

# JERICINE

## Moisturization & Anti-stress / Anti-ageing

*Dehydrated form*



*Hydrated form*



*Selaginella lepidophylla*

**Jericine has been developed from *Selaginella lepidophylla*, which is a primitive plant** of the Selaginellaceae family. This is a xerophytic species native from Chihuahuan Desert in Texas, near Mexico.

So, this plant grows in poor and desert soil. In these extremely adverse environments, only particular suitable vegetation can withstand lack of water. Desert plants have developed systems that allow them to save water and thus avoid evapotranspiration. Some plants protect themselves by a thick cuticle; others leave their roots run deep into the soil in search of wetness.

### Did you know ?

***Selaginella lepidophylla* is also called Rose of Jericho.**

**This name refers to the famous biblical city in West Bank, Jericho, as it constantly reborn from its ashes, according to old writings.**

*Selaginella lepidophylla* is thus part of these plants, which can withstand the lack of water: it is also called **resurrection plant** or **reviscent plant**.

*Selaginella lepidophylla* is a small plant from arid regions, which has the particularity of being able to stay ball apparently dry. It folds its leaves to protect itself from drought and unfold them to enjoy moisture and freshness. Therefore, it has the particularity to **rehydrate after a long drought**.

*Selaginella lepidophylla* is able to withstand very high temperatures. If rain occurs, the ball opens, the plant turns green and takes root. Indeed, in contact with water, *Selaginella lepidophylla* will open in a few hours then slowly regains its green colour and its ambivalent aspect of moss and fern. This plant could then begin a period of drought again for days, weeks, months, or even years...



**In Mexico, *Selaginella lepidophylla* is traditionally employed as diuretic. In common culture, pregnant women drink water, which has been used to soak plant in order to help childbirth. Moreover, according to the speed of plant opening, they can deduce if the delivery will be more or less easy.**

***Selaginella lepidophylla* is also employed for rites of voodoo and Cuban Santeria to obtain love and money. It is sad that the plant absorbs negative energy when it is wear oon te body.**

## CHEMICAL COMPOSITION of the extract

Jericine is obtained from the **plant** of *Selaginella lepidophylla*.

**Poly- and oligosaccharides:** fructose, glucose, mannitol, inositol, trehalose, trisaccharides, starch...  
**Proteins and amino acids:** dehydrins and stress proteins (LEA, Late Embryogenesis Abundant).

## COSMETIC PROPERTIES

### JERICINE extract allows:

- 1) Fighting against dehydration and skin dryness
- 2) Protecting our skin against environmental stress

## COSMETIC PROPERTIES

### 1) Moisturizing activity

**With its richness in oligo- and polysaccharides, including sugars storage such as trehalose, Jericine has moisturizing / emollient properties** (Adams *et al.*, 1990) (Figure 1).

Indeed, these oligo- and polysaccharides contained in Jericine are involved in both pathways of skin moisturization: active and passive moisturizations that are linked to chemical and physical interactions of the compounds with the skin barrier.

The active phenomenon consists in providing to the skin with emollients such as humectants (agents that bind water to skin surface) and components of NMF (Natural Moisturizing Factors), water-soluble, hygroscopic and natural substances in *stratum corneum*.

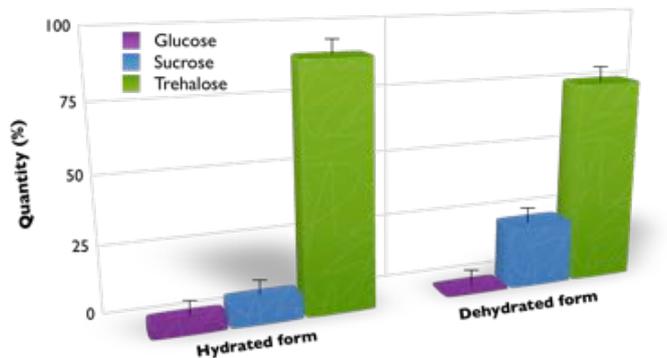
On the other hand, the passive phenomenon involves substances that act as a barrier to TEWL.

First, oligo- and polysaccharides of Jericine - **fructose, glucose, mannitol, inositol, trisaccharides and starch** - are sugars, and therefore very hygroscopic molecules.

With **trehalose**, the main Jericine sugar storage, these molecules will therefore capture surrounding water particles and bind them to skin surface. Amino acids contained in Jericine will similarly act.

