

DRAGON'S BLOOD

DRAGON'S BLOOD is a hydro-glycolic extract obtained from the latex of the tree *Croton lechleri*, with multiple beneficial properties for skin care treatments. **ECOCERT validated**

The solvent used is a highly purified glycol, derived from a sustainable and renewable corn sugar fermentation process. It is made **100% all Natural Corn Sugar** and is the best alternative used in personal care formulations to replace petroleum-based glycols such as Propylene glycol and Butylene glycol.

Dragon's Blood contains no added preservatives, petroleum based ingredients or animal by-products

INCI Denomination

Propanediol, Water, Croton lechleri resin powder

Description



FAMILY: Euphorbiaceae

GENUS: Croton

SPECIES: *Croton lechleri* sp.

SYNONYMS: Draco de Croton

COMMON NAMES: Sangre de Drago, Sangre de Grado, Sangre de Dragón, Ian Huaqui, Pucure, Chojilla, Rucurana, Shamborico

BOTANICAL NAME:

Croton Lechleri Muell. Arg

PART USED: Bark, latex, resin and leaves

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HABITAT

It grows in America, at tropical and subtropical areas, mainly in the upper Amazon region of Peru, Ecuador and Colombia.

DESCRIPTION

It is a medium-sized to large tree, belonging to the family of EUPHORBIACEAE. Sangre de drago is a medium-sized to large tree that grows from 10–20 m high in the upper Amazon region of Peru, Ecuador, and Colombia. Although tall, the trunk is usually less than 30 cm in diameter and is covered by smooth, mottled bark. It has large, heart-shaped, bright-green leaves and unique, greenish-white flowers on long stalks. Its Peruvian name, sangre de drago, is Spanish for “blood of the dragon”. When the trunk of the tree is cut or wounded, a dark red, sappy resin oozes out as if the tree is bleeding—earning this local name. The genus *Croton* is a large one, with 750 species of trees and shrubs distributed across the tropical and subtropical regions of both hemispheres. *Crotons* are rich in active alkaloids, and several species are well-known medicinal plants used as purgatives and tonics.

TRADITIONAL USES

Sangre de drago's red sap or latex (and also its bark) has a long history of indigenous use in the rainforest and in South America. The earliest written reference dates its use to the 1600s, when Spanish naturalist and explorer P. Bernabé Cobo found that the curative power of the sap was widely known throughout the indigenous tribes of Mexico, Peru, and Ecuador. For centuries, the sap has been painted on wounds to staunch bleeding, to accelerate healing, and to seal and protect injuries from infection. The sap dries quickly and forms a barrier, much like a “second skin.” It is used externally by indigenous tribes and local people in Peru for wounds, leucorrhea, fractures, and hemorrhoids, as well as internally for intestinal and stomach ulcers. Other indigenous uses include treating intestinal fevers and pyorrhea, in vaginal baths before and after childbirth, for hemorrhaging after childbirth, and for skin disorders.

Sangre de drago resin and bark are used in traditional medicine in South America today in much the same manner as indigenous ones. In Peruvian herbal medicine it is recommended for hemorrhaging, as an antiseptic vaginal douche and, topically, for healing wounds. It is also used internally for ulcers in the mouth, throat, intestines and stomach; as an antiviral for upper respiratory viruses, stomach viruses and HIV; internally and externally for cancer and, topically, for such skin disorders as eczema, as well as insect bites and stings. In Brazilian traditional medicine the sap is currently used for wounds, hemorrhaging, diarrhea, mouth ulcers, and as a general tonic.

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EXTRATION METHOD

The extraction of the latex must be done without bending the tree, the "shinguero" method, which is to make a spiral cut or a cut in a "V" form on the bark at chest height. With a spiral cut from left to right, a better yield of latex is obtained. The facts that have influence on the amount of latex collected are: Sun radiation, tree diameter, angle of the cut, rain and lunar phase. As example, the yield in a rainy morning was of 250 cc at a 35 cm diameter tree and 3.000 cc as 50 cm diameter tree. At the Ucayali region, the flowering is from June to August, while the fruits come out place in September. A tree plantation will give its best of the latex after 8 years from planted



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SUSTAINABLE DEVELOPMENT – SUPPORT TO LOCAL COMMUNITIES

3QP (Peru) and Cobiosa (Spain) are the associated companies extracting and commercializing Peruvian plants. This association is devoted to support the discovery and sustainable exploitation of Peru's natural resources for the cosmetic industry.

We have the commitment of giving the highest priority to indigenous, botanical ingredients for the purpose of supporting the development of local communities and the principles of fair trade. At present, we are working with APOLPAWA ASSOCIATION. This is an organization formed in its totality by Quechua speaking farming producers, of the province of Lamas, in the region of San Martín. APOLPAWA works with 41 farmers, which in average has 4 children each one.

