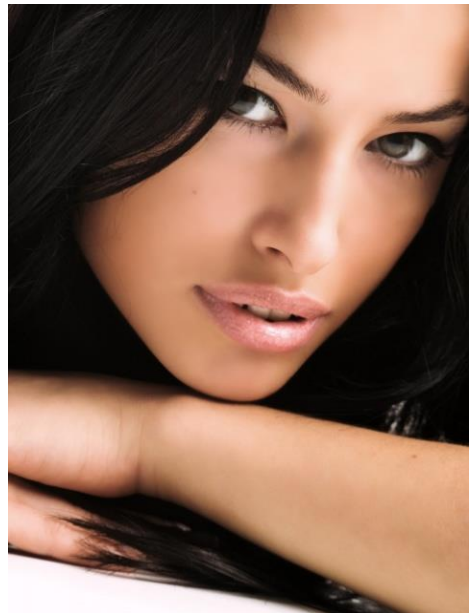




Regenerating Serum is an energizing, refreshing Serum that **moisturizes and nourishes deeply**.

It has high **antioxidant, anti-inflammatory, re-structuring, regenerating and anti-aging properties**. It restores the skin and protects it from oxidation caused by free radicals.

- ✓ Smoothing the skin lines giving a feeling of softness.
- ✓ Reinforcement of tone, hydration and skin's elasticity.
- ✓ Helps dry and mature skin to defend against attacks by environmental agents, especially against UV exposure.
- ✓ Increases the elastic tone and restructures the surface morphology of the micro-cutaneous relief.
- ✓ Increased skin nutrition.
- ✓ Normalizes the skin's pH, re-balancing, refreshing and moisturizing the skin for further treatments.



BIOACTIVE COMPOUNDS IN Regenerating Cocktail Serum:

1) EXTRAPONE® ARGAN: Antioxidant, anti-inflammatory, re-structurant



Extrapone® Argan Extrapone® Argan contains the oil of *Argania spinosa* L. seeds. Argan fruits used for our Extrapone® are mainly wild collected in Morocco.

The oil is obtained by cold pressing of the seeds and following by filtration.

Argan oil is made up to 80% of essential fatty acids:

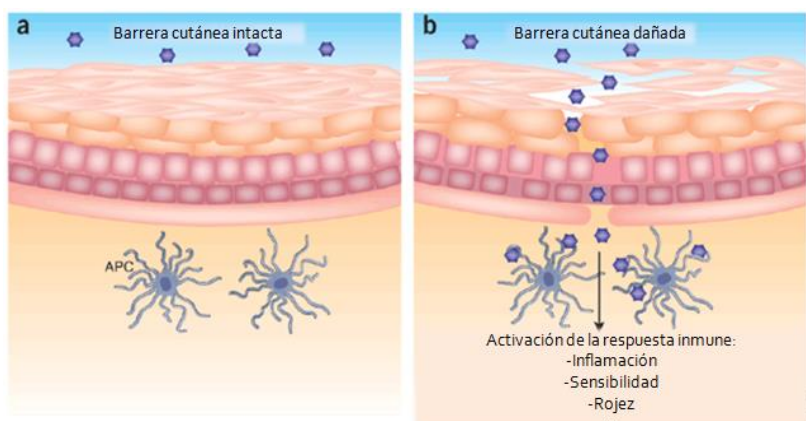
- **50% linoleic acid, 15% alpha-linolenic acid, 12% oleic acid:** Biological precursors of intracellular hormones such as prostaglandins (key regulators of different cellular systems, including all membranous exchanges). They stimulate intracellular oxygenation, improving the restoration of the hydro-lipidic film increasing the nutrient content of skin cells and ensuring the necessary skin moisture.
- **1% Arachidonic acid**
- **3% Linolenic acid**
- **5% Tocopherols (Vitamin E):** The main representatives of this class of compounds found in Argan oil are alpha-tocopherol or vitamin E (5%), gamma-tocopherol (83%) and delta-tocopherol (12%) which are natural antioxidants and vitamin precursors.
- **Ferulic acid:** It is the compound found in greater proportion. It promotes blood circulation, thereby increasing the arrival of nutrients. Stimulates intracellular oxygenation, neutralizes free radicals and protects the connective tissues.
- **Phytosterols:** Delta-7-sterols are inhibitors of the 5-alpha-reductase enzyme, which converts testosterone into dihydrotestosterone (DHT), largely responsible for acne and hair loss.
- **Squalene:** Present in 25% of human lipids, by binding to the cell membrane, helps to eliminate toxins and neutralize free radicals.
- **Lupeol:** has anticancer properties and enhances proliferation of keratinocytes which produce keratin in hair, nails and skin.

