Zanthoxylum kellermanii P. Wilson

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RUTACEAE (RUE FAMILY)

Zanthoxylum mayanum Standl., *Z. panamense* P. Wilson

Acabu, alcabu, arcabu, lagartillo, lagarto, prickly holly, rabo de lagarto, tachuelillo

Zanthoxylum kellermanii grows from southern Mexico to Colombia and Venezuela.

Zanthoxylum kellermanii is a fast-growing tree that reaches 15 to 30 m in height and up to 80 cm d.b.h. The trunk is straight and cylindrical. The brown-gray bark has few suberized lenticels and is armed with vertically flattened prickles. The crown is rounded with ascending branches. The branchlets are strigilate to glabrate, and sometimes armed with small, sharp prickles. Leaves are alternate, without stipules, odd- or rarely even-pinnate, and 17.5 cm long. Petiole and rachis are occasionally armed with yellowish prickles, caniculate above, and minutely puberulent to strigose or glabrous. Leaflets are 6 to 17 cm long, opposite or subopposite, obovate or elliptic to oblong, abruptly acuminate or rounded apically, cuneate and inequilateral basally, the margin entire to obscurely crenulate, more or less revolute, subcoriaceous, lustrous above and paler beneath, and minutely puberulent or strigose to glabrous. Leaflets occasionally have one or more sharp yellowish prickles beneath on the midrib; they may be subsessile or have a petiolule up to 7 mm long. The blade is pellucid and punctate throughout, with punctations of two sizes. The species grows in a wide range of soil types but is better adapted to those with good drainage. In Mexico, the tree grows in deep lateritic soils with good drainage (Pennington and Sarukhan 1968). The species is found in the wet lowlands at elevations of 50 to 500 m, annual rainfall of 3000 to 5000 mm, and average temperature of 23 to 26 °C.

Zanthoxylum kellermanii may be closely related to *Z. mayanum* (Pennington and Sarukhan 1968). Moreover, this species may not be specifically distinct from *Z. panamense* (Porter and Elias 1979), a species of the monsoon forest and evergreen seasonal forests found primarily on the Caribbean side of the Continental Divide. In this description, *Z. mayanum* and *Z. panamense* are synonyms for *Z. kellermanii*; nevertheless, further field and herbarium studies will provide a more precise answer to this taxonomic question.

The rather hard and moderately heavy (specific gravity 0.39) yellow wood is used for fine cabinetwork because it has a very attractive jasper (Pennington and Sarukhan 1968). The wood has also been used in the construction of houses in rural Mexico.

Zanthoxylum kellermanii flowers in April and June and August through October (Porter and Elias 1979). Staminate panicles are axillary, crowded subterminally, many-branched, and 25 cm long with green-white flowers. Carpellate panicles are terminal, branched, 18 to 14 cm long, with puberulent or strigose branches and green female flowers with a three-lobed, globose ovary. Brown to dark red, subglobose fruits have one to four follicles and are punctate glandular, strigilate, and 3 to 6 mm in diameter. Seeds are subglobose, black, lustrous, and minutely pitted. The tree fruits in April, May, July through September, November, and December (Porter and Elias 1979). The fruits can be collected December through January, and good crops have been observed every 2 years (Segundo Encuentro Regional Sobre Especies Forestales Nativas de la Zona Norte y Atlantica de Costa Rica 1994).

Fruits are collected by hand from the ground or the tree. Fruits are laid on blankets in the shade to promote fruit dehiscence. Once the seeds have accumulated on the blankets, the empty fruits are gathered by hand and the seeds are ready for planting in nursery banks. Fruits from *Z. kellermanii* collected from the ground during the months of March and April produce an average yield of 21,600 seeds per kg with a moisture content of 53 percent.

Germination is epigeous and generally occurs 35 to 90 days after planting with a germination rate of 47 percent (Nichols and Gonzalez 1991a, 1991b). When seeds are washed in a soap solution, which apparently eliminates an oily film that covers the seed, germination is 90 to 100 percent (Rodríquez 1996b). However, germination percentage also appears to vary by the provenance and the year of collection,

even in the same individual tree. After pretreatment, seeds planted in good-textured soil (silty sand) germinate in 45 to 90 days. River sand can also be used as the germination substrate.

After 90 days the seedlings are transferred to plastic bags filled with a sandy-clay soil and placed in the shade for 15 to 30 days. Seedlings can be outplanted after 6 months in the nursery.

Three species of insects, *Achyloides bursirus* (Lep., Hesperiidae), *Atta cephalotes* (Hym., Formicidae), and *Papilio anchisidiades* (Lep., Papilionidae) attack the foliage of *Z. kellermanii* (Arguedas and others 1993).


2cm
2cm