# **RESEARCH OVERVIEW**

## Verbasn@l

**Skin Health Nutraceutical** 

nulivscience.com

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Thank you for your interest in our research overview.

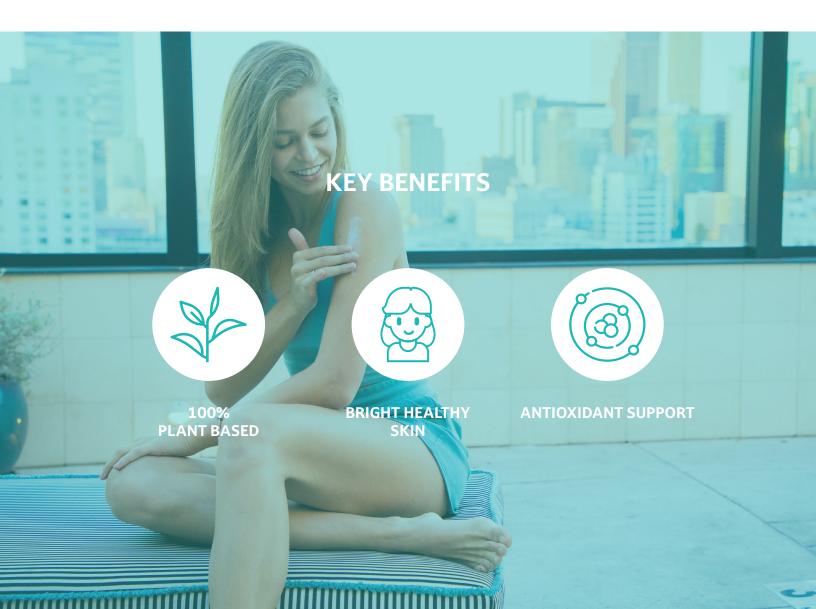


#### **BEAUTY FROM WITHIN**

NuLiv Science utilizes a proprietary extraction technology to produce this unique verbascoside.

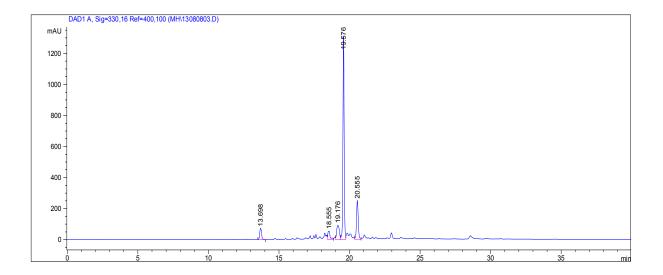
Validated by HPLC as a true verbascoside (a caffeoyl phenylethanoid glycoside (C29H36O15))

A well-studied antioxidant for beauty from within applications



#### **VERBASNOL<sup>™</sup> VERBASCOSIDE**

Verbasnol<sup>™</sup> is NuLiv Science's proprietary verbascoside extracted from *Rehmannia glutinosa* which has been validated as a true verbascoside by HPLC chromatography.



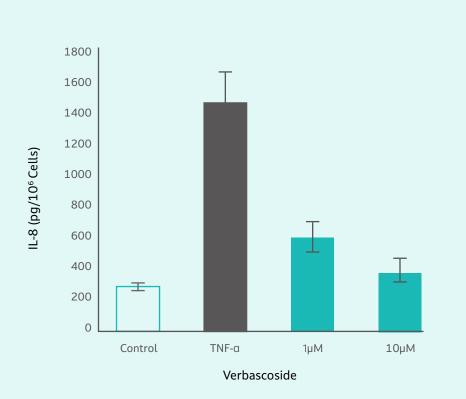
#### A HISTORY OF VERBASCOSIDE

Verbascoside is a potent polyphenol found in plants like olive oil and lemon verbena. For the plant itself, Verbascoside functions as a protector, defending the foliage against stressors like UV rays, pathogens, and hungry herbivores. Ancient traditions revered it for its healing properties and potential for skin health applications, looking to tap into the role it plays within the plant. Over time, scientific exploration unveiled its modern skincare potential.

This compound's antioxidant prowess works to fight free radicals, combating premature skin aging, while working to soothe sensitive skin. Verbascoside has also been shown to support collagen synthesis, crucial for skin elasticity and firmness, making it a helpful ingredient in healthy aging formulations.

