

Ilex paraguariensis A. St.-Hil.

Standardized Common Name: Maté

Other Common Names: Paraguay Tea, Yerba Maté

Family: Aquifoliaceae

Taxonomy: *Ilex*, the genus to which holly belongs, is taxonomically messy, with estimates of species numbers ranging from 400 to 500 or even 800. It is distributed worldwide, especially in the Americas and in Asia. *Ilex paraguariensis* is native to Brazil, Argentina and Paraguay, where it is often cultivated. Only a few related species are present in Argentina and Paraguay. Brazil has several dozen species of *Ilex*, for which no recent comprehensive treatment exists. Some of these occur in similar habitats and might be confused with *I. paraguariensis*. *Ilex paraguariensis* is a variable species, both in nature and in cultivation, and may be divided into three varieties, of which var. *paraguariensis*, a glabrous-leaved tree, is by far the most widely distributed and commonly utilized.

Description: Evergreen tree or large shrub, to 16(–30) m high. Young twigs slightly angled to striated. Leaves elliptic-obovate to obovate or rarely broadly elliptic, (3–)5–14(–25) cm long, (0.8–)2.5–6.5(–10.0) cm broad, leathery; petiole (2–)5–12(–19) mm long; base cuneate to oblique; apex obtuse to rounded or rarely acuminate; margin slightly revolute, shallowly serrate to crenate or wavy except near the base; venation pinnate. Plants dioecious; inflorescences axillary; male inflorescences few-flowered cymes, female flowers usually solitary. Flowers small, 5–7 mm in diameter; calyx 4- or rarely 5-lobed; petals 4(–5), greenish white, fused near the base and spreading; anthers 4(–5), filaments fused at base to corolla; ovary compound, 4-carpellate. Fruit a berrylike drupe, globose, red to reddish brown, 5–7(–10) mm in diameter, containing 4(–6) “seeds” (pyrenes).

Parts in Commerce: Leaves

Identification: Material in commerce is usually broken into small pieces when it is dried (and sometimes roasted) in South America, before it is shipped. This makes identification less convenient for purchasers, as the leaf size is not observable and features of the leaf shape and margin are not readily discerned. Depending upon the material, most of the following features may be visible:

- Leaves thick-textured and leathery, pale green (or brown if roasted)
- Leaf surfaces smooth, glabrous, without dark glands
- Petiole short, usually <1.5 cm long, hairless or slightly short-pubescent
- Base tapering, with narrow wings of tissue extending down sides of petiole
- Apex obtuse to rounded, normally not acuminate and never with a short sharp projection (mucron)
- Margins usually slightly revolute, slightly serrate to wavy in upper part of leaf
- Midrib prominent, yellowish, conspicuously raised on basal portion of lower surface, near apex becoming much flatter and weaker
- Both surfaces glabrous; rarely slightly pubescent along midrib
- Secondary venation pinnate, weak, often slightly raised beneath
- Taste astringent

Adulterants: Several other species of *Ilex* have similar traditional uses and have been reported as adulterants of *I. paraguariensis*. The larger leaves of *I. paraguariensis* are normally >2 cm broad; a few of the known substitutes have much smaller leaves, usually not over 1 cm broad or 2–3 cm long. It may be possible to determine if broken material is composed primarily of such small leaves. Other features that would demonstrate the presence of the wrong species include:

- Margins completely entire
- Apices acuminate or mucronulate
- Lower surface bearing dark glands

- Pubescence extending beyond the petiole and midrib
- Midribs that are prominently raised near the apex
- Petioles long
- Petioles lumpy, leaf bases not tapering

However, in broken material it would be essentially impossible to detect a mixture of genuine material with certain related species by morphological examination. Brieger (1995) discusses microanatomical and phytochemical characteristics of several species.

References:

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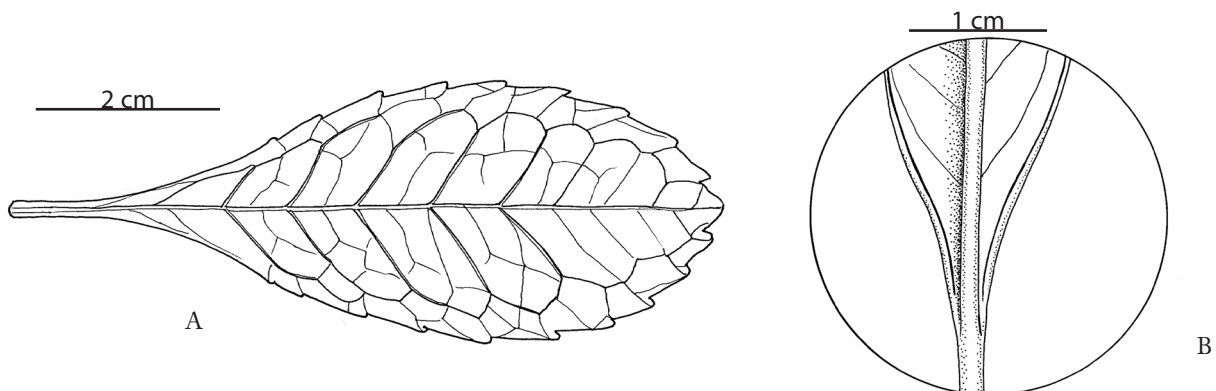


Figure 35: a–b, *Ilex paraguariensis* leaf and close-up of lower surface at base.