

## ESPINHEIRA SANTA

**Scientific name:** *Maytenus ilicifolia* Mart.

**Family:** *Celastraceae*

**Popular names:** espinheira-santa <sup>(1)</sup>.

**Used parts:** dried leaves <sup>(1,2)</sup>.

**Botanical characteristics:** The plant grows as a dioecious evergreen shrub or tree, reaching up to 5 m high. The leaves are alternate, 2 to 15 cm long and 1 to 7 cm wide. They are elliptical to lanceolate, coriaceous and covered on both sides with 4 to 7 prickly teeth. Sometimes the leaves are completely entire, with very narrow, dropping stipules. The flowers are in clusters in the leaf axils; the bracts have a reddish border. The flowers are radial; their structures are in fives. The calyx is reddish and 5-tipped. The petals are free, oval to elliptical and yellow. The male flowers have 5 stamens approximately 2 mm long with their ovary covered by a disc. The female flowers have 1 mm long stamens and a 2-lobed, fused ovary on a thick fleshy disc. The fruit is a reddish, 2-chambered capsule. The seeds are reddish with a thin aril <sup>(2)</sup>.

**Habitat:** The plant is indigenous to South America <sup>(2)</sup>.

**Chemical composition:** macrocyclic alkaloids (maytansinoides as maytansine, maytanprine and maytanbutine)<sup>(2)</sup>, terpenes (maytesina), tannins, flavonoids, mucilages, antocians, free sugars. <sup>(1)</sup>, cangorosin A, atropcangorosin A, dihydroatropcanorosin A, cangorosin B<sup>(3)</sup>, cangoronine, ilicifoline <sup>(4)</sup>.

**Indications:** topic treatment of basal cell carcinomas <sup>(2)</sup>, ulcer-preventing <sup>(1,2)</sup>, contraception <sup>(3)</sup>, asthma <sup>(5)</sup>, antimicrobial and tumor-inhibiting properties, significant cytotoxic and antitumoral efficacy <sup>(2,7)</sup>, antiseptic, mild diuretic and laxative <sup>(1)</sup>, antiulcerogenic effect <sup>(1,2,6)</sup>, sialogogue, antiasmatic <sup>(5)</sup>.

### Dose:

- Infusion/ decoction: 2 to 5 % - 100 to 400 ml internally. Externally as required <sup>(2)</sup>.
- Powder: 5 to 20 g daily <sup>(2)</sup>.
- Liquid extract: 5 to 20 ml daily <sup>(2)</sup>.
- Extract: 1 to 4 g daily <sup>(2)</sup>.
- Tincture: 25v to 100 ml daily <sup>(2)</sup>.
- Elixir/wine/syrup: 50 to 100 ml daily <sup>(2)</sup>.

## Others informations:

- Contraindicated during pregnancy and breastfeed<sup>(2)</sup>.
- Reactive oxygen species (ROS) have been implicated as the primary destructive intermediates in a wide range of environmental conditions as well in an increasing number of human disorders (mutagenesis, apoptosis, aging). SnCl<sub>2</sub> has been used as a reducing agent in medical procedures. The *Maytenus ilicifolia* extract has biological effect against the lethal action of the SnCl<sub>2</sub> could be probably due to redox properties of these crude extracts. The compounds in the crude extracts could chelate stannous ions, protecting them against the oxidation and avoiding the generation of ROS, be a scavenger of the ROS generated by the SnCl<sub>2</sub> oxidation and/ or have oxidant compounds that could oxidize the stannous ions abolishing or reducing the SnCl<sub>2</sub> effect<sup>(7)</sup>.

## References:

1. TESKE, M.; TRENTINI, A. M. M. **Herbarium compêndio de fitoterapia**. 3. ed. Curitiba: Herbarium, 1997.
2. MEDICAL ECONOMICS COMPANY. **PDR for herbal medicines**. 2. ed. Montvale: Copyright, 2000.
3. ITOKAWA, H. et al. New triterpene dimers from *Maytenus ilicifolia*. **Tetrahedron letters**, V.31, n. 47, p. 6881-6882, 1990.
4. ITOKAWA, H. et al. Triterpenes from *Maytenus ilicifolia*. **Phytochemistry**, v. 30, n. 11, p. 3713-3716, 1991.
5. ZHU, N.; SHARAPIN, N.; ZHANG, J. *Three glucosides from Maytenus ilicifolia*. **Phytochemistry**, v. 47, n. 2, p. 265-268, 1998.
6. QUEIROGA, C.L. et al. Evaluation of the antiulcerogenic activity of friedelan-3--ol and friedelin isolated from *Maytenus ilicifolia* (Celastraceae). **Journal of Ethnopharmacology**, v. 72, p. 465-468, 2000.
7. MELO, S. de F. et al. Effect of the *Cymbopogon citratus*, *Maytenus ilicifolia* and *Baccharis genistelloides* extracts against the stannous chloride oxidative damage in *Escherichia coli*. **Mutation Research**, v. 496, p. 33-38, 2001.