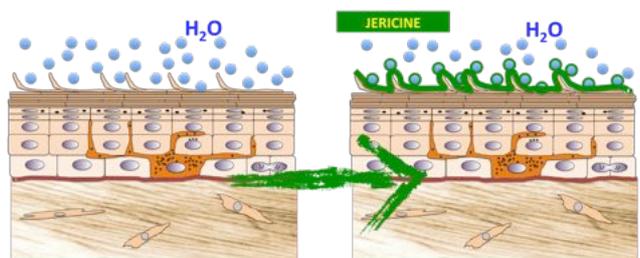
**Jericine thus acts in the active channel of skin moisturization** (Figure 2).

**Figure 1: Storage of sugars in *Selaginella lepidophylla* according to its biological condition (according to Adams *et al.*, 1990)**



**-> Jericine contains high level in storage sugars (trehalose and sucrose).**

**Figure 2: Moisturizing property of Jericine by ACTIVE way**



**-> Jericine has moisturizing activity by active way.**

On the other hand, polysaccharides contained Jericine - **trisaccharides and starch** - which are natural polymers, will create a protective film on *stratum corneum*.

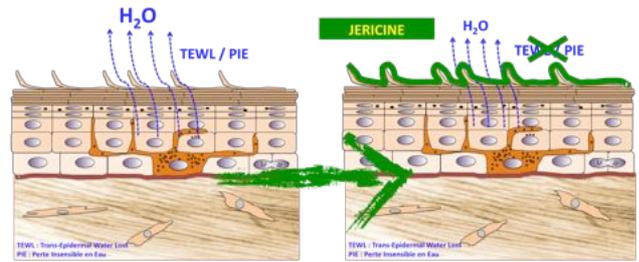
This will act as a barrier to TEWL: they will limit water loss by decreasing permeability of the skin.

**Thus, Jericine extract acts in the passive way of skin hydration** (Figure 3).

**Jericine helps to reduce skin dehydration and regulates cutaneous barrier functions.**

**→ Jericine increases moisturization and skin and scalp comfort.**

Figure 3: Moisturizing property of Jericine by PASSIVE way



**-> Jericine has moisturizing activity by passive way.**

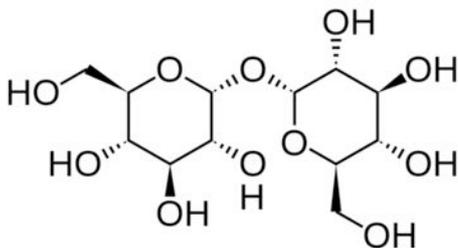
## 2) Anti-stress Activity

In the desert, life is punctuated by rain. Each rainfall must be considered as an opportunity for life. To better fit to critical periods, plants in desert environments have adapted their metabolism.

Originating from hot countries, *Selaginella lepidophylla* is able to withstand high temperatures. If rain occurs, the ball opens, the plant turns green and takes root. This type of revival is associated with proteins that are stress proteins such as dehydrins in response to a state of dehydration, which corresponds to water stress that will continue until cellular hydration. These dehydrins control cell osmotic pressure, allowing the plant to survive in extreme conditions. In addition, they would regulate the provision of sugars in cell compartments and thus make it possible to resist environmental stresses to which they are subjected.



Figure 4: Storage sugar, the trehalose



In addition, *Selaginella lepidophylla* accumulates specific sugars, sucrose, trehalose and derivatives to protect themselves during stress. The non-reducing disaccharide acts as an osmoprotecteur. In fact, sugar becomes a protector and a storage resource for the plant during stress, such as desiccation. So, trehalose and its derivatives allow the plant to better withstand stress of drought, temperature and/or salts variations... (Figure 4).

Topical application of stress proteins (such as dehydrins) and protective sugars (such as trehalose) from **Jericine must contribute to help skin to better resist to environmental stress, including cellular dehydration caused by either cold or too warm temperature. The skin, better protected, can maintain its balance and in particular its elasticity and can better resist against ageing phenomenon.**

**→ Jericine helps fighting against environmental stress and thus prevent premature skin ageing.**

**COSMETIC USES****Jericine is recommended for:**

- **Its moisturizing action**
- **Anti-stress properties / anti-aging**

Selaginella lepidophylla Extract

CAS N°: 90106-73-3

EINECS N°: 290-298-0

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