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A REVISION OF THE GENUS DOLICHOLOBIUM (RUBIACEAE)

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SUMMARY

A complete revision of the genus *Dolicholobium* placed in the tribe Cinchoneae with a general discussion of taxonomic affinities and architecture. In total 28 species are recognized of which 14 new, described by M.E. Jansen: *D. barbatum, D. cordatum, D. crassicarpum, D. glabrum, D. linearilobum, D. longifructum, D. minutilobum, D. moluccense* subsp. *moluccense* and subsp. *fusiformis, D. nakiki, D. parviflorum, D. ridsdalei, D. riuense, D. rheophilum, D. seruiense.* Keys are provided to all species and separate keys to the species of the Solomon Islands and Fiji. The previously known Malesian species are treated in abbreviated form. A complete list of scientific names is included.

INTRODUCTION

The genus *Dolicholobium* was described by A. Gray from Fiji in 1859. By the year 1900 further species had been discovered from Bougainville (Solomon I.) and New Guinea and the monoecious nature of the inflorescences was recognized. Succes-

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sive periods of exploration, particularly in New Guinea and the Solomon I., have yielded many species but although some have conspicuous flowers many are known only from a few collections. As seems to be the case in many Rubiaceae where the genus is distinctive the species are difficult to delimit satisfactorily, a problem also encountered by previous authors.

The senior author (C.E.R.) became interested in the group whilst in New Guinea and the junior author (M.E.J.) started a revision of the group as part of his undergraduate studies; unfortunately the task was more difficult than first envisaged. The original manuscript has been edited and elaborated here and there to produce the present paper as well as an account for Flora Malesiana.

Surprised at the number of new species, any forming a series but individually with distinctive characters and distribution, the senior author independently rechecked the materials and conclusions with W. Vink, whose mark will be found in the notes. Together they could only confirm the conclusions reached by the junior author.

In many cases, even with abundant material from Fiji, we have only been able to highlight the problems of variability encountered within the groups of related taxa and we could not come to a satisfactory conclusion with the collections currently available.

TAXONOMIC RELATIONSHIPS

The genus *Dolicholobium* has always been placed in the tribe Cinchoneae and was formerly included by K. Schumann (1891) in the subtribe Hillininae Benth. & Hook. (1873), which was a rather heterogeneous collection of genera. *Hillia* is generally considered to be best placed in a separate tribe Hillieae. The corolla lobes of *Dolicholobium* are contorted which would suggest a relationship to the American genera *Cosmibuena* and *Ferdinandusa* or to the Old World genera *Emmenopterys* or *Mussaendopsis*. However, a close relationship with these genera is not envisaged.

Monoecious species with functional male and female flowers, such as are found in *Dolicholobium*, are unknown in the Cinchoneae and have only been reported for some species in 8 other genera in the Rubiaceae.

Heterostyly is more common in the family and is reported for some genera of the Cinchoneae, e.g. *Cinchona* and *Luculia*, but, as far as is known, there is no evidence that the microstylous and macrostylous flowers, occurring on separate trees, show any trend towards differentiation into functional male and female flowers. Further as far as we are aware, the occurrence of microstylous and macrostylous flowers on the same tree has only been reported in three species in the Rubiaceae: *Psychotria aurantiaca, Grumilea acheni* and maybe *Uragoga homblei.*

The lack of raphides, numerous ovules, capsular fruit and the form of placentation and seeds confirm that the genus should be placed in the Cinchoneae. Monoecious taxa are rare in the Rubiaceae and *Dolicholobium* would seem to occupy a rather isolated position within the Cinchoneae.

ARCHITECTURE

In a few small-leaved species, *Dolicholobium minutilobum, D. oblongifolium*, and *D. philippinense, Terminalia*-branching has been observed in herbarium specimens. Typical is the very long basal internode of the new leading shoot, the internodes of the leaf-bearing portion being much shorter (see fig. 2, *D. minutilobum*). Branch development is usually linear, only one of a pair of buds at the node developing into a new leading shoot; occasionally, e.g. in *D. acuminatum (Craven & Schodde 293)*, one bud develops into a leading shoot, the other into an inflorescence. In *D. oblongifolium* sometimes both buds develop into leading shoots.

