

LEBRONNECIA, gen. nov. (MALVACEAE) DES ILES MARQUISES

par F. R. FOSBERG et M.-H. SACHET

INTRODUCTION

Au cours d'une mission¹ en Polynésie française en 1963, dont le but principal était de travailler aux Iles Marquises auprès de M. G. LE BRONNEC naturaliste amateur qui réside à Atuona depuis une cinquantaine d'années (cf. Cahiers du Pacifique n° 9, sous presse), il a été possible d'examiner son herbier. En 1929-1932, M. LE BRONNEC, membre du Pacific Entomological Survey organisé par le Bishop Museum et la Hawaiian Planters Association, de Honolulu, avait participé à la récolte de milliers d'insectes et de quelques centaines de plantes représentant leur habitat ou nourriture. Les herbiers avaient surtout été rassemblés par A. M. ADAMSON et G. LE BRONNEC. Il y avait plusieurs séries de doubles, dont une devait être envoyée au professeur E. D. MERRILL, à fin de détermination préliminaire, et une restait à Atuona. Après le départ d'ADAMSON en avril 1930, M. LE BRONNEC continua les collections d'insectes, les récoltes, et envois de plantes. Il se trouve toutefois dans l'herbier d'Atuona un petit nombre d'échantillons qui n'ont jamais été distribués ou identifiés. La plupart étaient de détermination facile mais une Malvacée de l'île de Tahuata ne correspondait à aucune espèce signalée dans les îles de Polynésie. M. LE BRONNEC a bien voulu envoyer aux auteurs une partie de sa récolte originelle (LE BRONNEC 601) et guider son gendre, M. FRED JOHNSON, dans la recherche d'échantillons supplémentaires. FRED JOHNSON avec l'aide de sa femme TEU et d'un vieil ami marquisien HAUANI, put obtenir trois récoltes successives provenant d'un seul arbre, peut-être le même que celui découvert en 1930. Le lieu de récolte de LE BRONNEC 601 est Iva-Iva. M. JOHNSON précise qu'il s'agit d'une arête séparant les baies de Iva-Iva et Hanamoenu sur la côte nord-ouest de Tahuata, le site exact étant connu sous le nom d'Iva-Iva Iti. L'arbre, de 6 inches (15 cm) de diamètre et d'environ 30 pieds (9 m) de haut, est entouré d'une « forêt » d'une douzaine de jeunes plantes de toute taille apparemment issues de graines, et croît à la limite de la végétation boisée. Au-dessus, zone de *Casuarina equisetifolia* poussant sur la roche nue, au-dessous végétation herbacée brûlée par le soleil et descendant jusqu'à la mer. M. JOHNSON pense que les matériaux enlevés par l'érosion sur le haut de la crête ont dû s'accumuler dans une poche de terre où croît *Lebronnecia*. Le site ainsi décrit par M. JOHNSON est très reconnaissable, et typique des versants arides des Iles Marquises. M. LE BRONNEC pense avoir vu des arbres semblables à Hanamenu, sur la côte nord-ouest sèche de Hiva-oa, et sur l'île déserte de Mohotani.

M. LE BRONNEC appelle cette plante « fautea » (*Hibiscus* blanc), mais sur l'étiquette de son n° 601 on lit « fautona ». HAUANI l'appelle aussi purau nain (*Hibiscus* nain). Il sera sans doute impossible de vérifier si cette plante était connue des anciens marquisiens et avait un nom bien établi. Les notes et

1. Cette mission a bénéficié de l'appui de la Fondation Singer-Polignac, du C.N.R.S. et de l'American Philosophical Society (Penrose Fund).

échantillons récoltés par M. JOHNSON l'ont été au prix de grandes difficultés. Et du fait de l'extrême lenteur des communications avec les Iles Marquises, les plantes seraient arrivées en fort mauvais état sans l'aide inestimable de M. J.-N. MACLET, du Service de l'Agriculture à Papeete, à qui elles furent envoyées et qui les a séchées, préparées et fait suivre par avion.

M. H. SACHET

DISCUSSION

The generic disposition of this plant presents some rather difficult problems. The genera in the *Malvaceae* tribe *Gossypieae* are not too satisfactorily separated, nor are they universally agreed on. To add another genus of the same sort is not an attractive course, but the plant does not fit readily into any of the presently recognized genera. The alternative would perhaps be a general reduction of all of them to *Gossypium*, which would not be very satisfactory.

