Upcycled active boosts rejuvenation of the neck and décolleté

***Ecoffea® Citrus** is vegan and stimulates cellular longevity, delivering results in 28 days*

The cosmetics market is experiencing a new era driven by the *"skinification"* of body care, where ingredients once exclusive to facial care are now being extended to the body. According to research platforms and industry experts, this trend reflects a growing consumer interest in formulations that nourish, protect, and treat the skin of the body with the same care and quality dedicated to facial skin. This includes consumers of all generations, from Boomers to Gen Z.

Additionally, among the areas that require the most aesthetic attention, the neck region stands out. Over the years, the skin in this area undergoes significant changes, including wrinkles and loss of elasticity, becoming one of the main concerns in plastic surgery clinics. Aging in this region is multifactorial, resulting from both intrinsic aging, linked to genetics, and extrinsic aging or photoaging, caused by UV exposure, pollution, and harmful habits such as smoking and excessive alcohol consumption.

One of the key factors affecting the skin's firmness and texture is the degradation of collagen and elastin fibers. Collagen makes up 70% to 80% of the dermis and is crucial for maintaining the structural integrity of the skin. Different types of collagen play complementary roles:

- Type I collagen (COL-1) is responsible for firmness,
- Type III collagen (COL-3) supports the structure and production of COL-1 and experiences accelerated reduction due to chronological aging,
- Type IV collagen (COL-4) is directly related to the mechanical stability of the skin and also plays an essential role in skin regeneration.

Another essential component for skin integrity is fibronectin 1 (FB1), a glycoprotein that interacts with dermal fibroblasts, provides support to the extracellular matrix (ECM), and contributes to the structure of the dermoepidermal junction. Its deficiency is associated with aging and the presence of wrinkles.

However, to maintain skin integrity and appearance, it is essential to promote cellular longevity, as the production and maintenance of structural proteins depend on the cells' repair capabilities. Sirtuins, such as sirtuin-3 (SIRT-3), play a key role in cellular longevity by protecting skin structures from oxidative damage and promoting long-term vitality.

To address these needs, Chemyunion has developed **Ecoffea® Citrus**, an innovative plant extract that boosts the production of structural proteins. **Ecoffea® Citrus** technology uses upcycled waste from green coffee (Coffea arabica) and Sicilian lemon (Citrus limon), promoting the reduction of fine lines and wrinkles, while

improving skin texture, elasticity, and firmness. The vegan ingredient has 100% NOC (Natural Origin Content).

With this launch, **Chemyunion** reaffirms its commitment to innovation and sustainability by offering the market an effective solution for high-performance body care formulations.

Benefits:

- Stimulates cellular longevity through the expression of sirtuin-3
- Booster of structural proteins, essential for skin firmness and elasticity:
  - Type I, III, and IV Collagen and Fibronectin
- Improves skin elasticity, texture, and roughness after 28 days
- Reduces fine lines and wrinkles after 28 days
- Upcycled Beauty – reuse of existing by-products to create new ingredients

Efficacy – Ex vivo

1. Evaluation of mitochondrial function to promote cellular longevity

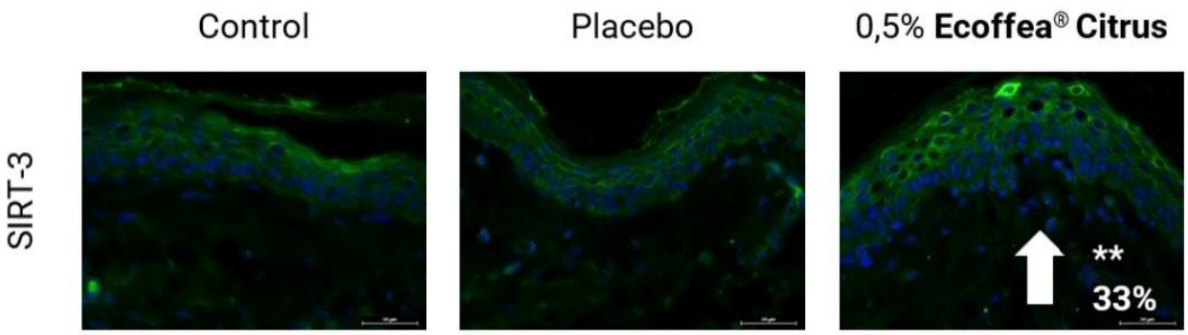

Figure 1: Immunofluorescence analysis of SIRT-3 (green) and DAPI counterstaining (blue, nuclear marker). Microscope images at 40x magnification. **p<0.01 compared to placebo.

