

SNAIL SLIME

Helix Aspersa Muller



COMPOSITION

Allantoin - a substance which promotes reparative regeneration of the skin, known for its healing properties and very effective as an antioxidant which slows down the skin aging process eliminating free radicals in the cells.

Collagen Elastin - They are the structural proteins necessary for rigidity and elasticity of the skin, the main components of connective tissue slowing the effects of aging.

Glycolic Acid - improves the texture and appearance of the skin, reduces wrinkles, acne and hyper pigmentation. It removes the top layer of the epidermis with cells of dead skin to reveal the lower layer younger, toned and bright.

Peptide antibiotics - destroy pathogens on the surface and in the pores of the skin and acts as a protective barrier.

Vitamin A - can get a tan while promoting skin hydration.

Vitamin C - protects from viral or bacterial infections of skin aging and helps healing.

Vitamin E - an antioxidant that protects vital cells reduces inflammation and promotes skin hydration.

APPLICATIONS

Recommended for the preparation of gels, shampoos, wrinkle creams, skin care creams to fight against pimples, acne, mitigation of all types of scars and stretch marks.

Other applications: facial masks and serums.

It is also used in some medical burn units for rehabilitation.



EXTRACTION METHOD

Harvesting method is made in accordance with Annex 1 of Treaty of Rome which respects animal's well-being, which enables to get the Ecocert Greenlife certification according to Cosmos Standard.

- The extraction is from secretion from the "Petit gris" *Helix Aspersa Müller*,
- Food selected from cereals,
- Purification without ultraviolet rays (patented process), allowing to obtain a higher concentration of active ingredients. It is a freeze-dried product obtained from the pure extract.
- Without preservatives.

Note: the only slime recognized for its active principles is the one from *Helix Aspersa Muller*.

The slime is purified without UV treatment; it is a freeze-dried product obtained from the pure extract.

Other processes like UV or gamma rays treatments, as well as ozone purification method, destroy the total proteins of the slime. These processes irreparably damage its active principles.

SOLUBILITY AND METHOD OF INCORPORATION

Extract 1 g of freeze-dried snail slime is soluble in 1 liter of demineralized water. This solution should have the following physico-chemical parameters: pH 6.5 - 7.0 and temperature between 40-45 ° C.

Recommended dosage for cosmetic use: between 0.2 and 8%

Dosages with 1L of the reconstituted Snail secretion :

Hand creams: 0,2 to 1,5%

Body cream: 0,5 to 1%

Make-up removing water: 0,2 to 0,8%

Eye contour: 0,2 to 2%

BB Cream : 0,5 to 2%

Facial mask: 0,2 to 3%

Serum face: 0,8 to 4%

Regenerating cream (anti-wrinkle, stain-resisting): 2 to 8%

Anti-acne cream : 4 to 8%

Cream in burn scars and grafts: 5 to 8%



INCOMPATIBILITY

The freeze-dried snail slime is sensitive to sudden changes in pH; the dissolution of the product must be carried out with water at pH 6.8.

Subject very easy contamination: follow a strict hygiene control during formulation.

Freeze-dried snail slime is photosensitive and should be protected from **sunlight and ultraviolet rays** that can alter the structure of its components.

Do not heat above 59 °C because the active ingredients are sensitive to the heat.

STABILITY

Up to 24 months in bags or stored in amber bottles away from light in a dry place at 25 °C + / - 5 °C.

PACKAGING: Bottle of 5, 10, 20, 30, 100, 250, 500, 1000 grams



ORGANIC SNAIL SLIME SPECIFICATIONS

ANALYSIS

STANDARDS

APPEARANCE	Powder
COLOR	Cream to greenish
ODOR	Odorless
ALLANTOIN (μg / 1g LSS)	250-350
GLYCOLIC ACID (μg /1g LSS)	50-100
HUMIDITY (%)	Max. 10%
PROTEIN FROM N_T * (%)	40-55
Enumeration of aerobic mesophilic bacteria	≤ 800 UFC / ml
Enumeration of yeasts	≤ 100 UFC / ml
Mold count	≤ 100 UFC / ml
Escherichia coli	Absent
Pseudomonas aeruginosa	Absent
Staphylococcus aureus	Absent

μg / 1g BEL = micrograms / gram of Freeze-Dried Snail Slime.

N^* (%) : Total nitrogen, protein and non-protein

**RAW MATERIAL CERTIFIED BY ECOCERT GREENLIFE ACCORDING TO THE
COSMOS STANDARD**



SNAIL SLIME SPECIFICATIONS

ANALYSIS

STANDARDS

APPEARANCE	Powder
COLOR	Cream
ODOR	Odorless
ALLANTOIN (μg / 1g LSS)	200-300
GLYCOLIC ACID (μg /1g LSS)	40-100
HUMIDITY (%)	Max. 10%
PROTEIN FROM N_T * (%)	30-55
Enumeration of aerobic mesophilic bacteria	≤ 800 UFC / ml
Enumeration of yeasts	≤ 100 UFC / ml
Mold count	≤ 100 UFC / ml
Escherichia coli	Absent
Pseudomonas aeruginosa	Absent
Staphylococcus aureus	Absent

μg / 1g BEL = micrograms / gram of Freeze-dried Snail Slime.

