



### Rositiv

Soothing Phytoextract



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### Skin

The skin is the largest and most exposed organ in the body. Elements such as complexion, smell and skin adnexa are what characteriz us and how we show us to others.

Your skin can show effects caused from:

- exogenous factors (climatic, physical, chemical, bacterial, fungal, viral agents);
- endogenous factors (age, constitution, endocrine and immune status);
- psycho-emotional factors which regulate emotions (conscious and subconscious emotional states).

Whenever one of these factors is subject to change, it will inexorably affect the others as well.

### ardanatura

### Skin

The skin consists of three main layers. From the most superficial to the deepest layer, we find:

- The epidermis (or epithelium),
- The dermis (or connective tissue),
- The hypodermis (or subcutaneous tissue).

The outermost layer of the epidermis is the stratum corneum, a tissue consisting of high-protein corneocytes immersed in a lipid-rich intercellular matrix.

The stratum corneum is a dynamic and metabolically active tissue which is in continuous interaction with the external environment and with the physiological changes in the body\_[1]

# Stratum corneum Epidermis Dermis

**Hypodermis** 

(Subcutaneous tissue)

4



#### **Skin barrier**

The integrity of the skin surface and therefore also of the stratum corneum is attributable to the stratification of a thin film formed by a complex emulsion of lipids (secreted by the sebaceous glands), sweat (secreted by the sweat glands) and desquamating cells.

The skin barrier is not an inert shell – it's actually a semipermeable membrane capable of:

- allowing percutaneous absorption of water and other essential nutrients;
- maintaining normal fluid balance;
- preventing harmful substances and some pathogenic organisms from accessing the innermost layers of the skin.[1]

When the stratum corneum is damaged, a series of restoration processes are immediately sped up to make sure it continues working as a barrier.







#### **Trans Epidermal Water Loss**

*Trans Epidermal Water Loss* (TEWL) is the physiological loss of epidermal water via evaporation through the stratum corneum.

When this mechanism is excessive and unbalanced, it causes dryness and, if prolonged, it can affect the progressive aging of the skin.





### **Irritation mechanisms**

Other factors that can alter the normal skin function are **weathering and contact with substances**, such as detergents.

These substances can initiate and modulate irritation by damaging the barrier function of the stratum corneum and/or by directly irritating skin cells.[2]

From this point of view, keep in mind that every substance is a potential irritant based on both the type of application and the concentration used – and that includes water as well. Thus, it's not the substance itself, but the amount of it that makes it an irritant. [3]









#### **Multi-active phytoextract**

There are several ways to protect our skin. Among these, the mechanisms behind the ability of plants to defend themselves from external stressful agents (such as hostile climatic conditions and UV radiation) represent a potentiality that makes their use interesting in cosmetics.

However, the use of a single plant component is not sufficient to ensure an effective action. Perhaps then, the way forward lies in the combination of multiple ingredients.<sup>[4]</sup>



#### Rositiv

Multi-active phytoextract which soothes irritated skin thanks to the synergistic action of its vegetal components.



Vitis vinifera Leaf Extract



Spiraea ulmaria Flower Extract



Aesculus hippocastanum Seed Extract



Krameria triandra Root Extract



Vaccinium myrtillus Fruit Extract



Malva sylvestris Leaf Extract



Althaea officinalis Root Extract



### Ingredients

**INCI:** Glycerin, Aqua, Vitis vinifera Leaf Extract, Spiraea ulmaria Flower Extract, Aesculus hippocastanum Seed Extract, Krameria triandra Root Extract, Vaccinium myrtillus Fruit Extract, Malva sylvestris Leaf Extract, Althaea officinalis Root Extract.

**US INCI:** Glycerin, Water, Vitis vinifera (Grape) Leaf Extract, Spiraea ulmaria Flower Extract, Aesculus hippocastanum (Horse Chestnut) Seed Extract, Krameria triandra Root Extract, Vaccinium myrtillus Fruit Extract, Malva sylvestris (Mallow) Leaf Extract, Althaea officinalis Root Extract

Recommended dose: 3%

Appearance: water-soluble clear liquid.

Certified: COSMOS APPROVED.





#### **Common grape vine**



#### Vitis vinifera

Vine leaves contain a variety of phytoconstituents, including tannins, phenols and anthocyanins, which show powerful antioxidant, anti-inflammatory, antibacterial and vasorelaxant effects. In light of these properties, vine leaves are effectively used within oral or topical formulations for varicose vein treatment. [5]



#### **Meadowsweet**



#### Spiraea ulmaria

Meadowsweet extract contains ellagitannins, flavonoids – in particular, quercetin and apigenin – and salicylic derivatives. Numerous in vitro studies have demonstrated the anti-inflammatory activity of aqueous and hydroalcoholic meadowsweet extracts. [6]



#### **Horse Chestnut**



#### Aesculus hippocastanum

Particularly rich in escin and flavonoids, horse chestnut is known for its ability to reduce capillary permeability and fragility, as well as for its inhibitory activity on elastase and collagenase enzymes. It's one of the vegetal species which has a positive effect on rosacea; it can also be used in anti-aging products and as a support in cosmetics intended for sun protection (with SPF). [7]