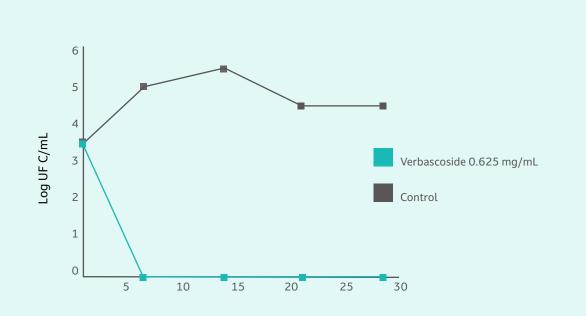
Its journey from a traditional remedy to a scientifically recognized skincare asset underscores its relevance. In contemporary skincare, it's a sought-after ingredient in many skin health formats for its natural protective properties and skin-rejuvenating abilities. Verbascoside's capacity to tackle oxidative stress, inflammation, and aid in skin regeneration cements its role in promoting healthier, resilient skin.

#### **ANTI-INFLAMMATORY ACTIVITY**



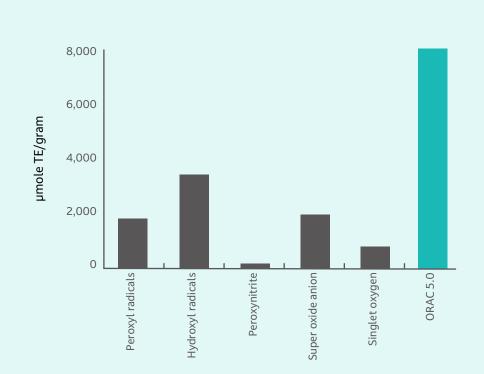
**Verbascoside** shows a strong anti-inflammatory activity since it induces a dose-dependent decrease of the expression of the pro-inflammatory chemokine IL-8on primary cultures of human keratinocytes stimulated by TNF-a.

#### **ANTI-MALASSEZIA FURFUR ACTIVITY**



**Verbascoside** is a strong inhibitor of *Malassezia furfur* yeast growth with a MIC (Minimum Inhibitory Concentration) of 0.625 mg/mL.

#### **ANTI-OXIDANT ACTIVITY**

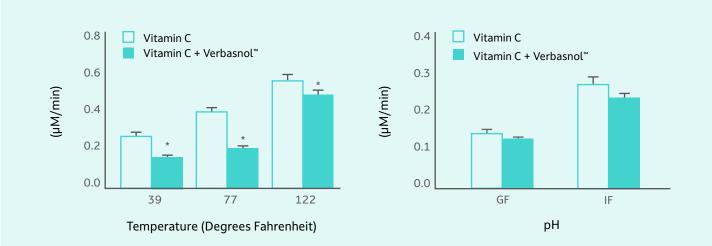


ORAC (Oxygen Radical Absorbance Capacity) measures a substance's ability to neutralize free radicals, showcasing its antioxidant strength and potential to mitigate oxidative stress. A high ORAC value, typically above 5,000 µmol TE (Trolox Equivalents) per 100 grams or exceeding 1,000 µmol TE per serving, denotes potent antioxidant capacity, indicating effectiveness in combating cellular damage caused by free radicals and supporting overall health. This graph indicates the ORAC value of Verbasnol<sup>™</sup>.



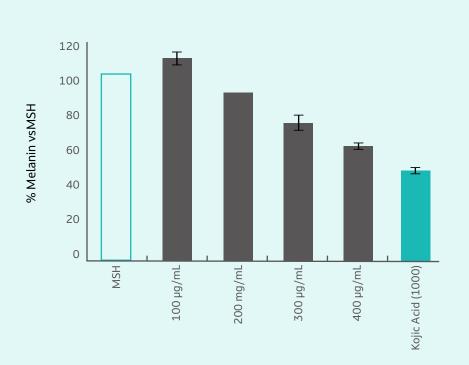
Customer: NuLiv Science Sample Identification: Batch #: B-14657 Description: VerbasNol (Verbascoside 10%), powder, MRTGH131122

#### **VITAMIN C DEGRADATION**



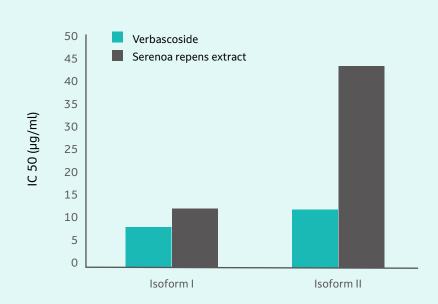
An internal study assessed the effect of Verbasnol<sup>™</sup> on the stability of vitamin C at temperatures ranging from 39°F to 122°F and in gastric and intestinal fluids. Vitamin C is also easily degraded at high pH. In our gastrointestinal tract, pH varies from highly acidic in the stomach (pH 1-3) to neutral or slightly alkaline in the duodenum (pH 6) and along the jejunum and ileum (pH 6-7.5).