N^* (%) : Total nitrogen, protein and non-protein

SCIENTIFIC INFORMATION

The Helix Aspersa Müller is a brown garden snail and is an edible snail. When the Helix Aspersa Müller is injured or threatened, it secretes a mucin that repairs its skin and shell, and protects itself from invaders or the environment. We provide this special secretion that the Helix Aspersa Müller produces to protect itself and repair itself.

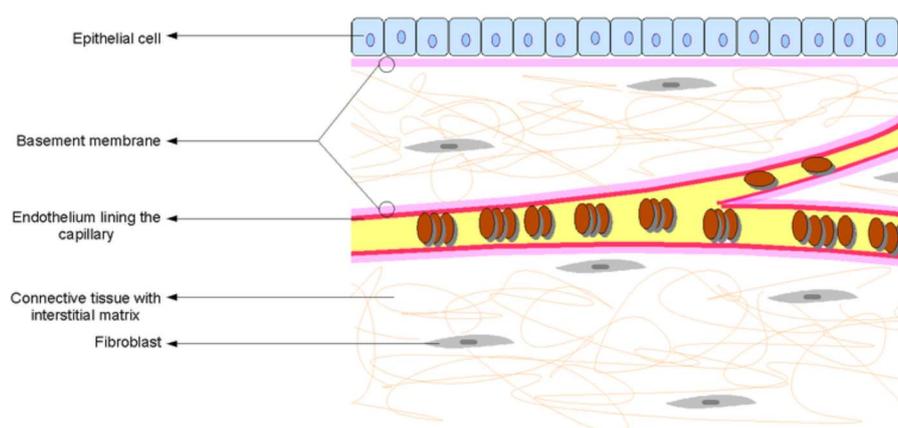
Helix Aspersa Müller secretion has been used by numerous doctors to heal the skin of radiation and other burn victims.

Snail secretion contains, among other beneficial elements, GLYCOPROTEIN and COPPER PEPTIDES. Structural glycoproteins which occur in connective tissue help bind together the fibers, cells, and ground substance of connective tissue. They may also help components of the tissue bind to inorganic substances, such as calcium in bone.

Snail secretion contains, and helps to build extracellular matrix. Collagens are, in most animals, the most abundant protein in the ECM (extracellular matrix). In fact, collagen is the most abundant protein in the human body and accounts for 90% of bone matrix protein content. Collagens are present in the ECM as fibrillar proteins and give structural support to resident cells. In simple terms, the extracellular matrix is like a base or building block for cells. The ECM is also composed of elastins. Elastins, in contrast to collagens, give elasticity to tissues, allowing them to stretch when needed and then return to their original state. This is useful in blood vessels, the lungs, in skin, and the ligamentum nuchae, and these tissues contain high amounts of elastins.

MEDICAL APPLICATIONS OF EXTRACELLULAR MATRIX

Illustration depicting extracellular matrix in relation to epithelium, endothelium and connective tissue





Extracellular Matrix cells have been found to cause re-growth and healing of tissue. In human fetuses, for example, the extracellular matrix works with stem cells to grow and re-grow all parts of the human body, and fetuses can re-grow anything that gets damaged in the womb. Scientists have long believed that the matrix stops functioning after full development. It has been used in the past to help horses heal torn ligaments, but it is being researched further as a device for tissue regeneration in humans.

In terms of injury repair and tissue engineering, the extracellular matrix serves two main purposes. First, it prevents the immune system from triggering from the injury and responding with inflammation and scar tissue. Next, it facilitates the surrounding cells to repair the tissue instead of forming scar tissue.

For medical applications, the cells required are usually extracted from pig bladders, an easily accessible and relatively unused source. It is currently being used regularly to treat ulcers by closing the hole in the tissue that lines the stomach, but further research is currently being done by many universities as well as the U.S. Government for wounded soldier applications.

Indeed, many factors can affect skin regeneration. Researchers have demonstrated that the presence of pathogens in the lesion may impair regeneration, and other factors such as reactive oxygen species can also play a negative role in this process. In addition, dermal fibroblasts must proliferate and migrate into the injured tissue, covering the lesion and manipulating the ECM ('matrix remodeling') to ensure scar formation and promote healing, a process compromised by skin ageing.

Not all ECM devices come from the bladder. Extracellular matrix coming from pig small intestine submucosa are being used to repair "atrial septal defects" (ASD), "patent foramen ovale" (PFO) and inguinal hernia. After one year 95% of the collagen ECM in these patches is replaced by the normal soft tissue of the heart.