All these elements give it high antioxidants, anti-inflammatory, re-structuring, regenerating and anti-aging properties. Restores skin and protects it from oxidation caused by free radicals.

Essential Fatty Acids:

Essential fatty acids are polyunsaturated, "Polyunsaturated Fatty Acids", also known as PUFAs. They are absolutely necessary for our health, and cannot be synthesized by the body.

PUFAs are involved in metabolic processes of great importance, such as control of blood pressure, lowering cholesterol, the



regulation of inflammatory processes (are precursors of prostaglandins) and allergic reactions, or the constitution of the phospholipids of cell membranes, among others.

As they're not synthesized by the body, they must be supplied from outside.

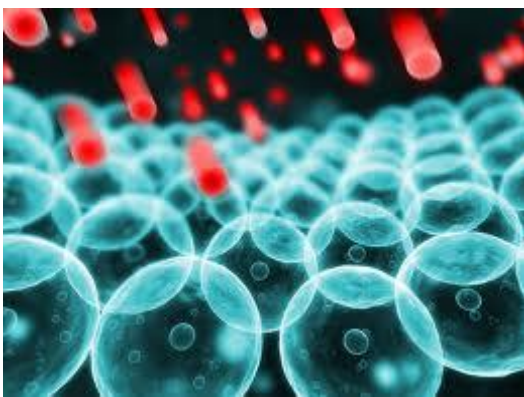
The stratum corneum, needs three types of lipids in order to achieve an effective barrier function: Ceramides, Cholesterol and polyunsaturated fatty acids. When these lipids are regularly cohesive between keratinocytes, potentially harmful substances that touch the skin cannot penetrate the skin barrier. On the other hand, when there is a lack of PUFAs, the skin barrier becomes permeable.

- **Lack of PUFAs has as a direct result, a number of skin problems, such as:**
 - Dry, tight and uncomfortable skin
 - Flaking
 - The wounds take longer to heal
 - Loss of hydration
 - Erratic keratinization process
 - Increase of the rate of mitosis (disruption of epidermal layers)
 - Tendency to eczema and itching

Argan oil, thanks to its content in poly-unsaturated fatty acids, restores the barrier function of the skin. This regulation helps control TEWL and therefore maintain optimal skin hydration.

Moreover, PUFAs content in Argan oil, as precursors of prostaglandins, provide skin metabolism regulatory functions:

- ✓ **Decreasing inflammation**
- ✓ **Keeping skin elasticity**
- ✓ **Stimulating healing and regeneration**
- ✓ **Regulating keratinization**
- ✓ **Decreasing the skin Evaporation Rate**
- ✓ **Keeping skin hydration**



Anti-Free Radical Action: DNA Protection

Free radicals are chemical agents endowed with a powerful oxidizing ability. They can have an

CoQ10 is essential for energy synthesis (ATP). Together with vitamin E, they form a defense against oxidative attack. Studies by Quinn et al. showed that both antioxidants are integrated together in the lipid regeneration cycle. Once vitamin E is oxidized to its tocopheryl radical can be reduced by Ubiquinol regenerating Tocopherol.

