

R. C. Barneby (\*)

J. W. Grimes (\*\*)

SUMMARY

*Abarema piresii* Barneby & Grimes is described from the Brazilian states of Amazonas and Pará. The species is illustrated and its relationships are discussed. Two kindred species are incidentally transferred from *Pithecellobium* to *Abarema* as *A. curvicarpa* (Irwin) and *A. moniliformis* (Ducke) Barneby & Grimes.

In a recent attempt to bring provisional order out of the chaos of undetermined and misdetermined *Pithecellobium* (sensu Benthams, 1875) at NY, we encountered six collections from the lower and middle Amazon basin of a strikingly distinct species for which no readymade name could be found. It is a tree of terra firme forest attaining 25 m in height and 4 dm in girth of trunk. Its foliage resembles that of *Abarema jupunba* (Willd.) Britt. & Killip and it has similar heteromorphic flowers, but the pod is very different, sinuously constricted along the seminiferous suture and also spirally twisted lengthwise, not unlike that of paleotropic *A. scutifera* (Blanco) Kosterm. Among Ingeae of equatorial America we can find only two species that have comparable pods: *Abarema curvicarpa* (Irwin) Barneby & Grimes, comb. nov. (= *Pithecellobium curvicarpum* Irwin, Mem. New York Bot. Gard. 15: 107, fig. 2. 1966 -- holotypus, Maguire & Fanshawe 22950, NY!) and *A. moniliformis* (Ducke) Barneby & Grimes, comb. nov. (= *Pithecellobium moniliforme* Ducke, Bol. Técn. Inst. Agron. Norte 2: 6. 1944 -- isotypus fruct., Ducke 1428, NY!). The pods of these have a ventral suture similarly undulate-impressed between seeds, a similar follicular dehiscence through the gaping ventral suture, and similar seeds. The latter are displayed on a filiform funicle and when not quite ripe are smooth and shining, and bear no trace of pleurogram. The pods of *A. curvicarpa* and *A. moniliformis* differ collectively from that of *A. piresii* chiefly in their more woody texture, the valves being elevated over each seed as a thickened suberous dome. Full comparison of the flowers is not possible, those of *M. curvicarpa* being unknown to us. In foliage the three species are quite dissimilar, *A. curvicarpa* having a leaf-formula

(\*) New York Botanical Garden, Bronx, NY 10458-9980, U.S.A.

(\*\*) Department of Botany, University of Texas, Austin, TX 78712, U.S.A.

(pinna-pairs/leaflet-pairs) of ix--xii/12--16 and small elliptic-oblong leaflets, *A. piresii* a leaf-formula of ii--iii/8--13 and rhombic leaflets of moderate size, and *A. moniliformis* a leaf-formula of i/2--3 and large ovate leaflets.

The generic disposition of those Ingeae which were or would have been referred by Bentham to *Pithecellobium* but are now excluded for lack of stipular thorns and arilate seeds is notoriously difficult and will remain so until the segregate genera, whether already described or only provisionally indicated (Nielsen, 1981) have been defined exactly and all known species assigned to their correct genus. This is far from realization in the Neotropics, and in the meantime a pragmatic classification is alone possible. According to the generic key presented by Nielsen (1981, p. 178--9), which omits *Abarema* entirely, *A. piresii* would be assigned to *Klugiodendron*, said (op. cit. p. 180) to resemble *Abarema* in heteromorphic flowers but to differ in seeds lacking pleurogram. However, seeds of the type-species of *Abarema*, *A. trapezifolia* (Benth.) Pitt. (a heterotypic synonym of *A. jupunba* (Willd.) B. & K.), have a testa at first soft and lustrous becoming when fully ripe pallid with white blotch near hilum, but we find no trace of true pleurogram (linea fissuralis) at any stage of development. Such seeds as we have of *A. piresii*, *A. curvicarpa* and *A. moniliformis* are all just short of maturity, wrinkled and shiny like those of *A. jupunba* at the same age, and all lack pleurogram. We feel confident that all three are congeneric with the type-species of *Abarema* and suspect *Klugiodendron* will prove to be generically synonymous.

*Abarema piresii* Barneby & Grimes, sp. nov. -- Fig. 1.

Arbor amazonica foliorum formula foliolisque rhombeis *A. jupunba* (Willd.) B. & K. revocans, foliolis utrinque glabris diversa, sed praecipue legumine idiosyncratico praestans. Legumen ambitu lineare  $\pm$  spiraliter tortum  $\pm$  4--11 x 1 cm 5--13-spernum, valvulis sublignosis venulosis supra semina convexis, suturis dorsali simpliciter incurva (nec constricta), ventrali (seminifera) inter semina fere ad suturam oppositam usque impressa; semina laevia linea fissurali destituta.