In this sense, the association with APOLPAWA is a warranty that the products are cultivated not depreeding the Peruvian natural resources, and with sustainable collection, education and support of local communities.



APOLPAWA



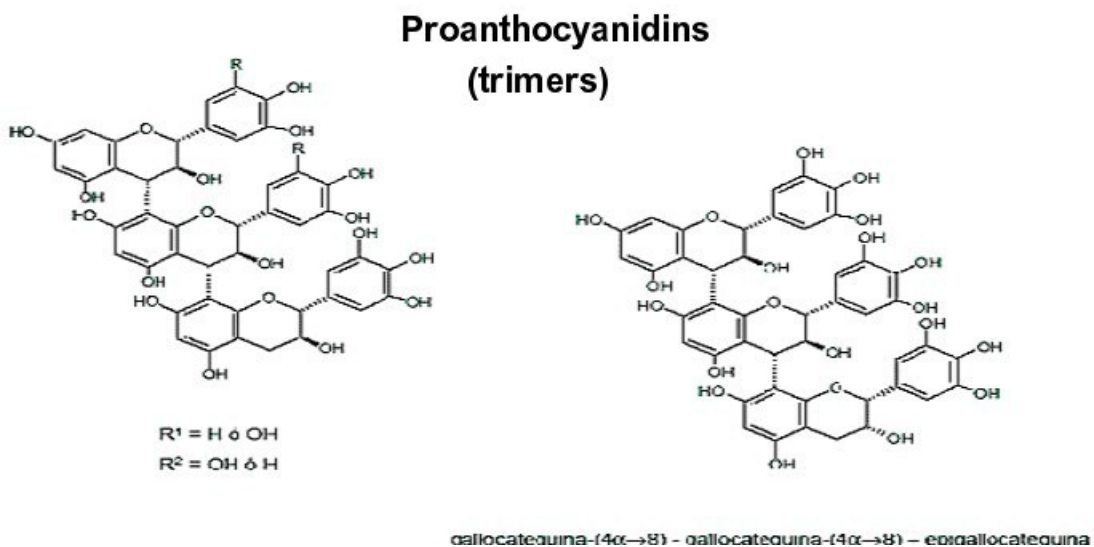
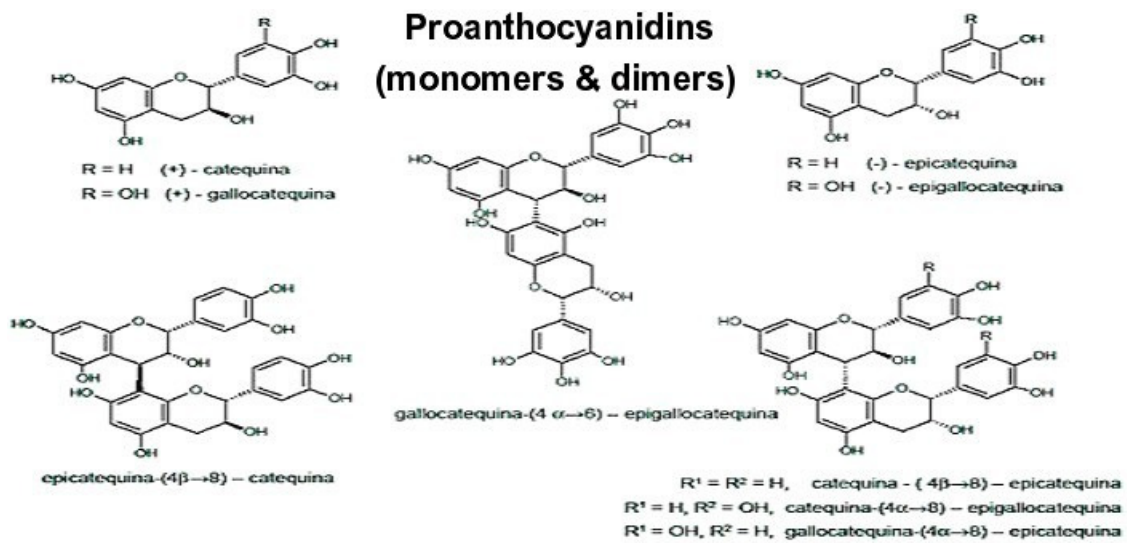
**ASOCIACION DE PRODUCTORES ORGANICOS DE LAMAS
PALLAKUSHPA WAKAYCHASHPA
ALLPAINITA**

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MAIN COMPONENTS

FLAVONOIDS (antioxidants)

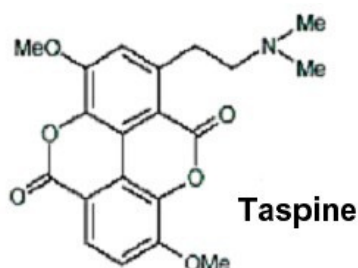
Over 90% of the isolated dried weight of the dragon's blood of *Croton lechleri* are **Proanthocyanidins**, which include such as catequins as well as proanthocyanidinic oligomers of up to 20 units. These compounds have strong anti-oxidant properties and they protect and strength the collagen fibres.



