

HOW TO STOP AND PREVENT THE VICIOUS CIRCLE OF SENSITIVE SKIN DUE TO DAILY AGGRESSIONS, SUCH AS POLLUTION AND UV?

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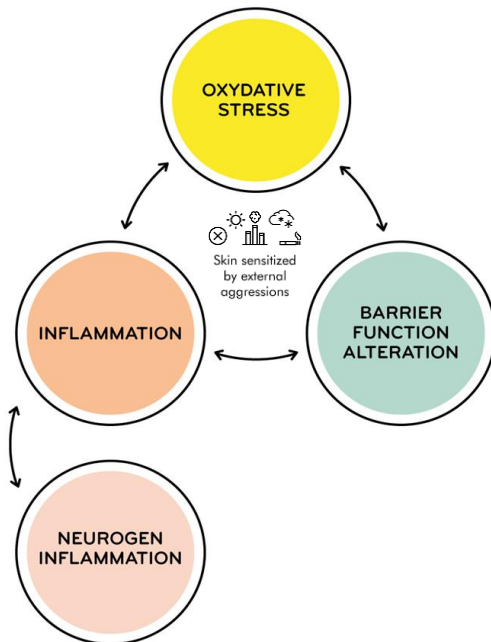
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INTRODUCTION

Sensitive skin may be characterized by barrier function alteration, oxidative stress and inflammation all linked together, and exacerbated by external aggressions, such as pollution and UV. This vicious circle is induced by external aggressions such as pollution and UV, known to induce oxidative stress and inflammation.

The aim of this study was to demonstrate the *in-vitro* and *in-vivo* efficacy of an active complex to stop this vicious circle.



MATERIALS & METHODS

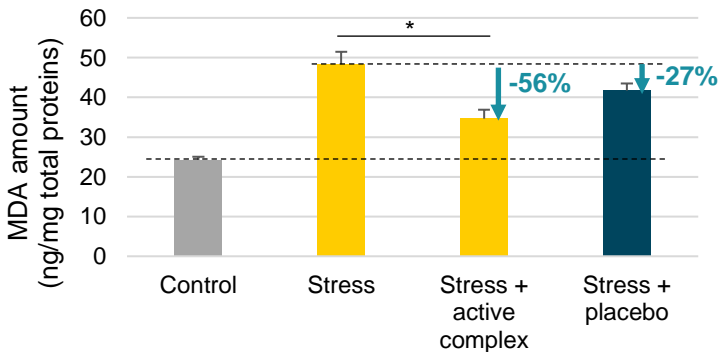
Reconstructed human epidermis were treated (or not) with lactic acid for 4 hours to mimic sensitive skin. Then an excipient cream containing or not (placebo) the active complex was applied twice before exposition or not to pollution (dust 100 µg/ml) and UVA (9 J/cm²). The complex is composed of red sage polyphenols limiting the skin sensory nerve fibers hyperreactivity (by TRPV-1 inhibition), a lipopeptide increasing key epidermal differentiation proteins, and two antioxidants, tocopherol and carnosine. **Lipid oxidation (MDA), intracellular oxidative stress (H2DCF-DA), skin barrier function (corneodesmosin staining), and inflammation (ELISA IL-8)** were assessed 24 hours after.

In a 28-days **clinical study**, 33 women (mean age 42) living in a polluted urban area (China) were included with self-reported facial sensitive skin with BoSS score > 23 and facial redness. They applied a cream containing the active complex twice daily. **Soothing (redness intensity assessed by a dermatologist using a 5-point scale) and moisturizing (corneometer) effects, TEWL, pH, subjective efficacy and safety** were assessed.

RESULTS: *in-vitro* efficacy

The marker lipidic oxidation (**Graph 1**) induced by pollution/UVA was significantly reduced (-56%) by the active complex vs. the non-treated exposed condition.

Graph 1: MDA (lipidic oxidation) evaluation (Student t-test)