Unarmed trees (8) 10--25 m with trunk 14--40 cm diam, the young branches, leaf-axes and peduncles densely puberulent with cream-colored or rusty, forwardly curved hairs up to 0.2--0.3 mm, the leaflets bicolored, lustrous olivaceous above, paler dull beneath, glabrous on both faces but minutely ciliolate, the few-flowered capitula solitary in axil of coeval leaves, immersed in foliage.

Stipules erect linear-attenuate 2--5 x 0.4--0.5 mm, caducous from a white callus.

Leaf-stalks 0.5--4.5 cm, the petiole including scarcely differentiated pulvinus 3--10 mm, the interpinna segments (0) 3--20 mm, the shallow ventral sulcus charged between each pair of pinnae with a (much eaten) subglobose, pyriform or mushroom-shaped; broadly obtuse or subtruncate nectary 0.6--1.4 x 0.6--2.5 mm; pinnae 2--3- or of some distal leaves 1-jugate, accrescent distally, the rachis of furthest pair (3) 4--12.5 cm, the interfoliolar segments 5--9 mm, carinate ventrally, charged at or close below each (or at least several distal) pair of leaflets with a nectary like that of leaf-stalk but

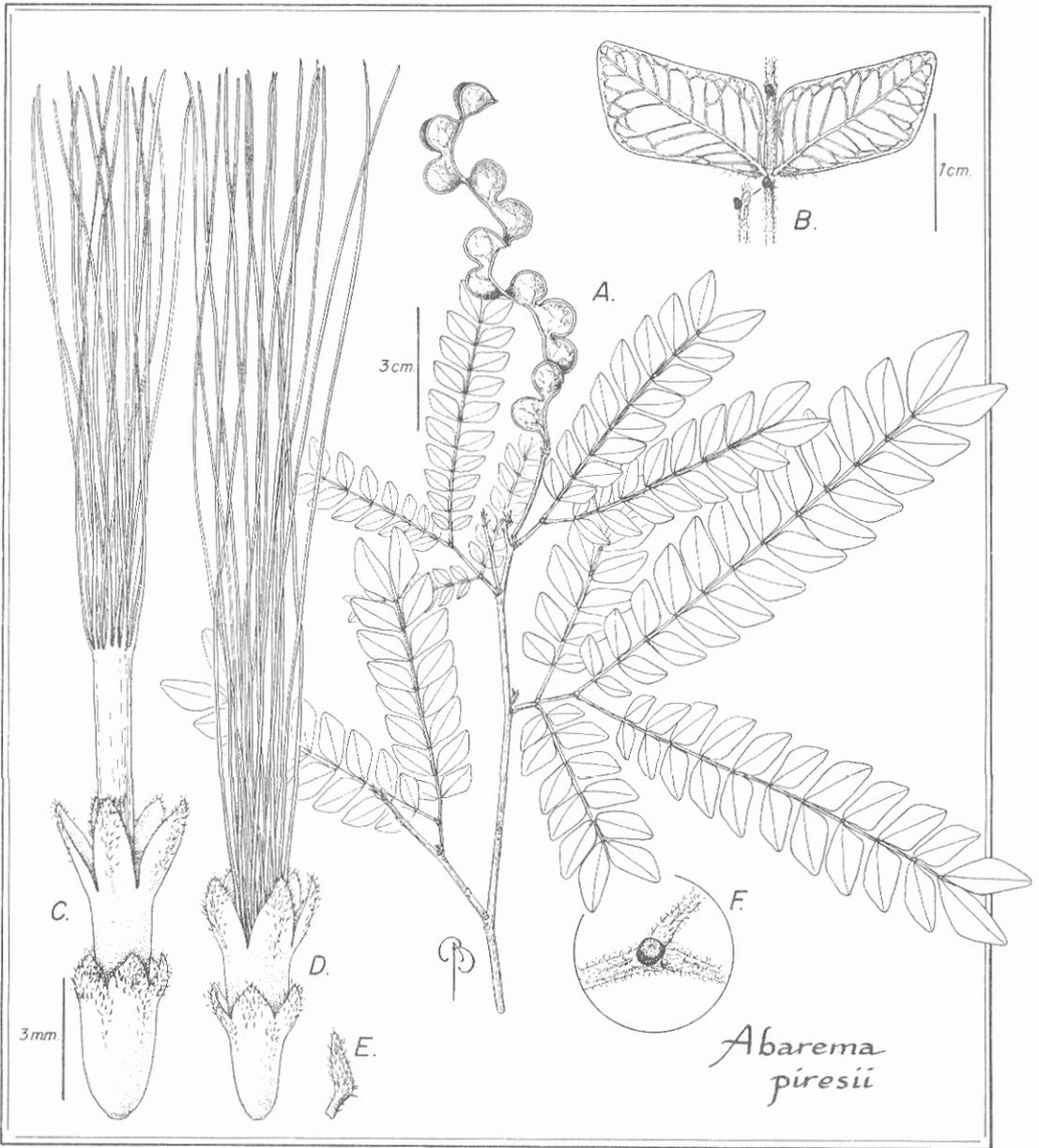


Fig. 1. *Abarema piresii* Barneby & Grimes: A. Fruiting branchlet; B. Part of pinna-rachis (ventral and lateral views), with pair of leaflets and nectaries; C. Centric flower; D. Peripheral flower; E. Bract; F. Interpinnal nectary. (A, B & F from N.T. Silva 1973 & 2403; C, D & E from Prance 23016).

smaller; leaflets of distal pinnae 8--12(13)-jugate, decrescent proximally but thence subequilong, the opposite blades sessile against rachis, in outline rhombic from broadly cuneate base, those near and beyond mid-rachis 12--23 x 7--1 mm, 1.7--2.3 times as long as wide, the diagonally directed, nearly straight midrib closely pinnate-branched from base upward, the secondary venules forking and weakly brochidodrome just within the revolute margin, the venulation bluntly prominulous above, sharply so beneath.

Peduncles 2--5.5 cm; capitula without androecia  $\pm$  9--10 mm diam, the receptacle 3--5 mm long; bracts herbaceous lanceolate 2--4.5 x 0.4--1 mm, 3--5-nerved deciduous; flowers subsessile heteromorphic, one centric one larger, the lobes of calyx and corolla densely fuscous-puberulent; calyx narrowly campanulate, of peripheral flowers 3--3.5 mm, of central flower  $\pm$  4 mm, the obtusely deltate unequal lobes 0.8--1 mm; corollas greenish cylindro-campanulate, that of peripheral flowers 5--6 mm, that of