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ALKALOIDS

The latex of *Croton lechleri* contains **Taspine**, which was the first component to be related to a pharmacologic activity. The amount of taspine can vary from 1.3% to 20.4% from the dried weight, with an average of 9%. From the Croton generous, 30 alkaloids have been isolated, 22 of them with known structure. The main ones are: Solutaridine, taspine, sinoacutine, and sparciflorine



In-vivo tests show that **Taspine** has a powerful cicatrizant effect. It promotes the early phases of wound healing and its mechanism of action could be related to the stimulation of fibroblast chemotaxis

LIGNANS AND OTHER MINOR COMPONENTS

Among the minor components there is also a lignan named **3',4-O-dimethylcedrusine**, diterpens and unsaturated fatty acids. We can also find benzoic acid, pigments, flavonoids...

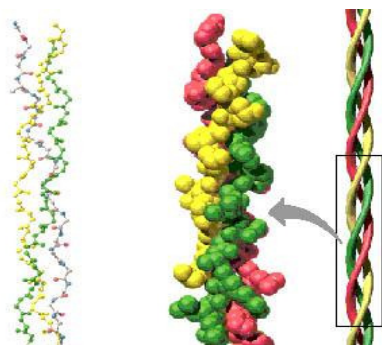
Effects in Cosmetic Products

DRAGON'S BLOOD has several benefits that can be used at cosmetic formulations: the most documented are the anti-inflammatory and wound-healing effect, thanks to its high content in Taspine, 3'-4-O dimethylcedrusine and the polyphenols (catequins and proanthocyanidins).

Is used to support skin repair and regeneration, and fight the effects of aging.

It also improves the barrier function, acting as a "**second skin**". Applied to the skin, forms a long-standing barrier, probably due to its ability to co precipitate with proteins or other matrix elements.

1. WRINKLE "FILLER" AND CITRATRIZANT ACTION



Collagen fibres are structural proteins located at the dermis. Together with elastin make a supportive and elastic net which gives the skin its firmness and elasticity.

As we age, the capacity of the skin to renew the collagen fibres decreases and the skin starts losing its firmness and the first wrinkles appear.

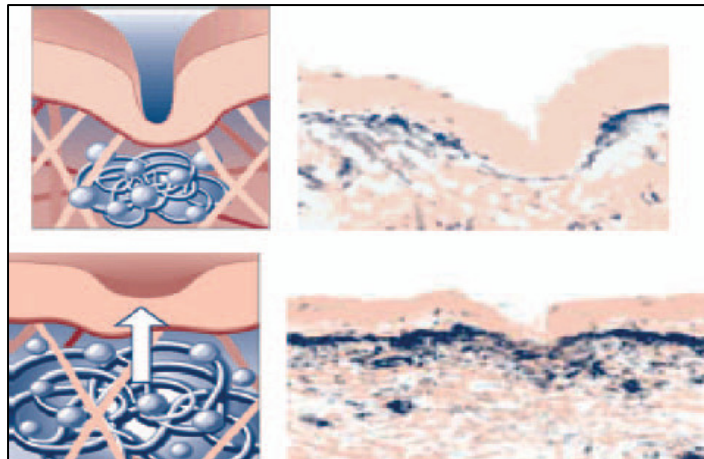
The *proanthocyanidins* have the unique capacity of joint the collagen fibres, as they can reconstruct the collagen links and reverse the damages received by the free-radical actions.

Moreover, the proanthocyanidines inhibit the action of body enzymes which, in a natural way, destroy the collagen fibres. These marvellous substances help thus to recover the flexibility and firmness of the skin, filling the wrinkles made after the braking of the collagen net.

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There are links established between the collagen fibres of the skin. The tannins and macromolecules are combined thanks to the phenolic groups of the first, making hydrogen bridges. At the same time, some covalent links are made, which assure that the links will last in time.