It is probable that *Terminalia*-branching also occurs in large-leaved species, but this is rarely directly apparent due to the limited length of the branch collected with herbarium specimens. This type of branching has been observed in *D. glabrum* and *D. acuminatum*; in other species twigs with both long and short internodes are frequently seen.

If one assumes that the trunk is monopodial, then the form of branching confirms the model of Aubréville or Hallé and Oldeman's terminology (1970).

CRYSTALS

Raphides are absent in the subfamily Cinchonoideae; rod-like crystals, however, are known to occur. They have also been reported in the Pomazotoideae. In all but 3 species of *Dolicholobium (D. acuminatum, D. barbatum, D. cordatum)* rod-like crystals or crystal sand was observed in at least some organs. The details of distribution of these crystals in various organs and in the different species is summarized in table 1 and not referred to in the descriptions.

TAXONOMIC CHARACTERS

During the initial stages of the present study the variation in *Dolicholobium oblongifolium* from Fiji was studied. There are relatively numerous collections from this area and the older material has also been examined and annotated by other taxonomists, particularly Fosberg (1940, 1942).

Although previously taxa were distinguished partly on characters of the indumentum, it was found that no clear delimitation could be made with more abundant material available. The indumentum of the leaves and stipules is notoriously variable, always one or two collections having an exceptional indumentum type. Furthermore, large and continuous variation was found in the size and shape of the leaves. The indumentum of the hypanthium and other floral parts was also found to be variable. Generally we have ignored the indumentum type in delimiting some of the less well collected taxa.

The number of characters remaining is limited; the relative size and form of male and female flowers, particularly the calyx, and the number of floral parts of the male and the female flowers are the most important. Critical comments regarding the vari-

Table 1. Distribution of crystals

	stipules	petiole	inflorescence peduncle	male pedicel	male calyx	male corolla tube	male lobes	female pedicel	female hypanthium	female calyx	female tube	female lobes	female style	female stigma
Fiji Islands														
27. D. oblongifolium	r	r	r	r	–	–	–	r	r	–	–	–	–	–
28. D. macgregorii	–	r	r	r	–	r	–	r	r	–	–	–	–	–
Solomon Islands														
25. D. acuminatum	–	–	–	–	–	–	–	–	–	–	–	–	–	–
26. D. ridsdalei	r	–	o	o	r	o	–	r	r	r	o	–	–	–
21. D. parviflorum	r	r	–	–	–	–	–	–	–	–	–	–	–	–
20. D. minutilobum	o	r	–	–	–	r	–	r	r	–	o	–	–	–
22. D. brassii	–	–	o	–	–	–/o	–	–	–	–	–/o	–	–	–
23. D. solomonense	o	r	o	o	o	o	–/o	–/r	–/r	–/o	o	–/o	–	–
24. D. glabrum	–/o	–	–/o	–/o	–	–	–/o	o	–/r	–/o	–/o	–/o	–	–
Louisiade Archipelago & Trobriand Islands														
18. D. riuense	o	r	r	r	o	r	o	o	o	o	o	o	o	o
17. D. rheophilum	–	–	o	–	–	–	–	r	r	–	o	o	–	–
19. D. longifructum	–	–	o	o	–	o	–	r	r	–	o	–	–	–
4. D. crassicarpum	–	–	r	o	–	o	–	r	r	–	o	–	–	–
5. D. cordatum	–	–	–	–	–	–	–	–	–	–	–	–	–	–
New Ireland & New Britain														
6. D. nakiki	–/o	–/r	o	r	–/o	–	–	–/o	–/r	–/o	–/r	o	–	–
New Guinea														
15. D. linearilobum	o	r	o	o	–	–	–	r	r	r	o	o	–	o
12. D. seruiense	o	–	o	–	–	o	–	–	–	–	o	o	–	–
16. D. rufiflorum	o	r	r	r	o	o	–	r	r	o	–	–	–	–
13. D. leptocarpum	–	–	–	–	–	–	–	o	o	–	o	–	–	–
2. D. rubrum	o	–	?	o	o	o	–	o	o	o	–	–	–	–
14. D. graciliflorum	o	–	–	–	–	–	r	o	o	–	o	–	o	o
9. D. barbatum	–	–	–	–	–	–	–	–	–	–	–	–	–	–
8. D. oxylobum	–	–	–	–	–	o	o	o	o	–	–	–	–	–
10. D. gertrudis	–	r	–	–	–	–	–	–	–	–	–	–	–	–
3. D. forbesii	–	–	–	r	–	–	–	–	–	–	–	–	–	–
Moluccas														
1. D. moluccense subsp. moluccense	–	–	o	–	o	o	–	r	r	o	o	–	–	o
subsp. fusiformis	o	–	o	o	o	o	–	o	o	o	o	–	–	–
Philippines														
11. D. philippinense	r	r	r	–	–	o	–	r	r	–	–	–	–	–