The following quote comes from this website: <http://medgadget.com/2011/10/carotid-tissue-repair-device-gets-510k-nod-from-fda.html>

"The use of extracellular matrix materials in non-cardiovascular applications has established a significant foothold in soft tissue repair, wound management and orthopedic applications. The safety of extracellular matrices has been well established in a number of different clinical applications. The extracellular matrix has been studied extensively, with more than 500 published papers. Since 1999, over a million patients worldwide have received an extracellular matrix implant".

HOW IT RELATES TO THE USE OF HELIX ASPERSA MÜLLER IN SKINCARE

Helix Aspersa Müller produces a secretion rich in proteins of high and low molecular weight hyaluronic acid and antioxidants. The secretion of the snail has a double function when applied to human skin: on one hand it is claimed to stimulate the formation of collagen, elastin and dermal components (ECM, much like the pig

bladder in the aforementioned references does), that repair the signs of photoaging and, second, is claimed to minimize the damage generated by free radicals that are responsible for premature skin aging.

The website: <http://odili.net/news/source/2011/nov/3/13.html> gave the following quote:

The study is titled "Molecular Basis for the regenerative Properties of a Secretion of the Hélix Aspersa Müller.

The researchers from Spain and United States found that the snail slime secretion contains antioxidants are substances that may protect cells from the damage caused by unstable molecules known as free radicals or reactive oxygen species (ROS). SODs act as antioxidants and protect cellular components from being oxidized by reactive oxygen species.

"In addition the snail slime stimulates fibroblast proliferation and rearrangement of the actin cytoskeleton. Additional mechanisms involved in its regenerative effect include the stimulation of extracellular matrix assembly and the regulation of metalloproteinase activities. Together, these effects provide an array of molecular mechanisms underlying the secretion's induced cellular regeneration and support its use in regeneration of wounded tissues," they wrote.

It has been shown that skin ageing is the result of a complex process where genetics as well as chronological and environmental factors (particularly ultra violet UV radiation) are involved. Skin aging manifests as wrinkles, diminished structural integrity and impaired wound healing due to alterations in the remodeling process of the extracellular matrix (ECM). Several studies have shown that two of the basic skin components, collagen and elastin, impart strength and their degeneration with the passing of time causes skin to become fragile, and aged in appearance.

The search of substances with regenerative properties has led many pharmaceutical companies to develop extensive search programs aimed to identify natural products that can induce skin regeneration or stimulate natural regeneration.

In this regard, it has been noted that escargots (snails) perceive radiation, retract their orientation organs, and secrete large amounts of mucous substances as a defensive response in order to protect themselves from harmful radiation.



In addition, escargots never suffer from skin infections, which directed researchers' attention to the possibility of using this secretion as a possible treatment of skin-compromising diseases.



An early study showed that a secretion from the *Helix Aspersa Müller* induces skin regeneration after wound healing impairment from acute radiodermatitis. However, the molecular basis underlying this effect were unknown.

The researchers responsible for this report evaluated the regenerative properties of the secretion using multiple *in vitro* approaches. They found that it possesses antioxidant capabilities and induces fibroblast proliferation.

A complementary mechanism is provided by the fact that the secretion promotes ECM (Extra Cellular Matrix) assembly, which is essential for wound healing and tissue plasticity.

The researchers wrote: "Finally, the secretion inhibits Matrix Metalloproteinases (MMP) production, which limits the extent of the damage during wounding and scar formation. MMP are naturally produced enzymes that help regulate the skin's ability to repair itself. Together, these mechanisms contribute to the observed beneficial effects of the snail secretion and support its use in regenerative therapy."

They added: "Furthermore, application of the secretion twice daily for three months also results in a significant improvement of clinical and histopathological photoageing signs. However, the molecular foundations of the beneficial effect of the secretion remained unknown. The cited report shows *in vitro* analysis of several possible contributions to the physiological effect of the snail's secretion. First, it was found that the snail's secretion bear antioxidant activities as well as free radical scavenging capability.

"The role of oxidation in wound healing is controversial, but there is a clear correlation between enzymatic and non-enzymatic cutaneous antioxidants and its protection from ROS-mediated skin damage induced by UV radiation. Indeed, UV radiation can decrease endogenous antioxidant levels and lead to increased damage. In these cases, antioxidant compounds can modulate abnormal remodeling after trauma or prevent or reverse clinical signs associated with photoaging secondary to ROS."

Dresden International School (Germany). Chemistry teacher Mr. Keith McCanna.

*STUDY: How does the addition of specific catalytic enzymes affect the viscosity of mucus from the snail *Helix Aspersa Muller*, in relation to possible treatments for patients suffering from Cystic Fibrosis.*