Topical application of this combination of Coenzyme Q10 and vitamin E helps to balance the level of endogenous antioxidants.

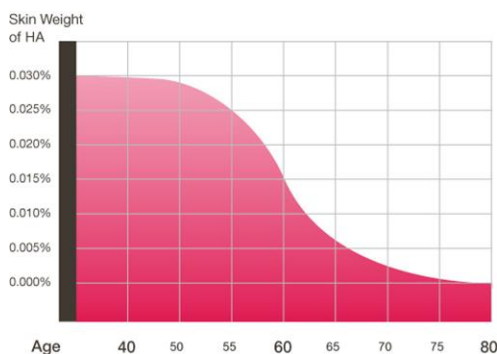
3) HYALURONIC ACID:



Hyaluronic acid (HA) is a polysaccharide from the type β - links glycosaminoglycans, having a structural function, such as chondroitin sulfates. It has the capacity to absorb more than 1000 times its volume in water.

That is why it is used in epidermis moisturizing the as it reconstructs the fibers that hold skin tissues, giving a better shape. With a very high viscoelasticity, it is a natural component part of the skin and is essential to fight aging and wrinkles due to its high moisturizing power.

In the dermis, hyaluronic acid is the main component of the extracellular matrix (ECM). Fibroblasts are a cell type responsible for the production of collagen and elastin in the skin.



ECM extracellular matrix is the space between the skin cells. This makes the skin soft, smooth and elastic.

Young skin (soft and elastic) contains high amounts of HA (Hyaluronic acid).

Hyaluronic acid contained, is of biotechnological origin, has a molecular weight of 50-110 kDa:

- ✓ Retains moisture and elasticity in the tissues (moisture retention in the extracellular matrix (ECM))
- ✓ Protects against environmental stress
- ✓ Helps to reduce the appearance of wrinkles and expression lines.

4) ALOE VERA: Excellent moisturizer



Aloe juice is obtained from the pulp of its fleshy leaves by physical processes. It consists of a **complex mixture of more than 20 substances**, including mono and **polysaccharides**, **anthraquinones**, **enzymes**, **vitamins (A, B1, B2, B6 and B12)**, **salicylic acid**, **saponins**, **sterols**, and **minerals [4]**. Its moisturizing, soothing, anti-inflammatory, anti-allergic and regenerative properties are well known.

Fatty acids: cholesterol, campesterol, β -sisosterol and lupeol. All have anti-inflammatory action. Lupeol also has antiseptic and analgesic properties.

It contains **phytohormones: auxins and gibberellins** that aid in wound healing and have anti-inflammatory action [5].

Aloe juice has been shown to **enhance the cellular structure of fibroblasts** and to **accelerate the process of collagen synthesis [6]**.

It is an excellent moisturizer, so it captures atmospheric water by moisturizing in depth as it acts on the three layers of skin: epidermis, dermis, and hypodermis.

5) HAMAMELIS VIRGINIANA: Decongestant and antioxidant



El extracto de hamamelis se obtiene a partir de las hojas de Hamamelis virginiana L. Hamamelis tiene propiedades medicinales sobradamente conocidas. Entre sus propiedades cosméticas se encuentran las siguientes:

- **Activity on blood circulation**

This activity is due to the flavonoids content of hamamelis extract. Several tests demonstrated that hamamelis flavonoids have phlebotonic, vasoprotective and capillarotropic effects, and that they reduce blood capillaries permeability. These effects are reinforced by the hamamelis leucoanthocyanidins.

- **Antimicrobial activity:** Due to its content in tannins and proanthocyanidins, it possesses bacteriostatic and antiviral properties (Alonso, J., 2004).
- **Antioxidant activity:** Its content in tannins, especially hydrolyzable tannins, and flavonoids inhibit lipid peroxidation.

