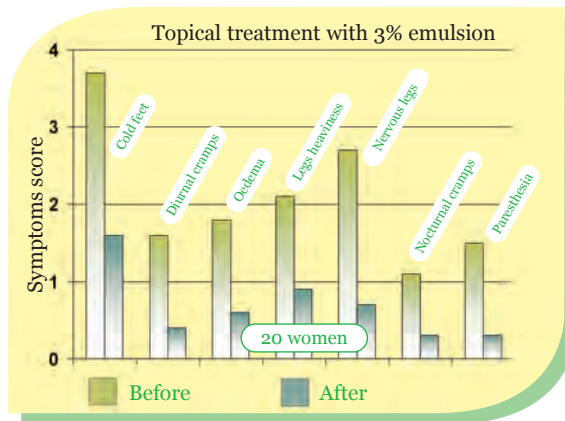




# Esculoside

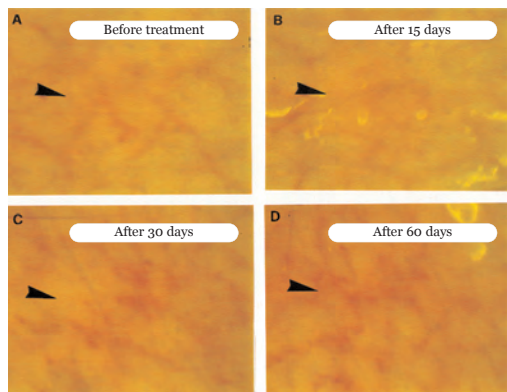
**Vasoactive, anticellulite,  
microcirculation improver**

## Proven efficacy on humans



Twenty women (aged 23-39 years) with venous stasis and evident cellulite signs have been treated twice a day for 60 days with a 3% Esculoside<sup>1</sup> O/W emulsion topically applied on the entire leg<sup>2</sup>. The symptoms of venous stasis, such as cold feet, diurnal cramps, oedema and others, have been evaluated by means of intensity score (from 0 to 5).

A statistically significant improvement of all the considered parameters was observed. In particular an important reduction of nervous legs (reduced by 74%) and of the general pain feeling (reduced by 70%) has to be underlined, thus indicating a potent activity of Esculoside on microcirculation.



Optic Probe Video Capillaroscopy images

Irregularities in the distribution of the microcirculatory blood flow are considered as the pathogenic causes of some vascular and functional disorders (such as venous stasis and cellulite).

Up to now, cutaneous microcirculation has been studied using indirect methods such as Laser Doppler Flowmetry (LDF) or infrared Photo Pulse Pletysmography (i.r.Ph.P.P.). Recently, a new computerized technique, Optic Probe Video Capillaroscopy (OPVC), has been successfully introduced for the evaluation of blood flow in different skin areas<sup>2</sup>. As shown on the left, topically applied Esculoside increases the "capillary density" (the number of capillaries open to flow per surface unit) and improves the morphological aspect of the smallest blood vessels.

## Mechanism of action

The main activities of Esculoside focus on capillary protection, as it improves capillary permeability and fragility. It is reported to inhibit catabolic enzymes such as hyaluronidase and collagenase, thus preserving the integrity of the perivascular connective tissue.

Esculoside also showed good antioxidant properties, protecting triglycerides against auto-oxidation at high temperatures<sup>3</sup>. The antioxidant property might as well explain some of the anti-inflammatory activity of the product, making it a suitable product for after sun treatments, for example.

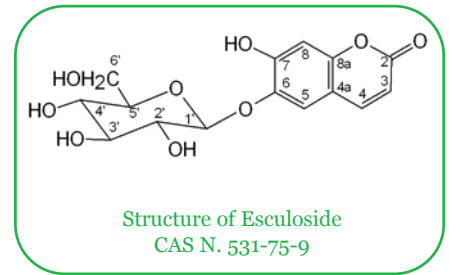
1. European Patent: EP 0 692 250 - 2. Bombardelli E., Morazzoni P., Griffini A.: "Aesculus hippocastanum L." - *Fitoterapia* LXVII, No. 6, 1996, pp 483-511 - 3. Lintner, K.: "Purified plant extracts" - *Cosmetic&Toiletries*, Vol. 113, March 1998, pp 67-73 - 4. Internal Report: Urbino's University, (May 1995)



# Esculoside

## Safety Data

The use of Esculoside (at 3% in a O/W emulsion) on 40 healthy volunteers showed in most subjects to be devoid of any irritant action on human skin and did not give rise to any sensitization<sup>1</sup>



## Characteristics

Esculoside	Available Documentation
HPLC content of Esculoside $\geq$ 98 %, with reference to the anhydrous and solvent-free substance Form: white or white-cream crystalline powder Water content: $\leq$ 8% Stability: 24 months long term stability (25°C, 60% RH) and accelerated (40°C, 75% RH) stability data Level of use: up to 3% Solubility*: soluble in Alcohol (50°), Alcohol (95°), Propylene Glycol, Glycerin, Butylen Glycol, Ethoxydiglycol**	Botanical Certificate Method of analysis Reference Standard Declaration GMO free Safety Data Sheet Published Literature Confidential documentation

\* solubility has been tested at 50 mg in 10 g of solvent (RT)

\*\* solubility has been tested at 50 mg in 10 g of solvent at 40-50°C

## Formulation examples

O/W emulsion with Esculoside		Gel with Esculoside		Also suitable for
ESCULOSIDE	3.00%	ESCULOSIDE	1.00%	Antiaging creams
Isopropyl myristate	5.00%	Imidazolidinyl urea	0.30%	Anticellulite emulsions
Methylchloroisothiazolinone and Methylisothiazolinone	0.05%	Octilolone	0.10%	Emulsions for heavy legs
Imidazolidinyl urea	0.30%	C8-12 Ethoxylated triglycerides	25.00%	Anti hair loss lotions
BHT	0.01%	Polyoxyethylene 20-oleylether	5.00%	Sun care products
Imidazolidinyl urea	0.30%	Carboxyvinylpolymer	1.50%	After sun products
Sodium EDTA	0.10%	Triethanolamine	2.00%	Soothing and lenitive products
Fragrance	0.10%	Fragrance	0.10%	
Polyacrylamide (and) C <sub>13-14</sub>		Distilled water	as needed to 100	
Isoparaffin (and) Laureth-7	3.00%	Isoparaffin (and) Laureth-7	3.00%	
Distilled Water	as needed to 100	Distilled Water	as needed to 100	

## Did you know...

Esculoside, also known as Esculin, is a glycosilated coumarin obtained from the bark of Horse Chestnut branches. Ever since it has been used, mostly by oral route, for the treatment of venous peripheral diseases. Recently in the research of new vasoactive substances, Esculoside has been reported to have an interesting activity on skin microcirculation, thus becoming a suitable ingredient for various cosmetic applications, like anticellulite and anti hair-loss.

TRADE NAME	INCI (CTFA)	INCI (E.U.)	EINECS	CAS	INDENA CODE
Esculoside	Esculin	Esculin	208-517-5	531-75-9	3030600