

# In vivo evaluation of emotional status by direct skin measurement, as part as the study of an active formula vs placebo

Ferreira Yolène<sup>1</sup>, Perrin Armelle<sup>1</sup>, Le Mestr Audrey<sup>1</sup>, Romain Nicolas<sup>2</sup>, Bouthors Tristan<sup>2</sup>, Botto Jean-Marie<sup>1</sup>, Imbert Isabelle<sup>1\*</sup>,

<sup>1</sup>Ashland, Global Skin Research Center, Sophia Antipolis, France – <sup>2</sup>Iconik, La Ciotat, France

## Introduction

The well-being associated with better aging is at the center of consumer preoccupations. Oxytocin, known as the “feel-good molecule” participates to global well-being, being associated with romantic attachment, love and with anti-aging properties[1]. The human skin has acquired the ability to sense via the presence of mechanoreceptors (piezo 1 & piezo 2) and nerve fibers[2] but also to produce oxytocin in response to gentle touch[3]. This communication between the nervous and endocrine systems is at the center of well-being and shape altered skin physiology[4]. To explore this way, we have developed an innovative botanical extract obtained from *Jasminum Grandiflorum* flower (*Jasminum*, G). The application of this extract on ex vivo skin helps to preserve the expression of piezo 1, and peripheral oxytocinergic pathway. In this study, we evaluated, *in vivo*, the ability of this extract, formulated in a cream, to potentialize the well-being and well-aging.

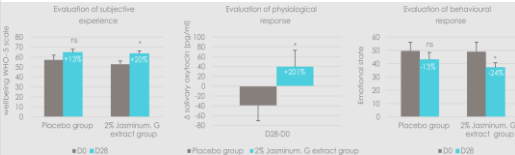
## Methods

A clinical study was carried out, in double blind, on 34 subjects aged from 36 to 66 yo. One group applied on the face a cream containing *Jasminum*, G extract, and the other group applied a placebo cream, for 28 days, twice a day. The well-being of volunteers was evaluated by three different methods following the three components characterizing the psychological state (subjective experience, physiological response and behavioral response). The subjective experience was evaluated by the WHO-5 Well-being Index, the physiological response was evaluated by measuring the salivary oxytocin level by ELISA method, and to finish, the behavioral response was evaluated by the innovative method Emotion Capture®, allowing to assess the emotional state of the volunteers in real time. This method was developed by ICONIK® and consists in measuring galvanic skin responses, skin temperature and cardiac rhythm in real time, by a wristlet wearing by volunteers during the clinical visit. These three components are well known to increase with stress, and by a specific algorithm, also developed by ICONIK®, the emotional state of volunteers was acquired. To complete this study, skin relaxation and healthy glow effect were also evaluated by silicone replica image analysis and by measuring skin complexion.

## Results

### Evaluation of *Jasminum*, G extract on well-being:

The study revealed an improvement of the well-being and emotional state of the volunteers after 28 days of application of the formulated botanical extract, and that was not the case with the placebo.

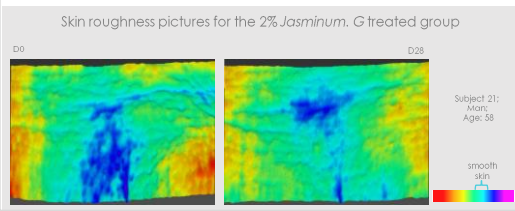


ns: not significant; \*, significant with Student's t-test or Wilcoxon test depending on whether the data followed a normal distribution or not. n=34 +/-sem for WHO-5 Well-being index; n=23 +/-sem for salivary oxytocin; n=14 +/-sem for emotional state.

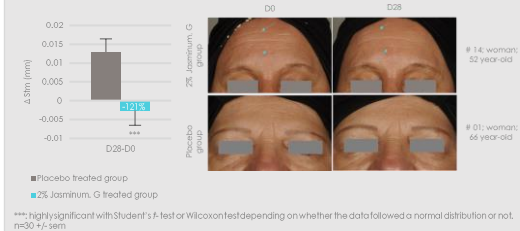
After 1 month of applications, a significant improvement of well-being was observed in the group applying the cream containing 2% of *Jasminum*, G extract compared to the placebo group suggesting that *Jasminum*, G extract may improve the well-being via its effect on mechanoreceptor piezo 1 observed by *in vitro* studies. This result also suggested that the activation of mechanoreceptor in the skin may improve the well-being by triggered oxytocin release and may highlight the communication between the nervous and endocrine systems.

### In vivo evaluation of *Jasminum*, G extract on skin relaxing:

To evaluate the effect of well-being improvement on the skin features, skin microrelief and skin complexion were carried out. After 28 days of applications, surface roughness on the forehead parameters decreased for the group applying 2% *Jasminum*, G containing cream compared to placebo group. These results could be observed on 3D and color picture, where skin microrelief was smoother on the forehead but also under the eyes.



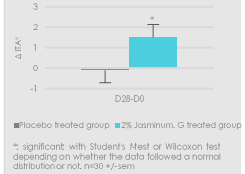
### Skin smoothness measurements and pictures on the forehead



\*\*\*: highly significant with Student's t-test or Wilcoxon test depending on whether the data followed a normal distribution or not. n=30 +/-sem.

The fine lines on the forehead are most of the time due to fatigue and stressful life. The reduction in skin roughness on the forehead and under the eyes showed a more relaxed skin with less fine lines due to stress supported the well-being effect observed previously. Besides, enhancement of skin complexion was observed for the group applying the extract compared to the placebo group after one month of applications.

### Evaluation of skin complexion

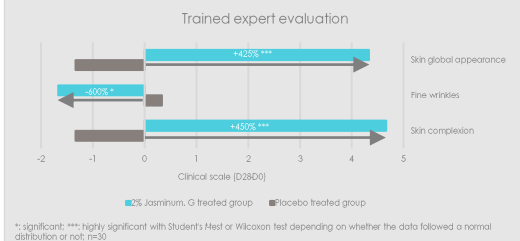


\*, significant with Student's t-test or Wilcoxon test depending on whether the data followed a normal distribution or not. n=30 +/-sem.

Once again, this result supports the relaxing effect of the extract via the activation of piezo 1. In fact, after cream application containing the extract, dull and rougher skin implied by stress and fatigue were counteracted.

### Trained expert assessment:

At the end of the study, the trained expert noticed an improvement of skin complexion and less fine lines as well as an improvement of skin global appearance.



\*, significant; \*\*\*, highly significant with Student's t-test or Wilcoxon test depending on whether the data followed a normal distribution or not; n=30

These last results are in concordance with the objective measurements, supporting the anti-aging and relaxing effect of *Jasminum*, G extract formulated at 2% in a cream.

## Conclusion

This study tends to suggest the potential beneficial effect of activating mechanosensory receptors on overall well-being by triggered oxytocin release, highlighting the communication between the nervous and endocrine systems in the skin. This improvement on overall well-being also allowed to counteract signs of stressful life on the skin.

## References

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