

## SUBGENERIC CATEGORIES OF PITHECELLOBIUM MART.

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*Pithecellobium* (Leguminosae — Mimosoideae — Ingeae) was published by Martius in 1829. Derivation of the name is from the Greek, meaning "monkey earring", alluding to the fruit shape of one of the species. Martius changed the spelling in 1837 to *Pithecollobium*. It is thought by some workers that this change is the result of a printer's error. At any rate, Bentham changed the spelling again in 1844 to *Pithecolobium*, deriving it from two Greek words meaning "monkey ear-lobe". *Pithecellobium* is accepted as the correct spelling.

Martius listed three species in his original publication. These were *P. cyclocarpum* (based on *Inga cyclocarpa* Willd., which equals *Enterolobium cyclocarpum*), *P. inundatum*, and *P. unguis-cati*. The last has been adopted as the type species.

Bentham's treatment in 1875 is the first major one for *Pithecellobium*. That Bentham placed diverse entities in *Pithecellobium* may be seen by his statement: "The pod in this genus is almost as much diversified as in *Acacia*, often very different in species otherwise closely allied, and in many species as yet unknown." Bentham divided *Pithecellobium* into seven sections. Of these, only the first three, with legumes contorting following dehiscence, are considered to be *Pithecellobium* by this writer. For a discussion of the other sections and their status, see Mohlenbrock (1963).

Segregate genera which are considered synonymous with *Pithecellobium* are *Spiroloba* Raf., *Abarema* Pittier, *Jupunba* Britt. & Rose, *Punjuba* Britt. & Rose, *Cojoba* Britt. & Rose, *Klugiodendron* Britt. & Killip, *Morolobium* Kostermans, *Archidendron* F. Muell., and *Hansemannia* K. Schum. Reasoning behind these unions has been given previously (Mohlenbrock, 1963).

## MORPHOLOGY OF THE GENUS PITHECELLOBIUM

The bark of the trunk usually remains smooth for a long period, finally becoming roughened. The branchlets are frequently lenticellate. The bark of some species contains saponins (Kostermans, 1954).

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The leaves in all species are alternate. They are usually bipinnate, except for § *Morolobium* and part of § *Cojoba*. Leaflet shape, number, and pubescence are variable and cannot be relied upon exclusively for species determination. In general, the terminal leaflets are the largest. The base of the leaflet is symmetrical or oblique. Leaflets vary from membranaceous to subcoriaceous. The rachilla is often prolonged into a threadlike projection beyond the terminal pair of leaflets. The leaflets are opposite, sub-alternate, or rarely alternate. In many species, one member of the lowest pair of leaflets is missing. Glands are invariably present on the rachilla between the leaflets and frequently on the petiole. They are usually constant for a given species. The glands may be sessile or stalked, cupular or crateriform.

Stipules in § *Pithecellobium* are reduced to slender spines. In all other sections, the stipules are foliaceous and often caducous. In some instances, glands may occur at the base of the petiole. These may represent stipules.

The inflorescence may be terminal, axillary, or cauliflorous. If terminal, the leaves below the inflorescence are somewhat reduced. The flowers are nearly always grouped in a pseudo-umbel subtended by small bracts. The pseudo-umbel is really a shortened spike or raceme. Occasionally, slender racemes are encountered, especially in § *Archidendron*.

One to four peduncles may be formed in the leaf axils. If the inflorescence is terminal, the clusters of flowers become shorter from top to bottom, giving the appearance of a panicle.

The flowers are pedicellate or sessile. They are very uniform in shape, differing only in degree of pubescence and size. The calyx is (4-) 5-lobed or the lobes may be obsolete. The tubular corolla is (4-) 5-lobed. The numerous stamens are united for part of their length. The free parts of the filaments are usually twisted.

The number of ovaries per flower ranges from 1 to 15. With the exception of *P. dewitianum*, which may have one or two ovaries per flower, all species with two or more ovaries belong to § *Archidendron*. The ovary is elongate and slender. In some functional staminate flowers, the ovary may be reduced.

The legume, which is usually coriaceous, may be flattened or moniliform. If flattened, one or both margins may be lobed. The legume may be straight, arcuate, or circinate. In any case, the valves become contorted following dehiscence. The inside of the pod is frequently highly colored.

The seeds are either orbicular or flattened. They are black or brown. In § *Pithecellobium* and § *Klugiodendron*, the seeds are arillate,

## DISTRIBUTION OF GENUS

*Pithecellobium* occurs in both the Eastern and Western Hemispheres. It is rather abundant from Central America through northern South America, in the West Indies, tropical Asia, Malesia, and Australia.

PITHECELLOBIUM Mart. Hort. Monac. 188. 1829. .

*Spiroloba*, Raf., Sylva Tell. 119. 1838.

*Arohidendron* F. Muell., Fragm. 5: 59. 1865.

*Hansenmannia* K. Schum. in Bot. Jahrb. 9: 201. 1887.

*Abarema* Pittier, Arboles & Arbustos Legum. 56. 1927.

*Jupunba* Britt. & Rose, N. Am. Flora 23 (1): 24. 1928.

*Punjuba* Britt. & Rose, N. Am. Flora 23 (1): 28. 1928.

*Cojoba* Britt. & Rose, N. Am. Flora 23 (1): 29. 1928.

*Klugiodendron* Britt. & Killip in Ann. N. Y. Acad. Sci. 35: 125. 1936.

*Morolobium* Kostermans in Bull. Org. Sci. Res. Indonesia 20 (11): 11. 1954.

*Zygia* sensu Kostermans in Bull. Org. Sci. Res. Indonesia 20 (11): 24. 1954, non P. Browne (1789).

