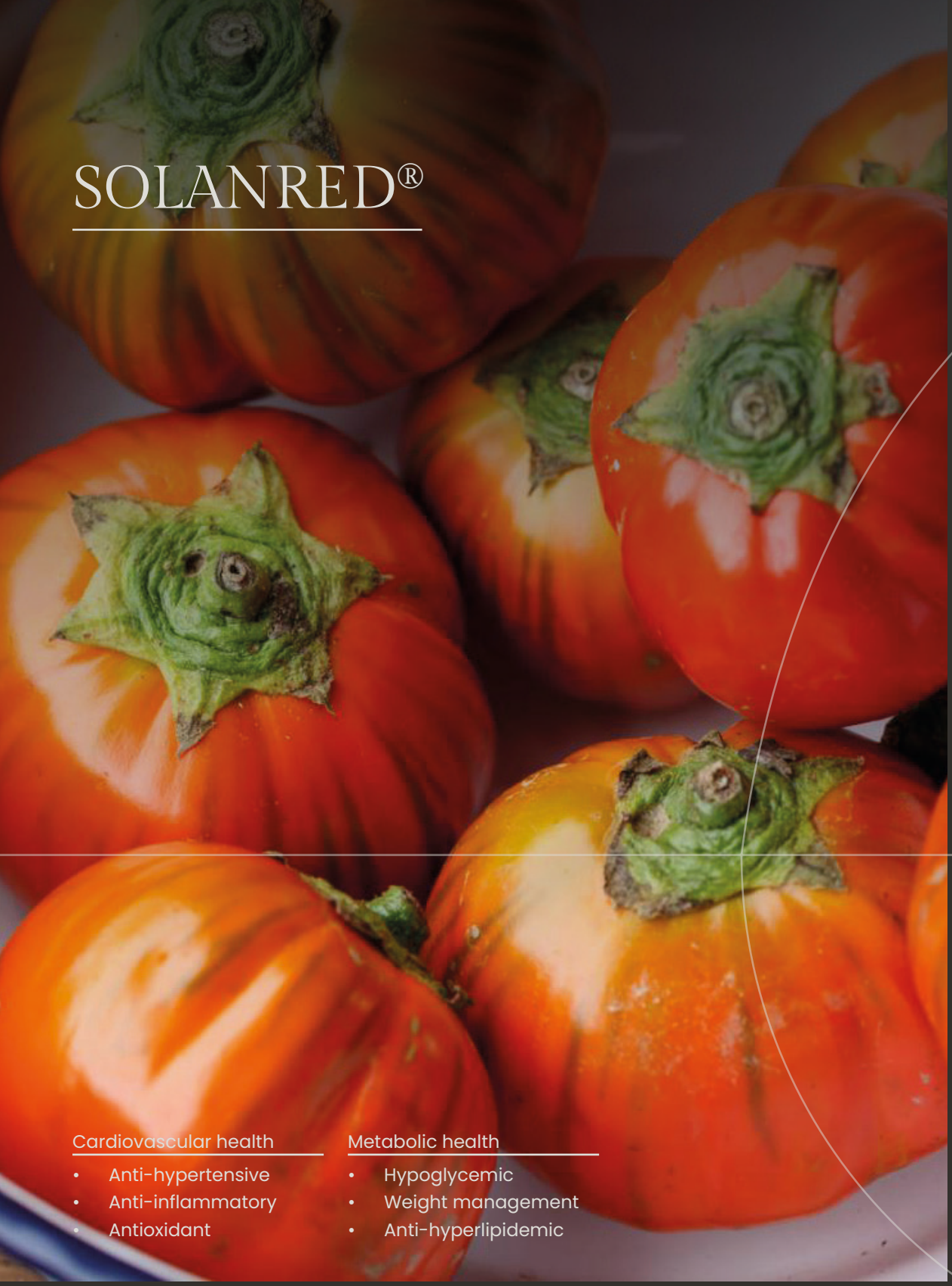
SOLANRED®



A collection curated by the finest in their fields.

Cardiovascular health

- Anti-hypertensive
- Anti-inflammatory
- Antioxidant

Metabolic health

- Hypoglycemic
- Weight management
- Anti-hyperlipidemic

www.evra-ingredients.com
info@evra-ingredients.com
+39 031 905071
Località Galdo,
Zona Industriale Lotto 20,
Lauria (PZ), 85044
Italy

evra

The red eggplant from Basilicata is a variety of *Solanum aethiopicum* L., a species that was introduced to Italy during the last century in the district of the Pollino National Park. Traditional medicine attributes hypotensive and metabolic-regulating effects to the fruits of *S. aethiopicum* and their preparations. They are also considered among the vegetables with the greatest supply of nutrients as well as trace elements and antioxidants.