central flower 7--9 mm, the lanceolate, distally recurving lobes 1.7--2.5 x 0.8--1 mm; stamens of peripheral flowers  $\pm$  15, their filaments monadelphous through 2--4 mm, exerted 2 cm, those of central flower more numerous but of similar length, monadelphous through 9--10 mm; ovary solitary in all flowers, glabrous, that of central flower sometimes imperfect; style filiform, a little exceeding the filaments.

Pods 1--2 per capitulum subsessile, persistent through dehiscence and discharge of seeds, in profile semi-moniliform 4--11 x 0.9--1 cm, the broad dorsal suture spirally contorted lengthwise and the ventral (seminiferous) one deeply indented between 5--13 seeds, the biconvex segments as wide or a little wider than long, separated by obtuse sinuses intruded almost to the dorsal suture, the subligneous valves externally orange brunnescent, densely sinuously venulose, internally pale brown (not red), the endocarp adherent to mesocarp; dehiscence along the seminiferous suture, the valves gaping to expose the seeds, these suspended on a crumpled but not dilated funicle, when not quite ripe plumply discoid  $\pm$  6.5 mm diam, the pale brown testa lacking pleurogram.

TYPE. BRAZIL. Fronteira Amazonas--Pará--Mato Grosso: Boca do rio Juruena, terra firme, 31.XII.1951 (fr), **J. Murça Pires 3704**. -- Holotype, NY; wood-sample at IAN.

FURTHER COLLECTIONS. BRAZIL. Amazonas: km 498 on BR 319, Manaus--Porto Velho, 18.X.1974 (fl), **Prance & al. 23016** (G, K, MG, NY, R, US). Pará: 25 km SW of Tucuruí, 3°35' S, 49°47' W, 14.XI.1981, **D. Daly & al. 1312** (NY). Pará: Jari, estrada entre Planalto A e Tinguelim, km 16, 12.VIII.1969 (fr), **N.T. Silva 2403** (MG, NY); *ibid.*, estrada do Munguba, 31.III.1969 (fr), **N.T. Silva 1818** (NY, US); *ibid.*, estrada Monte Dourado--Munguba, km 4, 17.V.1969 (fr), **N.T. Silva 1973** (NY).

We take pleasure in dedicating **A. piresii** to the distinguished Amazonian botanist João Murça Pires, who discovered the species over thirty years ago at the confluence of the Madeira and Juruena rivers.

## RESUMO

*Abarema piresii* é descrita baseada em material coletado nos Estados do Amazonas e Pará. A espécie é ilustrada e seu parentesco discutido. Duas espécies próximas são transferidas do gênero *Pithecellobium* para o gênero *Abarema*: *A. curvícarpa* (Irwin) e *A. moniliformis* (Ducke) Barneby & Grimes.

## References

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