



**RES  
PHARMA**  
INNOVATIVE INGREDIENTS

# Functional Ingredients

## EDEMINE<sup>®</sup>

AN ADVANCED AND MILD WAY TO USE ESCIN



Escin is one of the most known and diffuse vasotonic active ingredients. The exclusive combination with lecithin, makes EDEMINE® more bio-available and following more effective.

*In vitro* was shown how EDEMINE® stimulates cellular regeneration and endothelial protein metabolism also in comparison with pure Escin.

*In vivo* study demonstrates Edemine® effectiveness on skin compactness and skin elasticity.

**BENEFITS**

- 💧 100% VEGETAL ORIGIN
- 💧 BIO-AVAILABLE
- 💧 VASOTONIC
- 💧 ANTI-OEDEMA
- 💧 SOOTHING

**APPLICATION**

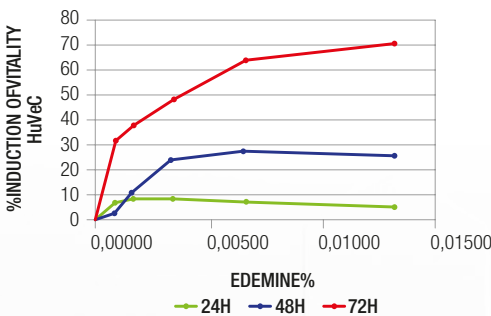
- 💧 ANTI-CELLULITE AND BODY CONTOURING PRODUCT
- 💧 ANTI-BLOTCHINESS AND SOOTHING TONERS, GEL AND CREAM
- 💧 CREAM AND GELS FOR HEAVY LEGS
- 💧 PUFFY EYES PRODUCTS
- 💧 ANTI - OEDEMA COSMETICS

**CAPILLARIES PERMEABILITY AND EVALUATION OF CELLULAR VITALITY**

*in vitro* evidence

In chronic venous insufficiency, the capillaries become highly permeable; the outcome is that water and proteins leave the vascular system, which in turn cause swelling. This may be as a result of the degradation of the extracellular matrix surrounding the capillaries.

**EDEMINE® action on endothelial cell cycle**



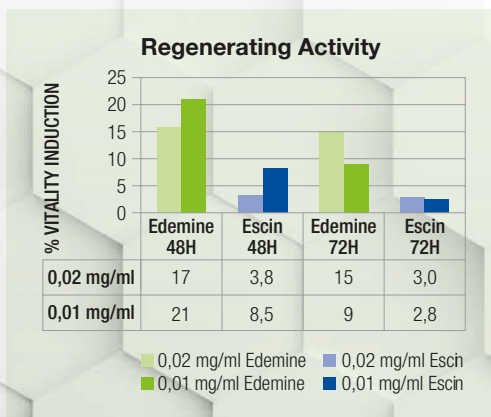
The endothelium cells were exposed to EDEMINE® for 24/48 and 72 h. At these time intervals we evaluated cellular vitality (MTT vitality test). The results show Edemine significantly stimulates cellular regeneration after 48 h, result confirmed also after 72 h.

The stimulation of cellular regeneration improves also re-capillarization in support of microcirculation.

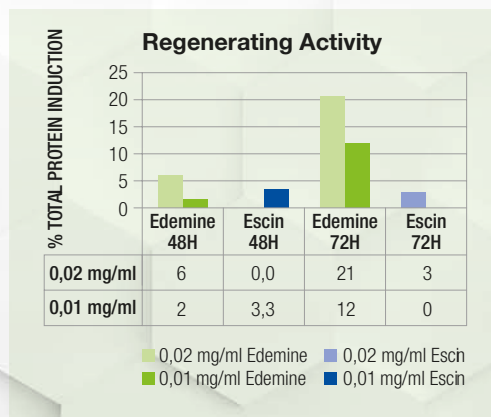
**EDEMINE® A MORE BIO-AVAILABLE AND EFFECTIVENESS WAY TO USE ESCIN**

*in vitro* evidence

The special combination of Escin and Lecithin, allows to obtain a special complex where the escin results more effective than the pure one. Lecithin works as a delivery system for escin, resulting a powerful device to enhance its bioavailability. Thanks to natural skin-mimetic behaviour of lecithin, the active complex gives also sensorial attribute to final product, improving the skin feeling.