#### Rhatany



#### Krameria triandra

Dried rhatany roots are used in herbal preparations to counteract various systemic and topical disorders. The extract containing phenolic constituents, low-molecular weight neolignans and medium- to high-molecular weight oligomeric proanthocyanidins, showed protective effects against UVB-induced photodamage in human keratinocyte cells. [8] The recognised efficacy of rhatany extract refers to its antioxidant, photoprotective effects and to its *radical scavenger* activity. [4]



#### **Blueberry**



Vaccinium myrtillus

Blueberries represent a valuable source of antioxidant substances, in particular of phenolic nature, most notably the anthocyanins. Because of their composition, blueberries are used to treat several conditions associated with increased oxidative stress. [9]



#### Mallow



#### Malva sylvestris

Mallow has a long history of alimentary use in the Mediterranean region. Some parts of this plant have been used in traditional and ethnoveterinary medicines due to its therapeutic importance. There has been evidence of anti-inflammatory, antioxidant and supportive effects on skin tissue integrity being derived from its leaves. [10]



#### **Marsh mallow**



#### Althaea officinalis

25 to 35% of the marsh mallow roots are composed of mucilage, asparagine, sugars, pectins, and tannins. An ethnopharmacological survey carried out by an Indian research group shows how leaves, flowers and roots of the plant have been traditionally recognized as having mainly anti-inflammatory medicinal properties, whereas from a cosmetic point of view its roots are used for oral hygiene (especially in children) or as a skin conditioner. [11] An interesting scientific study from 2016 demonstrates how the application of an extract of *althaea officinalis* root on lung and skin fibroblast cultures resulted in a significant reduction in UVA radiation-induced damage. [12]

#### **Preservation**

The phytocomplex does not contain any of the preservatives listed in Annex V of Cosmetic Regulation 1223/2009.

The following are used as a preservative:

 Fermented radish root (Leuconostoc/Radish Root Ferment Filtrate), an ingredient capable of acting as a broad-spectrum antimicrobial. Fermented radish ensures excellent skin compatibility;

• Pentylene glycol 100%-naturally derived from corn and cane sugar parts not intended for the food industry.







## Soothes irritated skin In vivo test Reduces skin redness In vivo test

Effect





### In vivo study

Rositiv's soothing efficacy was evaluated in the short-term on skin irritated by Sodium Lauryl Sulfate (SLS) by measuring the degree of **evaporimetry and colorimetry** in single-blind vs placebo study.

The site used for instrumental measurements was the volar surface of the left forearm, approximately 2 cm from the elbow crease. After baseline (t0) colorimetry and TEWL measurements were performed, a patch containing 20% SLS was applied to 2 different sites for 4 hours. <sup>[12]</sup> Once the Finn chambers were excised, additional baseline colorimetry and TEWL measurements were performed. Subsequently, the cosmetic product was applied only to one area, using the other area as a control, and measurements were made after 2 hours (t2h) and after 4 hours (t4h).



#### **Executing the test**

#### Inclusion criteria

The selected participants were:

- 10 female subjects,
- age between 25 and 50,
- normal or dry skin,
- negative history of skin disorders, atopy and allergic contact dermatitis,
- negative history of other skin treatments within the past 3 months.

Application of a base cream with 3% active ingredient.



#### **Evaporimetry**

#### A measurement of the evaporimetry degree showed a 10% reduction in TEWL at 4h:



-11.1 %



### **Evaporimetry**

ROSITIV 3%	tO	tSLS	t2h	t4h
TEWL measurement	12.78 ± 1.30	21.42 ± 2.98	18.77 ± 2.77	19.16 ± 3.13
Baseline change from t0* and TSLS (mean and SD)		8.64± 3.56*	- 2.6 ± 3.85	-2.2± 1.83
Percentage change from t0* and TSLS (mean)		69.86 %*	-11.1 %	-10.4 %
Intra-group comparison vs TSLS (p-value paired t-test)			0.029	0.002
Intra-group comparison vs t0 (p-value paired t-test)		0.003		

CONTROL	t0	tSLS	t2h	t4h
TEWL measurement	10.68 ± 1.84	19.11 ± 6.21	18.94 ± 4.35	18.18 ± 3.37
Baseline change from t0* and TSLS (mean and SD)		8.43± 5.87*	- 0.1 ± 3.29	-0.9 ± 5.38
Percentage change from t0* and TSLS (mean)		80.2 %*	2.15 %	1.069 %
Intra-group comparison vs TSLS (p-value paired t-test)			0.437	0.299
Intra-group comparison vs t0 (p-value paired t-test)		0.001		



#### **Colorimetric measurement**

The colorimetric measurement showed a statistically significant reduction in erythema of 6.5% after 4h of product application:





#### **Colorimetric measurement**

ROSITIV 3%	tO	tSLS	t2h	t4h
Mexamenter E measurement	239.1 ± 19.5	283.5 ± 31.8	265.3 ± 36.4	263.1 ± 22.5
Mean change from t0* and TSLS (mean and SD)		44.4± 38.5*	-18.2 ± 30.5	-20.4± 25.1
Percentage change from t0* and TSLS (mean)		19.3 %*	-6.0 %	-6.5 %
Intra-group comparison vs TSLS (p-value paired t-test)			0.046	0.015
Intra-group comparison vs t0 (p-value paired t-test)		0.003		

CONTROL	tO	tSLS	t2h	t4h
Mexamenter E measurement	228.4 ± 18.3	265.1 ± 28.0	264 ± 18.1	261.1 ± 13.9
Mean change from t0* and TSLS (mean and SD)		36.7±28.6*	-1.1 ± 34.8	-4 ± 22.5
Percentage change from t0* and TSLS (mean)		16.5 %*	-0.69 %	-0.7 %
Intra-group comparison vs TSLS (p-value paired t-test)			0.461	0.294
Intra-group comparison vs t0 (p-value paired t-test)		0.001		



#### **Conclusions**

-10.4% The measurement of the degree of evaporimetry showed a significant reduction in TEWL at 4h for the active ingredient.

-6.5%

The colorimetry shows a significant reduction in erythema 4h after product application.

None of the 10 volunteers had any irritative or allergic adverse reactions.



### **Bibliography**

- 1. Levin J, Friedlander SF, Del Rosso JQ. Atopic dermatitis and the stratum corneum: part 1: the role of filaggrin in the stratum corneum barrier and atopic skin. J Clin Aesthet Dermatol. 2013;6(10):16-22
- 2. Berardesca, E. and Distante, F. (1994), The modulation of skin irritation. Contact Dermatitis, 31: 281-287. https://doi.org/10.1111/j.1600-0536.1994.tb02019.x
- 3. Wilhelm, K.P., Maibach, H.I., & Zhai, H. (Eds.). (2007). Dermatotoxicology (7th ed.). CRC Press. https://doi.org/10.1201/9781420009774
- 4. Korać RR, Khambholja KM. Potential of herbs in skin protection from ultraviolet radiation. Phcog Rev 2011;5:164-73. doi: 10.4103/0973-7847.91114
- Sangiovanni, E.; Di Lorenzo, C.; Piazza, S.; Manzoni, Y.; Brunelli, C.; Fumagalli, M.; Magnavacca, A.; Martinelli, G.; Colombo, F.; Casiraghi, A.; Melzi, G.; Marabini, L.; Restani, P.; Dell'Agli, M. Vitis vinifera L. Leaf Extract Inhibits In Vitro Mediators of Inflammation and Oxidative Stress Involved in Inflammatory-Based Skin Diseases. Antioxidants 2019, 8, 134. <u>https://doi.org/10.3390/antiox8050134</u>
- 6. Filipendulae ulmariae herba Meadowsweet ONLINE SERIES Ed United Kingdom ESCOP, 2015
- 7. J.A. Wilkimson and A.M.G. Brown, Horse chestnut Aesculus hippocastanum : potential applications in cosmetic skin-care products. International Journal of Cosmetic Science 21: 437–447 (1999). https://doi.org/10.1046/j.1467-2494.1999.234192.x
- 8. Biomed. Papers 147(2), 137–145 (2003). A. Svobodová, J. Psotová, D. Walterová
- 9. Tadić VM, Nešić I, Martinović M, Rój E, Brašanac-Vukanović S, Maksimović S, Žugić A. Old Plant, New Possibilities: Wild Bilberry (Vaccinium myrtillus L., Ericaceae) in Topical Skin Preparation. Antioxidants. 2021; 10(3):465. <u>https://doi.org/10.3390/antiox10030465</u>
- 10. João Cleverson Gasparetto, Cleverson Antônio Ferreira Martins, Sirlei Sayomi Hayashi, Michel Fleith Otuky, Roberto Pontarolo, Ethnobotanical and scientific aspects of Malva sylvestris L.: a millennial herbal medicine, Journal of Pharmacy and Pharmacology, Volume 64, Issue 2, February 2012, Pages 172–189, <a href="https://doi.org/10.1111/j.2042-7158.2011.01383.x">https://doi.org/10.1111/j.2042-7158.2011.01383.x</a>
- 11. Kumar, S. S., Sudhakar, S., Kapil, S., & Snigdha, T. (2016). Ethnopharmacological review on Althaea officinalis. World Journal of Pharmacy and Pharmaceutical Sciences, 5(7), 425–432
- 12. Alison Curnow, Sara J. Owen, "An Evaluation of Root Phytochemicals Derived from Althea officinalis (Marshmallow) and Astragalus membranaceus as Potential Natural Components of UV Protecting Dermatological Formulations", Oxidative Medicine and Cellular Longevity, vol. 2016, Article ID 7053897, 9 pages, 2016. https://doi.org/10.1155/2016/7053897
- 13. Marzatico F. Short term test: valutazione clinica dell'effetto lenitivo e riparatore per la cute di un prodotto per uso topico. Farmaci 2009;33(1):23-30



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