SOLANRED®'s phytocomplex is characterized by a mixture of polyphenolic compounds, especially ellagic acid.

Diabetes mellitus is the world's fastest-growing endocrine-metabolic disease. It may be due to impaired insulin secretion, insulin action, or both. Alpha-glucosidase inhibitors belong to an effective class of antidiabetic drugs that can reduce hyperglycemia, especially postprandial hyperglycemia, compared to alpha-amylase inhibitors. **SOLANRED® has been tested for its alpha-glucosidase inhibition ability and it resulted active.** Its activity may be attributed to the content of ellagic acid, one of its main components.

Moreover, the red eggplant extract was tested *in vitro* for anti-hypertensive and anti-adipogenic properties. The extract showed renin-angiotensin-converting enzyme (ACE) inhibitory activity and its addition to the culture medium reduced the deposition of fat in 3T3-L1 pre-adipocytes compared to the control sample (Figure 1).

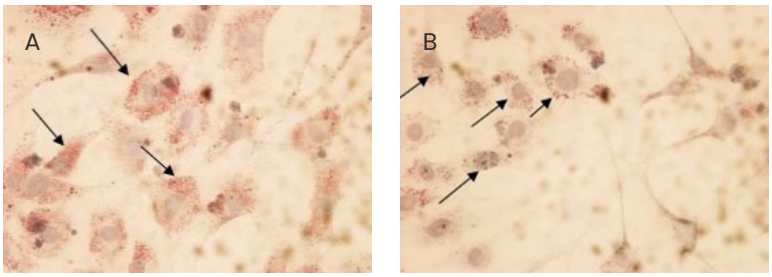


Figure 1. Red eggplant extract at a concentration of 20 µg/ml inhibits the accumulation of intracellular lipids in 3T3-L1 pre-adipocytes by 50% (Red Oil or coloring). A: Untreated control cells. B: Adipocytes treated with red eggplant extract. Arrows indicate fat droplets.

Furthermore, the red eggplant peel was tested *in vivo* in an experimental model of obesity in mice induced by a High-Fat Diet (HFD) intake. The oral administration of this extract (25 mg/kg) to HFD-fed mice reduced body weight gain and improved glucose and lipid metabolism. Additionally, these effects were associated with an improvement in chronic low-grade inflammation and vascular dysfunction (Figure 2).

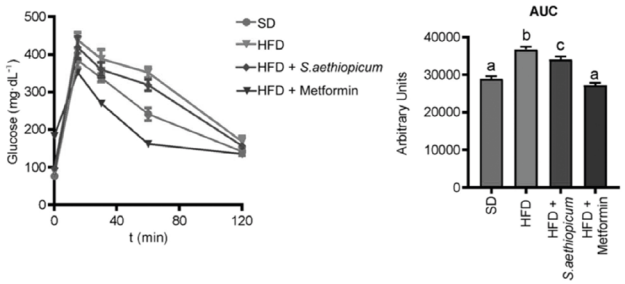


Figure 2. Impact of *S. aethiopicum* peel extract and metformin on glucose tolerance test and the area under the curve (AUC) in standard (SD) and High-Fat Diet (HFD)-fed mice. Data are expressed as means ± SEM (n = 8). Groups with different letters statistically differ ($p < 0.05$).

Overall, these data support the promising beneficial activity of SOLANRED® in preventing or treating diabetes and related diseases.

Bibliography

Parisi OI et al. PDO Rotonda's red eggplant extract: in vitro determination of biological properties and minerals bioaccessibility. Curr. Nutr. & Food Sci. 2018; 14: 1-9.

Ponticelli M, Hidalgo-García L, Diez-Echave P, Vezza T, Romero M, Robles-Vera I, Duarte J, De Biasio F, Gorgoglione D, Lela L, Galvez J, Milella L. Solanum aethiopicum L. from the Basilicata region as a source of specialized metabolites with promising anti-obesity effects: phytochemical characterization and in vivo investigation in high fat diet-fed mice. Front Pharmacol. 2023 Nov 22;14:1306135. doi: 10.3389/fphar.2023.1306135.

Verna A. 2013. Phytochemical characterization and evaluation of the antioxidant activity of Solanum aethiopicum L. cv Red Eggplant from Rotonda. Nutracos. 4:9-13.