Dragon's Blood is used mainly because its cicatrising action. There are many in-vitro and in-vivo tests showing that it helps at the wound contraction, it stimulates the scab formation and regenerates quicker the skin by promoting the collagen production and the fibroblasts migration

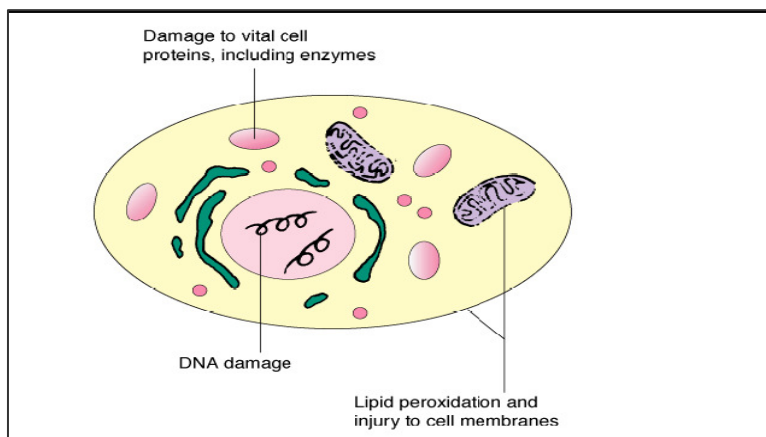


This action is made thanks to the Taspine and, again, the proanthocyanidines. While each of these components alone has showed to effectively heal wounds, the whole Dragon's Blood was shown to speed healing four times faster. The whole was better than the sum of the parts. Synergy makes the whole plant stronger and it heals 10 to 20 times faster than allowing the skin to repair itself with no help.

Following the studies performed, taspine promotes the earlier phases of the wound heal, and its actions could be related to the fibroblast chemotaxis stimulation.

2. STRONG ANTI-FREE RADICAL ACTIVITY (ORS AND NRS)

Free-radicals are components with a strong and powerful oxidation activity. Most free-radicals produced in-vivo have their origin at oxygen reactive species (ORS) and nitrogen reactive species (NRS). They can have exogenous origin (sun radiation, contamination, cigarettes) or endogenous origin (stress, cell respiration, etc)



At normal conditions, our skin is capable to keep a balance between the free-radicals received (exogenous or endogenous) and the systems to neutralize their actions. If this balance is broken, then the oxidative stress is produced and it has harmful consequences at the skin tissues and cells, inducing premature skin aging.

Free-radicals attack mainly and specially to the cell membranes, causing its destruction. These membranes are the delicate support of the genetic map of our cells, which nucleus contains the DNA. The integrity of the

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membrane protects the DNA and the live of the cell. Free-radicals also directly attack the vital proteins of the cells, including the enzymes.

DRAGON'S BLOOD works improving the natural defence system of the body, against the bad effects of modern life.

Antioxidants are nutritive substances that can stop or delay the oxidative process of the free-radicals. Among the anti-oxidants, the proanthocyanidins are very effective, yet they are still not well known.

Several studies have demonstrated that the proanthocyanidins have an important counteracting action to the damage received by free-radicals, and they can have a very important role at delaying the aging of the skin. The proanthocyanidins are one of the most efficient free-radical killers known. In-vitro test have demonstrated that, as anti-oxidants, they are 50 times more efficient than vitamin E, and 20 times more than vitamin C.

The oligomeric Proanthocyanidins are structured in such a way, that they can give an electron freely, without altering its valence. This means that they can stabilise free-radicals without turning dangerous. In fact they can continue giving up electrons until they finish with all of them. For this reason, one molecule can neutralize several free-radicals.

Condensate tannins, (oligomeric proanthocyanidins) and, in general the phenolic acids, polyphenols and flavonoids have anti-oxidant activity thanks to capacity of chelating free-radicals. The proanthocyanidins (see chemical composition) have a higher chelating capacity because they have more places to sequestrate the free-radicals.

DRAGON'S BLOOD is indicated for face and body treatments as:

- Anti-Aging treatments.
- Formulations with Anti Free-Radicals activity. Premature aging prevention.
- After sun or sensitive skins formulations. Protective treatments
- Treatments for pregnancy and after-birth products
- Products to increase skin elasticity
- Anti-Wrinkle formulations

DRAGON'S BLOOD

Dosage – Solubility – Processing

A- DOSAGE:

From 3 to 5 %.

B- SOLUBILITY:

Hydro-soluble.

C- PROCESSING:

DRAGON'S BLOOD is compatible with most of the raw materials normally used in cosmetics, nevertheless it is the duty of the formulator to make sure of the stability of the formulae with the necessary tests.

It would be preferably incorporated into cosmetic preparations during the oil phase preparation.

Analytical Data

- APPEARANCE: Liquid, dark red colored.
- Density (at 20 °C): 1,030 – 1,050
- Refraction index (at 20 °C): 1,385 - 1,395
- pH (Pure product): 4,00 – 6,00

- PRESERVATIVES: None

- MICROBIOLOGY: Total germs: ≤ 50 cfu/gr
Pathogen: Absence

- TOLERANCE: Excellent.

- STORAGE: Store at room temperature (10 to 25 °C), dry and away from light.

If original container is opened, to avoid secondary microbiological contamination handle with special care and keep refrigerated (4 °C).