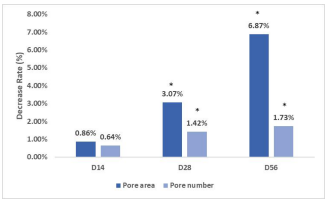
With the increase of age, the skin become grain, and the pores become thicker. During age-related skin slackening, the pore walls slacken and widen, supported by the epidermis and the dermis. The skin microrelief, defined by the orientation and the depth of the furrows, also contributes to pore distortion and age. Pore dilation, which leading to accumulation of nucleated cells around the pores, also seems to be related to an abnormal accelerated keratinization process.
This study is to evaluation the effect of the lens esculenta seed extract (LESE) to restores the normal keratinization process, stimulate the expression of collagen I and reinforcing the pore wall support structures. And it is also researching the extract's function of reduced nucleated cells and limited pore wall slackening. The clinical efficacy shown the actives function in formulation.

Materials & Methods:

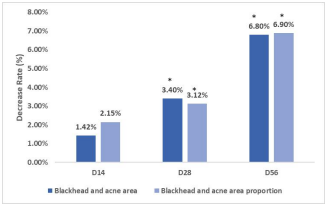
Evaluation of promoting effects on mRNA expression of genes related to skin barrier function，Keratinocytes were incubated with a test sample and gene expression levels of Transglutaminase 1 and Involucrin (IVL) were analyzed by real-time RT-PCR. Staining of nucleated cells is to assess in vivo the effect of active formulated in emulsiion on the keratinization process on the cheeks in comparison with placebo. An 8-weeks Clinical testing was conducted on 30 chinese subjects around pore and wrinkle by VISIA and Primos, and professional dermatologists' evaluation.

Results & Discussion:

The increase of pore volume is related to the metabolism of skin keratinocytes. Promoting the metabolic renewal of keratinocytes can help reduce pore enlargement. According to the in-vitro mRNA expression testing, Normal human keratinocytes which treated with 1% LESE showed significantly stimulate the expression of involucrin (by 27%) and transglutaminase 1 (by 34%), two markers of keratinocyte differentiation. The Promotion of the TGM-1 and IVL mRNA expression, promote the differentiation of keratinocytes at the cellular level, help to thickening and renewal of keratinocytes around pores, and benefit to narrow pores.

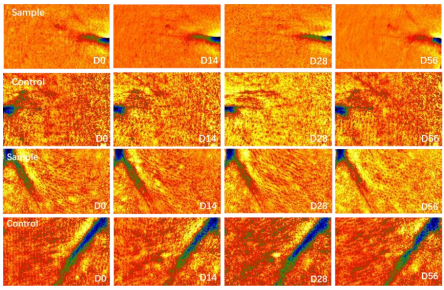


Decrease rate of pore number and pore area after daily application of sample with 3% LESE for 56 Days versus before use by VISIA-CR



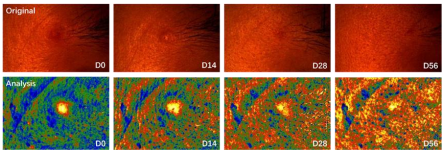
Decrease rate of the apex nasi blackhead and acne area after daily application of sample with 3% LESE after 56 Days by VISIA-CR

The accumulatio of nucleated cells around the pores is the major cause for the pore dilation. After 28 days of twice-daily treatment and comparison in vivo testing, the sample with 3% LESE show a significant reduces the number of nucleated cells located around pores by 20.8% (P<0.05). This ingredient can reduce the aggregation of nucleated cells, which helps to reduce pores enlargement.
In 56-Days clinical testing on Chinese subjects, the pore number rate, which evaluate by VISIA-CR, decreased significantly by 1.73% after 56 days daily treatment of sample with 3% LESE. The proportion of average pore area decreased significantly by 6.87% after 56 days treatment of sample with 3% LESE. Clinical studies on Chinese subjects showed that the number and area of pores decreased significantly in VISIA-CR evaluation.



The PRIMOS Pictures for Crow's feet (a) and Nasolabial sulcus (b) taken using before and after 14, 28, 56 days of sample with 3% LESE

In the PRIMOS analysis, the facial pores become smaller. And control side still with enlarged facial pores after 56 Days treatment with the sample of 3% LESE.
The LESE can also help reduce blackheads and acne during the clinical assessment. The average area of blackhead acne in the nasal tip area decreased significantly by 6.80%, and the proportion of the average area of blackhead acne in the nasal tip area decreased significantly by 6.90%, after 56 Days application of sample with 3% LESE which evaluated by VISIA-CR. The acne volume evaluation by PRIMOS, decreased significantly by 43.45% at 28 Days treatment. The Acne volume decreased significantly by 45.76% after 56 Days treatment.
After using the sample for 56 days, the average clinical score which evaluated by dermatologists, The average clinical score of the skin texture in the sample area was significantly increased by 34.75%, the number of blackheads and pimples was significantly reduced by 99.10%, the grade of inflammatory acne was significantly reduced by 30.16%, and the effective rate of facial acne reduction was 77%.



The acne volume original and analysis diagram by PRIMOS

Conclusions:

In summary, Lens esculenta seed extract has a significant increase of TGM-1 and IVL mRNA expression and reduce nucleated cells, which help to shrink pores. In a clinical efficacy trail the sample contain 3% Lens esculenta seed extract shows the correlations between pore size and epidermal architecture around facial pores. And 3% LESE also show significantly reduced blackheads, pimples, facial acne.

Acknowledgements:

None.

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