Graph\_C

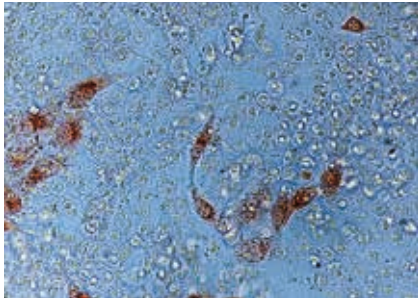


Graph\_D

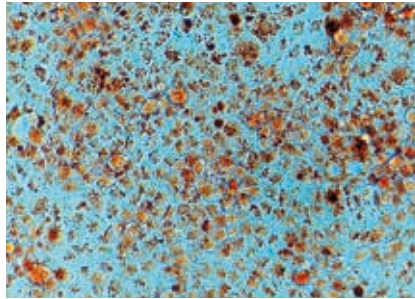
A confirmation of the efficacy and of the enhanced biodisponibility of the active when vehiculated by Lecithin instead of pure. ( Graph C and D )

# CYTOTOXICITY STUDY FOR A FURTHER CONFIRMATION

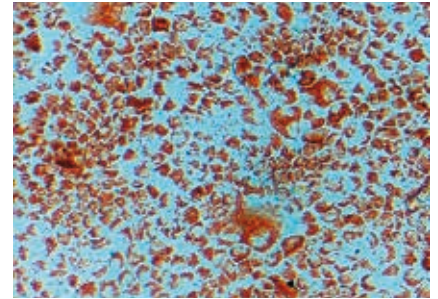
*In vitro* study, where cell vitality was investigated, showed how EDEMINE® is less cytotoxic than pure Escin.



Pure Escin



Edemine



Negative control

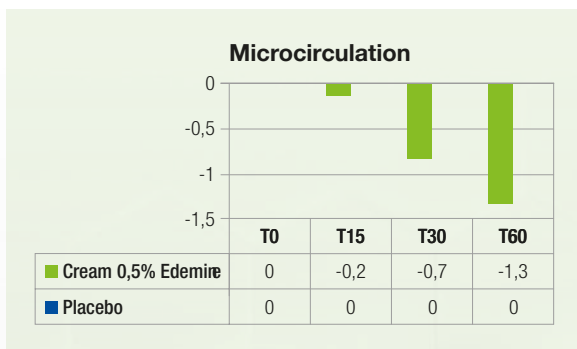
Escin in EDEMINE® is less cytotoxic than pure escin and the treated cells are more reactive.

The endothelium cells were exposed to 0,02 mg/ml of pure escin and to 0,02 mg/ml of Escin in EDEMINE® for 24h. At this time it was evaluated cell vitality through the Neutral Red Uptake ( NRU) vitality test. The results show higher cell vitality after the treatment with EDEMINE® ( 43%), than the pure Escin ( 16%). Image 1,2 and 3 confirms the results showing an higher density of red cells ( healthy cells) after treatment with EDEMINE®.

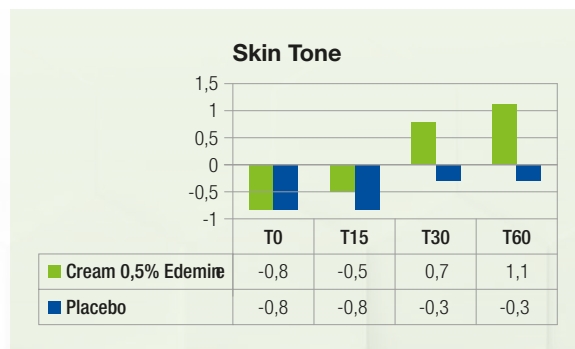
*in vivo* evidence

## MICROCIRCULATION IMPROVEMENT

Escina improves capillary blood flow, fights inflammation and boost microcirculation, draining excess of water avoiding imperfections of cellulite. The combination with Lecithin strengthens the trans-epidermal permeability of escin and the draining action, cleaning out the fatty deposits from tissue. EDEMINE® helps to reduce fatty deposits and cellulite, promoting skin wellbeing. Firmness and Skin tone are improved, as test *in vivo* demonstrates:

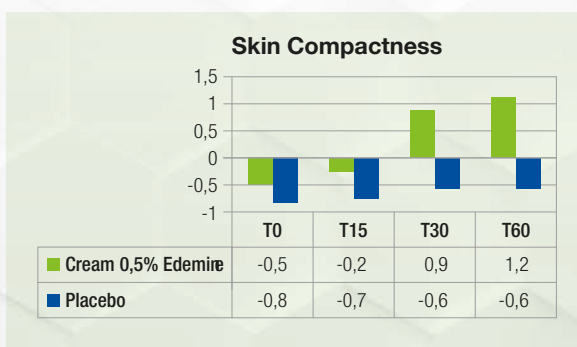


A progressive improvement in microcirculation of the skin has been showed, with a reduction of capillary fragility. (Evaluated using a video-capillaroscopy with optical probe).