Its general aspect and reduced, non-whorled, involucre indicate a close relationship to *Thespesia*, but the very densely long-hairy seeds and small flowers do not fit. The small flowers, general habit, and woody capsule suggest *Hampea* (currently but incorrectly placed in the *Bombacaceae*). Its single very hairy, rather than usually many smooth arillate seeds preclude this disposition. From *Gossypium* it seems excluded by its woody capsules, single seeds and non-whorled involucre. From *Kokia* it differs in its non-whorled, reduced involucre, much smaller, more open corolla, the 3-celled (rather than 5) much less woody capsules and the nearly straight, rather than woolly, seed hair. From all of them it differs in its completely included style enclosed by the dome-like mass of anthers. For the present, our inclination is to consider it as another of the several small, nearly extinct Malvaceous genera that mark the flora of the eastern fringes of Polynesia (e. g. *Kokia*, *Hibiscadelphus*), perhaps intermediate between *Thespesia* and *Kokia*, possibly closest to the latter.

DR. HANS PETER FUCHS, of Amsterdam, has kindly made a detailed examination of pollen from the specimen, JOHNSON 2, cited below as type of the species and reports his observations as follows :

"The pollen is represented by macropositive (i.e. positive elements larger than 1 micron) grains with most probably three to four round, but very indistinct apertures.

"The pillars are of varying length, somewhat elongated underneath the positive elements.

"The endexine is relatively thick compared with the pillars, which are smaller than 1/2 micron and the very thin tegillum.

"The macropositive elements are loosely distributed over the whole surface of the grain and show a wart-like appearance with typically rounded tops.

"The above palynomorphological characters point to a sterculiaceous genus rather than to a genus of the family *Malvaceae*. Very similar grains to those described above are found especially in the genus *Pterospermum*, and with some representatives of the genera *Helicteres*, *Dombeya*, *Pentapetes*, *Melhania*, *Hoheria*, *Helmiopsis*, *Eriolaena*, *Trochelia* and *Ruizia*.

"We have not found grains similar to those of your material amongst the families of *Malvaceae* or *Bombacaceae*, except for some few species of *Quararibea* and *Matisia* which either may have to be transferred to the *Sterculiaceae* or may form a separate group amongst the South American *Bombacaceae*."

DR. RICHARD H. EYDE, of the Smithsonian Institution, has made and examined sections of the anthers, and reports that they show signs of

having been two-celled, at least when young. Mature, dehiscent anthers appear to be one-celled, as is general in the *Malvaceae*.

In spite of the distinctive pollen morphology and the indications of early partitions in the anthers, the plant in all of its gross-morphological features is certainly malvaceous. This opinion is shared by Dr. PAUL A. FRYXELL, of College Station, Texas, specialist on this group of the *Malvaceae*. While the peculiarities of anatomy and pollen structure strengthen our opinion that the plant represents a new genus, we do not feel warranted in placing the plant anywhere except in the family *Malvaceae*, tribe *Gossypieae* Alef.

We are greatly indebted to both Dr. FUCHS and Dr. EYDE, and especially to Dr. FRYXELL, for their help with this plant.

Lebronnecia is an inhabitant of the dry leeward slopes of the Marquesas Islands, now so rare as to be on the verge of extinction. It is definitely known only from Tahuata, where 37 years ago it was said to be found only in two or three localities. Now only one tree, surrounded by some young plants, still remains, so far as our information goes. There are rumors of it from Hiva-Oa, but these are vague and not supported by specimens.

We are happy to dedicate this genus to its original discoverer, Mr. GUILLAUME LE BRONNEC, naturalist, 50 years resident of Atuona, Island of Hiva-Oa, Marquesas. His hospitality and helpful cooperation shown the junior author on her expedition to the Marquesas in 1963 are greatly appreciated.

DESCRIPTION

LEBRONNECIA Fosberg, *gen. nov.*

Planta lignosa; flores nigropunctulati, in cymis paucifloris dichotomis dispositi, involucri bracteis 3 reductis irregulariter insertis, calyce truncato, androeceo clavato antheris curvatis unilocularibus, stylo truncato in androeceo incluso, ovario trilobulato ovulo in quoque loculo uno; capsula subglobosa lignosa; semina nigra globosa valde longi-pilosa.