6) CALENDULA EXTRACT: Re-epithelizing and healing



Calendula is one of the best-considered plants for treating sensitive skin.

It is one of the most recognized plants in medicinal treatments. It is composed of flavonoids and triterpenes whose properties are beneficial to treat the different conditions of the skin.

It is ideal for the dry and scaly skin as it moisturizes, rejuvenates the skin, improving its elasticity.

Los extractos de las flores de *C.officinalis* muestran un amplio espectro de acciones farmacológicas, de ahí la gran importancia de los extractos de caléndula en la cosmetología moderna [1].

- **Reepithelizing and wound healing activity**

This is one of the most extensively used actions of calendula. It is due to the presence of polysaccharides (mucilage), flavonoids (especially quercetrin-3-O-glycoside), triterpenes and carotenes. These substances act on the metabolism of glycoproteins and on the collagen fibers. Creams containing calendula floral extract 5% in combination with allantoin, promoted remarkable epithelization with especial intensity on the metabolism of glycoproteins and collagen fibers during tissue regeneration.

More recent research suggested that the water extracts of calendula flowers, applied on skin wounds, play a role as micro-vascularization inducing agents, thus contributing to speed up healing [1].According to ESCOP, calendula (flower) is recommended for the local treatment of skin inflammation, and as a co-adjutant in wound-healing [2].

The calendula extract polysaccharides have concentration-dependant adhesive effects (absorption effects) on the epithelial tissue of the oropharyngeal mucosa. This action contributes to its therapeutic effects to treat oropharyngeal mucosae inflammation (www.fitoterapia.net). For these reasons, the Calendula extract is highly recommendable to formulate cosmetic products with tissue regeneration action.

- **Moisturizing activity**

This activity of calendula is due to its saponin and mucilage content. These active principles have moisturizing properties (water retention and water release to the medium).

Due to its moisturizing activity, Calendula is ideal for formulating cosmetic products for the dry, irritated or delicate skin.

Anti-inflammatory activity

The topical use of calendula preparations is rather extensive in cosmetics as well as in dermatology because of its **anti-inflammatory activity**. The clinical efficacy of this plant has been long demonstrated. In vivo studies using rats evidenced the anti-inflammatory activity (on inflammation induced by carrageenan and prostaglandin E1) and the inhibitory action on leukocyte infiltration.

Thus, Calendula is highly recommended to formulate cosmetic products for sensitive and/or irritated skin.

7) ASIAN CENTELLA EXTRACT: Dermoprotectorr



Asian centella (*Hydrocotyle asiatica*), contains an essential oil, triterpene saponins (asiaticosides, brahmosides), alkaloids (hidrocotilina), tannins, phytosterols, vitamin K and mineral salts (magnesium, calcium and sodium).

Highlights include its astringent, antiseptic, anti-inflammatory and dermoprotective virtues.

The triterpene derivatives stimulate the formation of fibroblasts, cells indispensable for repairing damaged tissues. In addition, they regulate the incorporation of collagen to the skin.

Collagen synthesis stimulating activity

The active ingredients of the selected triterpenes of *Centella asiatica* have shown to have modulating properties on the development and metabolism of connective tissue.

Centella asiatica has been documented to aid wound healing in several scientific studies. One of the primary mechanisms of action of this plant appears to be the stimulation of type-1 collagen production.

Triterpenes of *Centella asiatica* may help to improve wound repair with a better reepithelialisation and a normalisation of perivascular connective tissue allowing an improvement of the venous wall tone and elasticity.

References

[1] Kasuga, 2010

[2] Alonso J., 2004

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[4] **Potential of herbs in skin protection from ultraviolet radiation.**

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[5] Aloe Vera: a short review. Amar Surjushe, Resham Vasani, and D G Saple

[6] **Dietary Aloe Vera Supplementation Improves Facial Wrinkles and Elasticity and It Increases the Type I Procollagen Gene Expression in Human Skin in vivo.**

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