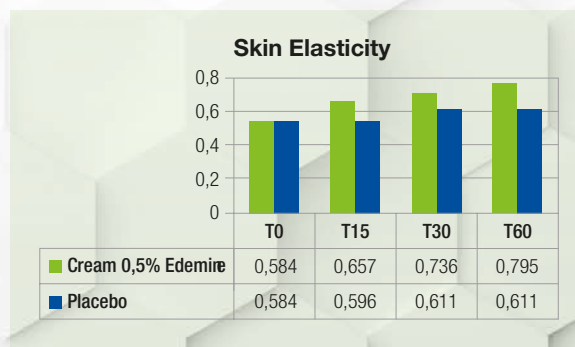


The results show a significant improvement of the skin colour and aspect, a confirmation of the EDEMINE®'s positive effect on micro-circulation.

0,5% EDEMINE® in a cream versus placebo 20 volunteers for 2 months.



Skin compactness has been significantly improved after 30 days of treatment, confirmed and enhanced after 60 days.



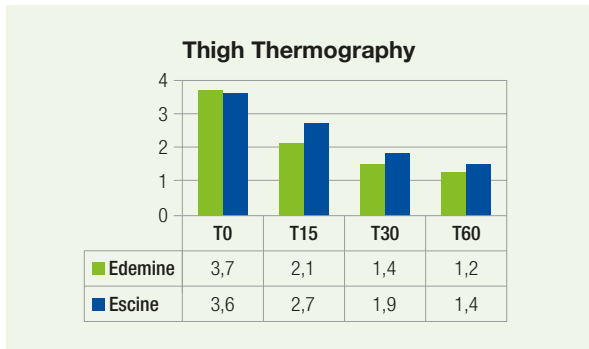
Treatment with EDEMINE® progressively increases skin elasticity in comparison with the placebo. (Evaluation with a video camera with polarised light).

0,5% EDEMINE® in a cream versus placebo 20 volunteers for 2 months.

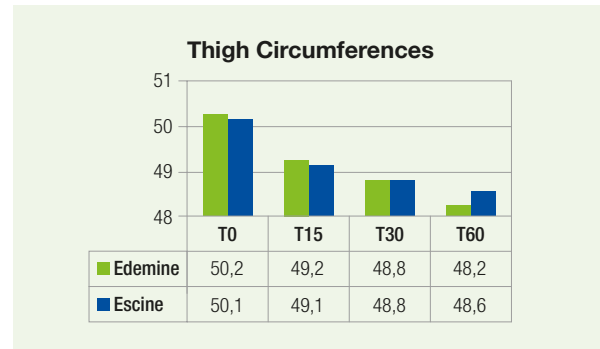
# IN VIVO TEST

## EDEMINE® AND ESCIN *in vivo* evidence

Cream with 0,5% Escin vs Cream with 0,5% of Edemine®, 20 volunteers for 2 months - daily application.  
Note: Three volunteers didn't finish the Escin cream application due to an allergic reaction.



After 15 days of treatment the cream containing EDEMINE® shows better results than the cream with Escin, in the normalization of skin microcirculation. The subjects involved have an initial situation of stage 2 or 3 of anti-aesthetic cellulites.



After two months of treatment, the cream with EDEMINE® has noticeable better performance than the other ones, in terms of reduction of thigh circumference.

## HOW TO USE EDEMINE®

### Recommended Use:

Level 0,5 – 3%.

### Incorporation

Disperse in water solution, heating till 70° C, under stirring.

### Physical Appearance

Yellowish powder.

### Toxicological Data

*In vitro* Ocular Irritation® test (1% neutral pH): mild irritant .

*In vitro* Dermal Irritation® test: not irritant.

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