

Tepescohuite



CareMotives

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Tepescohuite



BOTANY

Mimosa tenuiflora L. Common name: *tepescohuite*, member of the Mimosaceae (Fabaceae) family, this deciduous tree or bush grows up to 2-5 m (8 m maximum) in height; the bark is rough, grayish or reddish-brown; the branches bear glandular hairs armed with dispersed straight thorns; the leaves are compound, bipinnate, with 10-30 leaflets pairs (3-6 mm long, 1-2 mm wide) with resinous dots; the flowers are whitish, clustered in 3-6.5 cm long spikes; the fruits are short-stemmed pods, reddish-brown when ripe.

This species is endemic to North America (in Mexico, it is spread throughout the southeast regions of Chiapas and Oaxaca), Central America (Honduras, El Salvador, Nicaragua and Panama) and the north of South America (Colombia, Venezuela and Brazil). It grows in prairies, hills or steep slopes up to 110-1500 m altitude.

Tepescohuite extract is produced from the bark of *Mimosa tenuiflora*.



CHEMISTRY

Saponins

Saponins can be found in the bark; they are of the triterpenoid type: mimonosides: A-C and the spheroid type: derivative of lupeol, campesterol, stigmasterol and β -sitosterol.

Flavonoids

Kukulkanin A and B (methoxychalcones) in the stems.

Other active principles

Condensed tannins, oligoelements and minerals (zinc, magnesium and manganese), indol alkaloids (N,N-dimethyltriptamine, indole-alkylamide).

TRADITIONAL USES

The main traditional use of tepescohuite is focused on skin wound and burn healing. It is widely applied as humid bandages soaked with a very concentrated decoction of bark fragments in water. It is also used as a mouthwash to treat mucosa wounds or bleeding gums.

COSMETIC PROPERTIES

Wound healing activity

The saponins purified from tepescohuite bark (called *mimonosides*) have shown *in vitro* cell-proliferative effects, as tested on cultures of lymphatic cells, murine thymocytes and mice and human fibroblasts (Alonso J, 2004).

Applied topically, tannins coat the outermost layers of skin and mucosa, thus protecting the deeper layers. These compounds also act as vasoconstrictor agents on small superficial vessels. By restricting fluid loss and preventing environmental damage, tannins promote tissue regeneration (epithelization) in superficial wounds or burns (Bruneton J., 2001).



European dermatologists have verified the epithelizing properties of tepescohuite bark on patients suffering different degrees of skin burn. They additionally found increased microcirculation and inhibition of free radicals formation (free radicals have deleterious effects on small vessels).

Clinical studies conducted at the Dermatology Department of Mexico General Hospital demonstrated that bark powder directly applied on skin ulcers produces local anesthesia and induces tissue regeneration, evidenced as epidermal growth, thus contributing to the wound healing process (Alonso J, 2004).

Therefore, tepescohuite extract is recommended to formulate cosmetic products with epithelizing and firming activities.

Antimicrobial activity

Different extracts (ethanol and aqueous) of the bark of this tree showed *in vitro* inhibition on microorganisms typical of skin infections: *Escherichia coli*, *Staphylococcus aureus*, *Pseudomonas aeruginosa*, *Klebsiella pneumoniae*, *Staphylococcus epidermidis*, *Proteus vulgaris*, *Acinetobacter calcoaceticus*, *Bacillus subtilis* and *Candida albicans*. Highly significant results were also observed on cultures of the fungi: *Microsporum canis*, *M.gypseum*, *Trichophyton rubrum* and *T.mentagrophytes*. This inhibitory activity is due to the condensed tannin (ellagitannins), which also produce the topical wound healing effects (Alonso J, 2004).

Therefore, tepescohuite extract is recommended to formulate cosmetic products with purifying and antiseptic activity.

Anti-seborrhea activity

This activity is due to the saponin content of tepescohuite. Saponins have detergent or tensioactive properties, because they contain hydrosoluble and liposoluble components, consisting of a liposoluble nucleus of steroidal or triterpenoid structure, bearing one or more hydrosoluble carbohydrate lateral chains Cheeke PR, 2000).

Furthermore, tepescohuite bark is rich in tannins, which have a strong astringent activity. The astringent action of tannins is due to their ability to form complexes with different substances (Bruneton J., 2001). Alopecia is often associated to excessive sebum amount in the scalp, an expected finding if we take into account the androgen-dependency of the sebaceous glands. Therefore, tensioactive agents that reduce sebum secretion contribute to the treatment of seborrhea-alopecia (Lemmel Montoya J, 2006).

Therefore, tepescohuite extract is of great use to formulate cosmetic products with sebum-regulatory and anti-alopecia activities.



Finally, we would like to mention that the reference publication *Plants in cosmetics. Volume II* (Council of Europe, 2001) includes a monograph dedicated to the hydroalcoholic extract of *Mimosa tenuiflora* bark, where the following cosmetic properties are attributed to it:

- Soothing, calming, protective, purifying

up to 2% in products for cracked lips and skin, pre- and after-sun products, detergents, anti-ageing products, hair lotion, mouthwash and toothpaste.

- Further possible uses include: anti-inflammatory, antimicrobial, granulation promoter agent, treatment for UV-induced skin burn and erythema, inhibitor of collagenase, elastase and hyaluronidase.

COSMETIC APPLICATIONS

Action	Active	Cosmetic Applications
Wound healing	Saponins Tannins	-Epithelizing -Firming
Antimicrobial	Tannins	-Purifying -Antiseptic
Antiseborrhea	Saponins Tannins	-Sebum-regulator -Hair care

RECOMMENDED DOSE

The recommended dose is between 0.5% and 5.0%.



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