According to **Figure 1**, 0.5% Ecoffea® Citrus stimulated sirtuin-3 synthesis by 33% compared to the placebo, demonstrating the product's effect in enhancing cellular longevity, which is essential for maintaining the integrity and appearance of mature skin.

Efficacy – In vivo
2. Clinical Evaluation – 3D Reconstruction

To assess the improvement in skin texture and the reduction of aging signs through wrinkle reduction, the AEVA-HE V4 system (Eotech) was used. This stereophotogrammetry device employs high-resolution image triangulation to estimate the three-dimensional coordinates of an object. With this instrument, it is possible to obtain a high-resolution 3D projection of the volunteer's neck and décolleté and to quantify parameters related to wrinkle profile as well as overall skin texture (Figure 2).

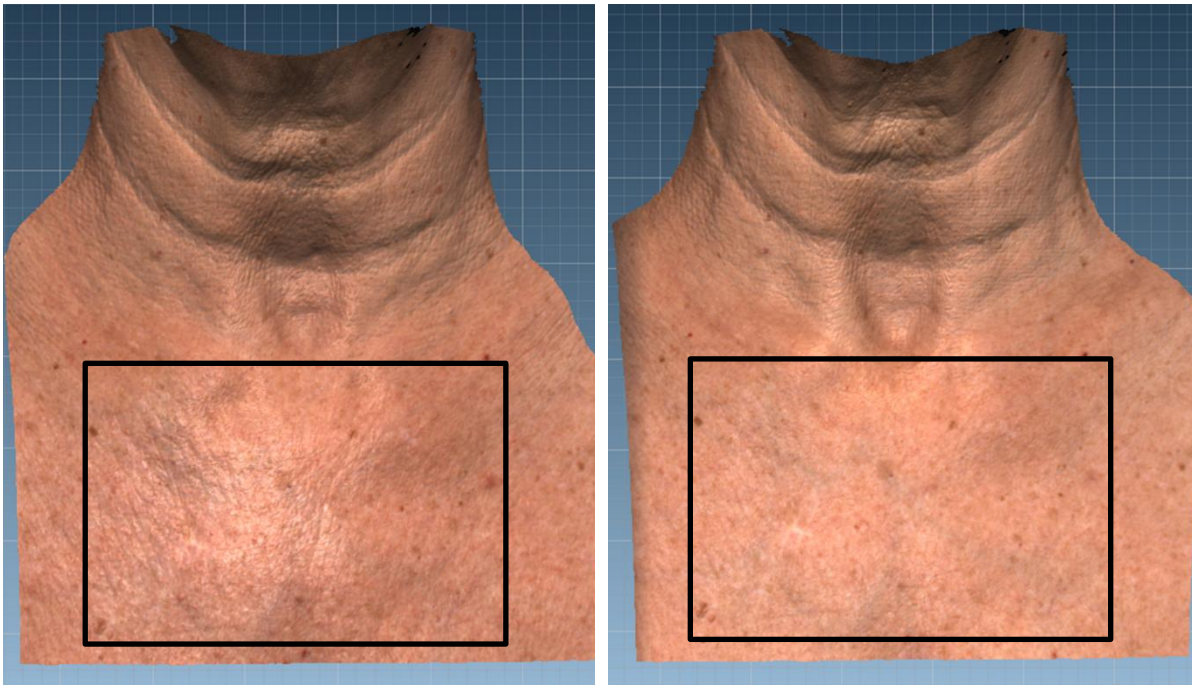

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Figure 2. 3D reconstruction of the décolleté region to analyze wrinkle reduction and texture improvement after 28 days with 0.5% **Ecoffea® Citrus**.

https://www.chemyunion.com/en/ecoffea-citrus

About Chemyunion:

Every day at Chemyunion we create and develop sustainable and innovative ingredients, aligned with market trends, for the personal care, health and home care sectors. Our advanced capabilities in delivery systems, organic synthesis, peptides and plant extraction provide maximum efficacy and safety to each ingredient, while adding perceived value to our clients' formulas, and their consumers, through relevant brands around the world. Through the adoption of sustainable processes such as Supercritical CO_2 and Biotechnology, Chemyunion follows the precepts of green chemistry that are globally recognized under the principles of Sustainability. Discover how easy it is to innovate with Chemyunion.

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