Usually small, unarmed trees, or with spinescent stipules, bipinnate (rarely once-pinnate). Inflorescence capitate, racemose, or pseudo-umbelliform, sometimes cauliflorous; bracts and bracteoles present, often caducous; calyx carnose, coriaceous, or membranaceous, cupular or cylindrical, (4-) 5-lobed or -toothed; corolla carnose, coriaceous, membranaceous, or chartaceous, tubular, (4-) 5-(6-) lobed; stamens numerous, the filaments partly united into a tube, the anthers small; ovaries 1—15, several- to many-ovuled; style slender; stigma small, capitate. Legume compressed or turgid or terete, continuous or moniliform, 2-valved, dehiscent, with the valves contorting following dehiscence; seeds arillate or exarillate.

TYPE: *Pithecellobium unguis^cati* (L.) Mart.

## KEY TO SECTIONS OF PITHECELLOBIUM

- A. Seeds without aril; plants unarmed (see § *Klugiodendron* below).
- B. Some or usually all the flowers with two or more ovaries; plants frequently cauliflorous. . . . . Section *Archidendron*
- B. None of the flowers with two or more ovaries; plants not cauliflorous (except § *Morolobium* and rarely in § *Clypearia*).
- C. Leaves reduced to a single leaflet; flowers cauliflorous. . . . . Section *Morolobium*
- C. Leaves with more than one leaflet; flowers rarely cauliflorous.
  - D. Legume compressed or turgid, continuous. . . . . Section *Clypearia*
  - D. Legume moniliform. . . . . Section *Cojoba*
- A, Seeds arillate; stipules spinescent or, if not spinescent, then the leaves 1-jugate with one pair of leaflets.
  - E. Stipules spinescent; leaves (1-) 2- to several-jugate, with several pairs of leaflets. . . . . Section *Pithecellobium*
  - E. Stipules unarmed; leaves 1-jugate, with one pair of leaflets. . . . . Section *Klugiodendron*

Section ARCHIDENDRON (F. Muell.) Mohl., *stat. nov.*

*Archidendron* F. Muell., *Fragm.* 5: 95. 1865.

*Hansemannia* K. Schum. in *Bot. Jahrb.* 9: 201. 1887.

Unarmed. Leaflets bipinnate, usually rather large. Inflorescence racemose, fasciculate, or pseudoumbellate, frequently cauliflorous. Ovaries (1—) 2—15, separate. Legume rather fleshy or coriaceous, more or less compressed; seeds exarillate.

TYPE: *Pithecellobium vaillantii* (F. Muell.) F. Muell.

New Guinea (Irian), Philippine Islands, Moluccas (Maluku Islands), Australia.

Section MOROLOBIUM (Kostermans) Mohl., *stat. nov.*

*Morolobium* Kostermans in *Bull. Org. Sci. Res. Indonesia* 20 (11) : 11. 1954.

Unarmed. Leaflets reduced to 1, very large. Inflorescence cauliflorous. Ovary 1. Legume unknown.

TYPE: *Pithecellobium monopterum* Kosterm.

Morotai Island.

Section CLYPEARIA Benth. in *Trans. Linn. Soc.* 30: 574. 1875.

Section *Abaremotemo* Benth. in *Trans. Linn. Soc.* 30: 581. 1875, *pro parte*.

*Abarema* Pittier, *Arboles & Arbustos Legum.* 56. 1927.

*Jupunba* Britt. & Rose, *N. Am. Flora* 23 (1) : 24. 1928. i

*Punjuba* Britt. & Rose, *N. Am. Flora* 23 (1) : 28. 1928.

*Zygia* sensu Kostermans in *Bull. Org. Sci. Res. Indonesia* 20 (11) : 24. 1954, *now*, P. Browne (1789).

Unarmed. Leaves bipinnate, frequently rather small. Inflorescence often diffuse, paniculate, racemose, pseudoumbelliform, or capitate, rarely cauliflorous. Ovary 1. Legume compressed, usually lobed along one suture. Seeds exarillate.

TYPE: *Pithecellobium clypearia* Benth.

Asia, Malesia, Australia, South America, West Indies.

Section COJOBA (Britt. & Rose) Mohl., *stat. nov.*

*Cojoba* Britt. & Rose, *N. Am. Fl.* 23 (1): 29. 1928.

Unarmed. Leaves (1-) 2-jugate, the leaflets small or large. Inflorescence capitate. Ovary 1. Legume terete, moniliform. Seeds exarillate.

TYPE: *Pithecellobium arboreum* Urban.

West Indies, Central America, South America.

## Section PITHECELLOBIUM

*Spiroloba* Raf., *Sylva Tell.* 119. 1838.

Section *Unguis-Cati* Benth. in *Ti-ans. Linn. Soc.* 30: 571. 1875.

Stipules spinescent. Leaves bipinnate, usually small. Inflorescence capitate or umbelliform. Ovary 1. Legume compressed. Seeds arillate.

TYPE: *Pithecellobium v;nguis-cati* (L.) Mart.

Southern United States, West Indies, Central America, South America; introduced elsewhere.

Section KLUGIODENDRON (Britt. & Killip) Mohl, *stat. nov.*

*Kltiffiodendron* Britt. & Killip in *Ann. N. Y. Acad. Sci.* 35: 125. 1936.

Unarmed. Leaves reduced to 1 pair of leaflets, the leaflets large. Inflorescence capitate or umbelliform. Ovary 1. Legume coriaceous, compressed. Seeds arilate.

TYPE: *Pithecellobium laetum* (Poepp. & Endl.) Benth.

South America.

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