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Pharmacobotanical study of flowers of *Brugmansia suaveolens* (Willd.) Sweet (Solanaceae - Solanoideae)

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Graphical Abstract

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Abstract.
Brugmansia suaveolens (Willd.) Sweet (Solanaceae), widely distributed around the world, is a source of several secondary metabolites, mainly tropane alkaloids, such as atropine and scopolamine. In addition, its large, white and showy flowers are used as ornamental, and as medicinal also, and involved in events of intoxication. Although it is a species of ethnobotanical importance, with chemical constituents already isolated, morpho-anatomical and histochemical studies are still lacking for its floral structures. In this work, a morpho-anatomical and histochemical study of flowers of *Brugmansia suaveolens* was carried out, with the aiming to find additional characters that could support its characterization, taxonomy and the quality control of its ethno-drugs. The anatomical study was conducted following the usual techniques in plant anatomy. *Brugmansia suaveolens* has big flowers, 20-30 cm long x 10 cm diameter, calyx sympetalous, and corolla sympetalous. Ovary superior, elongate-conical, 2-loculed with many ovules on an enlarged placent; the stigma elongate, 2-lobed and exceeding the anthers. Stamens isodynamous,

	anthers with longitudinal dehiscence, the filaments inserted near the top of the tube, sometimes geniculate, the anthers linear. The anatomic study revealed the peduncle with eustelic vascular system, with a central cylinder with vascular bundles that is separated by inter-fascicular parenchyma. The petal epidermis has straight to curved anticlinal cell walls on the both faces, unlike the sepal epidermis with sinuous anticlinal cell walls, on both sides, both structures are hypostomatic with anisocytic and anomocytic stomata. In transverse-section, sepals and petals showed epidermis uniseriate, the mesophyll with homogeneous parenchyma. Histochemical tests in the peduncle and sepals revealed more expressive reaction for alkaloids. Anatomical characteristics of the of the petals and sepals epidermis, and the vascular system of the peduncle are described here for the first time, as well as the histo-localization of alkaloids in the flowers of *B. suaveolens*, which may contribute to the knowledge of the species and the genus *Brugmansia*, providing subsidies for the taxonomy, and for the quality control of its medicinal potential drugs. Financial support: CAPES and CNPq. **Keywords**: *Datura* L., angel's trumpet, trumpet, morpho-anatomy, alkaloid.

Introduction *(optional)*

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Materials and Methods *(optional)*

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Results and Discussion *(optional)*

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Conclusions *(optional)*

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References *(mandatory)*

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