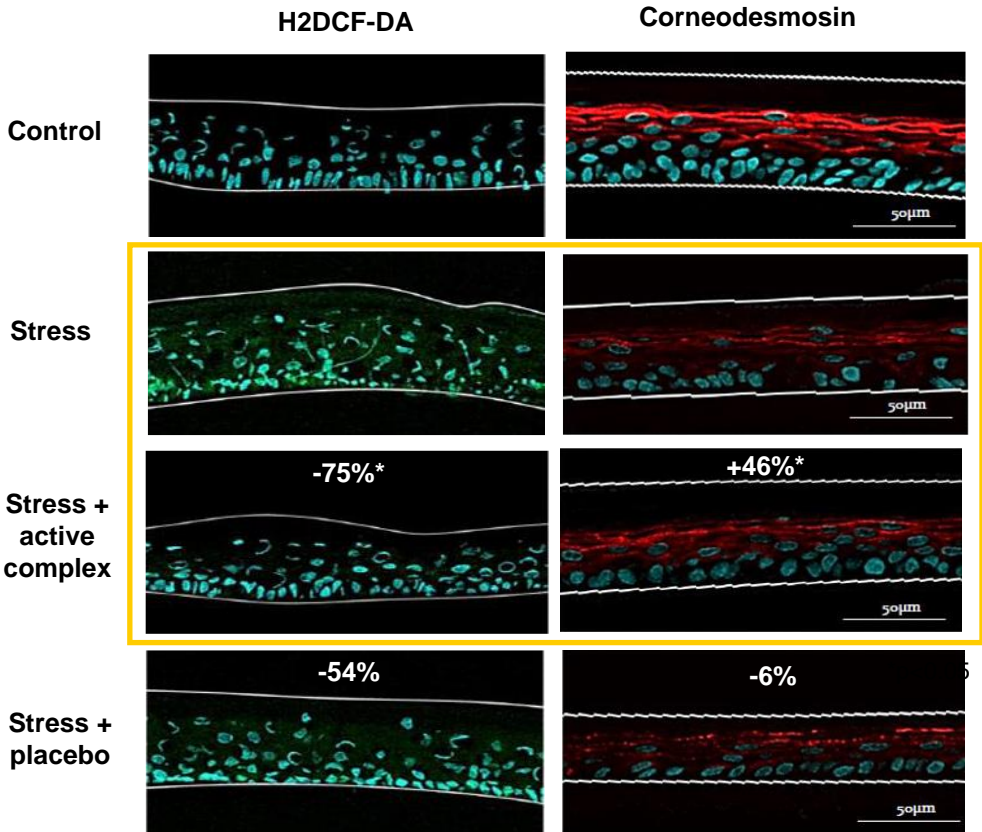


*p<0.05

RESULTS: *in-vitro* efficacy

The marker of intracellular oxidative stress induced by pollution/UVA was significantly reduced (-75%) by the active complex vs. the non-treated exposed condition, and corneodesmosin was significantly preserved (+46%) (Figure 1).

Figure 1: H2DCF-DA (intracellular oxidative stress) and corneodesmosin (skin barrier function) staining (Student t-test).



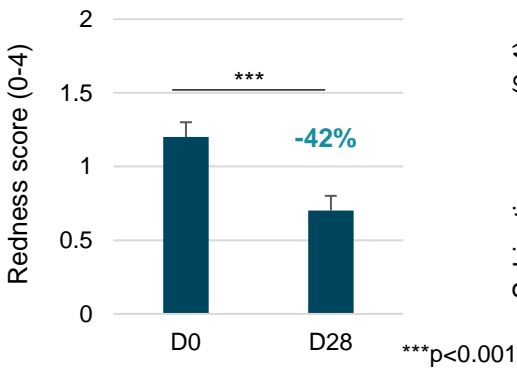
*p<0.05

IL-8 level was inhibited by -19% (n.s.; Student t-test) with the active complex vs. the control RHE treated with lactic acid alone and reduced by -18% (n.s.; Student t-test) when overstressed with dust/UVA.

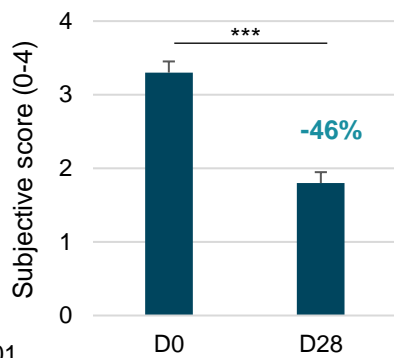
RESULTS: *in-vivo* efficacy

In vivo, the moisturizing effect immediately after a single cream application (+37%) was still significant at D28 (+22%; $p < 0.0001$, Student's t-test) associated with an increase of the soothing effect (**Graph 2**). In addition, the skin was protected (no variation in TEWL [n.s.; Wilcoxon test] and pH [n.s.; Student's t-test]), and subjects coped more easily with urban pollution (**Graph 3**) at D28. A very good appreciation (**Graph 4**) and safety were observed for all subjects.

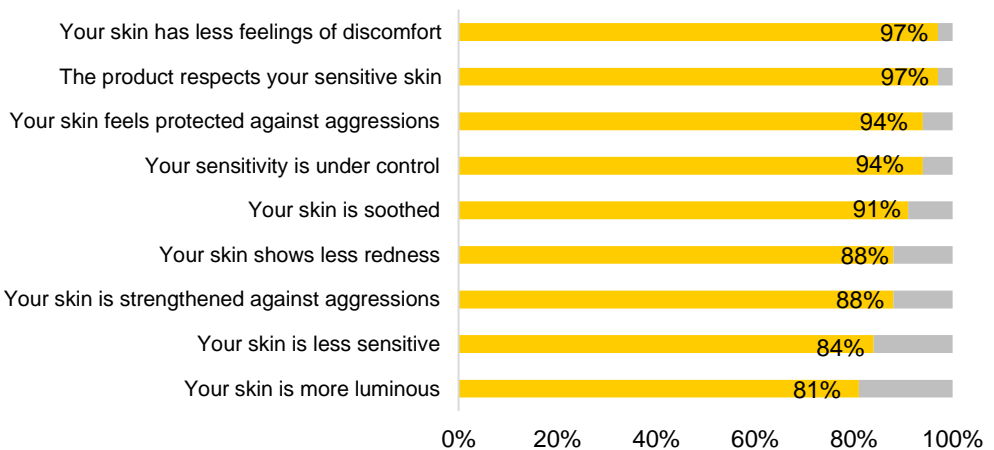
Graph 2: Soothing effect at D0 and D28 (Wilcoxon test)



Graph 3: Subjective assessment of the pollution impact at D0 and D28 (Student t-test)



Graph 4: Subjective efficacy assessment at D28



CONCLUSION

By preventing skin from oxidative stress, barrier alteration and inflammation induced by pollution and UV, in addition to reduce hyperexcitability of nervous fibers, this new active complex stops this vicious circle and preserves sensitive skin from daily aggressions.