Woody plants; leaves alternate, palmately nerved; stipules minute, subulate, very early caducous, leaving short elevated linear, straight to slightly arcuate scars; flowers medium to rather small, in axillary 2-4-flowered dichotomous cymes, these usually variously reduced, often to jointed bracteate peduncles; involucre of 3 bracts, these minute, subulate from a broad base irregularly (spirally) inserted at top of pedicel and base of receptacle; calyx completely gamosepalous, open at summit apparently from the first, though at first by only a small opening, truncate except for 5 very minute teeth, notably black-dotted, at anthesis broadly campanulate or hemispheric; bud pointed, tomentose; petals strongly united at base, black-punctate, broadly obovate-spatulate, distal part thin and flaring, one margin thin, body firm, tomentose without, glabrous within; staminal column completely included, naked in lower half, the antheriferous half densely so above, sparsely below, anther mass compact, club-shaped or dome-shaped, free part of filaments very short, anthers one-celled, strongly bent, semicircular or forming a blunt right angle, dehiscing along a single line around convex side of curve; pollen grains with minute rather blunt spines or protuberances; style simple, about 3 mm long, apex truncate, completely included in the staminal column which seems almost or quite closed above it, ovary ovoid, densely tomentose, 3-celled, one ascending glabrous ovule in a cell, attached just above base on inner angle of cell; young fruit globose, densely tomentose; mature fruit a loculicidally dehiscent

capsule, glabrate with a minutely rugulose surface, slightly umbonate, valves stiff, woody, the inner layer becoming papery and separating when old, with no tendency for valves to become reflexed; seed black, irregularly globose, with a slight protuberance at hilum, densely covered with terete straight to slightly kinky dull reddish brown hair about 1 cm or less long, the mass of hair around the seed completely filling the locule [cotyledons in very young seedling brown-punctate (PAUL FRYXELL, in *lit.*)].

One species known, which is therefore the type.

Lebronnecia kokioides* Fosberg, *sp. nov.

Folia integra cordata longe-petiolata; cyma ramo uno plerumque suprimo, pedunculo 0.5-2.5 cm, pedicellis 1.5-4 cm; involucri bracteae 1.5-5 mm longae; flos calyce 1 cm longo, corolla alba 2-3 cm longa, staminale columna 1 cm longa, ovario 6 mm longo, stylo 3 mm longo; fructus 2-3 cm longo; semina 8 mm diametro ferruginea-pilosa, pilis 1 cm longis.

Small tree or large shrub; stems and leaves glabrous; leaves orbicular-cordate, somewhat acuminate, long-petiolate, variable in size, blades 6-8 cm across, much larger on sterile shoots, then to 15 cm long, palmately 5-, 7-, or 9-nerved, the outer nerves weaker, all nerves with black irregular glands; petiole 5-9 cm, on sterile shoots to 15 cm long; stipules about 2 mm long; peduncles proper 0.5-2.5 cm; pedicels (part above subtending bract) 1.5-4 cm; one branch of cyme frequently suppressed, represented only by an undeveloped bud; bracts inconspicuous, subulate; involucre bracts 1.5-5 mm long; calyx about 1 cm long, firm; corolla funnelform-campanulate, 2-3 cm long, white (appearing yellowish when dried); staminal column, filaments and connectives black, column 1 cm long above coalescence with corolla, anthers about 0.5 mm across; style black, 3 mm long, ovary 6 mm long; mature fruit subglobose, 2-3 cm long; seeds 8 mm in diameter.

Holotypus : Johnson 2, Iva-Iva Iti, Tahuata I.

Marquesas Is.: Tahuata I.:

Iva-Iva, 50 m, on hillsides, July 2, 1930, Le Bronnec 601 (US) (fls. and young fruit); Iva-Iva Iti, August 17, 1964, Johnson 1 (US, BISH, Fo) (sterile twigs and empty capsules from ground); same loc., second half of May, 1965, Johnson 2 (US, type, Fo, BISH, P) (flowering); same loc., March or early April, 1966, Johnson 3 (US, BISH, Fo, P) (seeds only).



Fosberg, F. Raymond and Sachet,
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