#### **ANTI-TYROSINASE ACTIVITY**



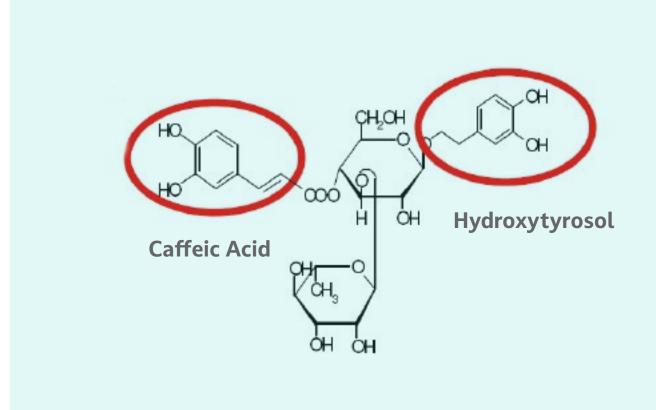
**Verbascoside** produces a significant reduction (~40%) at  $400\mu$ g/mL, of the melanin synthesis in cultured melanocytes. This is comparable to the inhibition of ~50% reached by the positive reference standard (1000 $\mu$ g/mL kojic acid).

#### **SEBUM ACTIVITY**



Effective against 5α-reductase, enzyme involved in sebum production. Inhibits 5α-reductase, especially type II, more efficiently than *Serenoa repens* alcoholic extract, a common benchmark for this type of activity.

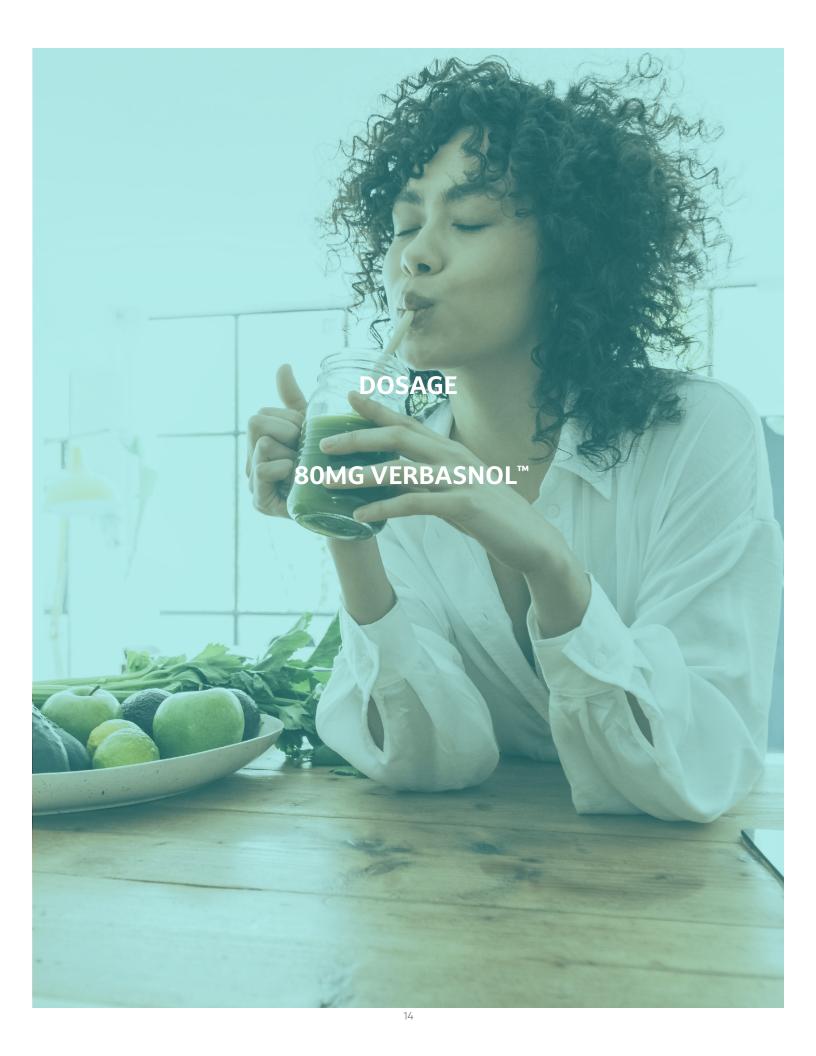
#### VERBASCOSIDE



Phenylpropanoids are Caffeic acid derivatives

### **TYPICAL PROPERTIES**

Composition	<b>Verbasnol™</b> Rehmannia glutinosa extract titrated at 10% of verbascoside and maltodextrin
Appearance	Ambered-colored powder
Solubility	Freely soluble in water (Eur. Ph. 5th Edition)
Perservatives	Absent
Aflatoxins	Absent
GMO	Absent
Pesticides	Absent
Microbiology	Total microbial count: Bacteria < 100 CFU/g
Packaging	1kg
Storage	Store the product in the original, well-closed container,
	in a cool, dry area and protected from light
Shelf Life	24 months
Safety	Safety tested for both cosmetic and nutritional applications



For questions and additional information please contact



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