?: not known; –: not present; o: dotted with crystals; r: rod-shaped crystals; /: two character states present.

ation of certain characters are to be found under the notes after the relevant specific descriptions, particularly: 9. *D. barbatum*, 12. *D. seruiense*, 23. *D. solomonense*, 25. *D. acuminatum*, and 27. *D. oblongifolium.*

Terminal vegetative buds and stipules — The stipules are entire and appressed and hence the vegetative bud is usually flattened. Enormous stipules are found in *D. macgregorii* where they may reach 13 × 7.8 cm, the largest we have ever observed in the Rubiaceae. In this species the stipules are clearly persistent for several, usually 4–6 nodes. Generally the stipules of the resting vegetative bud are relatively constant in shape and relative sizes. It is suspected that stipules situated on different parts of the plant and in different developmental phases show considerable variation in dimensions. Those differentiated on nodes formed on rapidly expanding shoots (young flush) may be narrower than those of the flower or fruit bearing shoots. At the stage when old or mature fruits are seen the terminal node is at its broadest, the then formed stipules enclosing a vegetative apex with its own stipules and young inflorescences of the following season. They are then broader and longer than vegetative buds. In species known only from a few collections, e.g. *D. rufiflorum*, this difference in size presents some problems as the range of possible variation is uncertain.

The number of nerves in the stipules seems to be reasonably constant in the different species but is difficult to discern in those with a dense indumentum. Colleters are always present in abundance on the inner lower surface and the axils of the stipules.

Position of the inflorescences and flowers — The inflorescences are lateral on the ultimate branches and situated at the second node from the top of the shoot. The simple dichasia, cymes or thyrses are either solitary or up to three per leaf axil. The female flower is always terminal, below which the male flowers are inserted in various ways and numbers, either all more or less at the same level in a tier or spaced at slightly different levels. The pedicels may be articulate or not, persistent or deciduous and then leaving a small scar.

Calyces — The relative size of the calyces of the male flowers compared to those of the female flowers provides one of the major characters for the division of the genus. The male calyces may be much smaller than the calyces of the female flower, at the most up to 0.6 × their length, or the difference in calyx size is much less, the male being 0.75–1.6 × the size of the female calyx; in *D. nakiki* the calyx of the male flower is longer than the female one, a situation not found so pronounced in other species. In a few taxa the corolla is fusiform with a narrow opening smaller than the corolla tube and hence, when the flower develops and emerges, the calyx splits irregularly.

The calyx may be lobed or toothed, sometimes minutely so, or have a truncate or slightly undulate margin.

Colleters are sometimes present inside the calyx at the base, either arranged in a circle or in groups opposite to the petals. Steyermark (1974) attaches some taxonomic value to this character and also reports an alternipetalous arrangement.

Number of floral parts — The taxa are, in part, delimited by the number of floral organs found in the male and female flowers. Unfortunately, some reasonably well collected species show variation in the possible combinations. This presents technical difficulties in the key when dealing with species known only from a few collections as it may be expected that further collections may yield flowers with a different number of floral parts than at present is known. The known combinations in the number of floral parts are summarized in table 2.

Table 2. Number of the flower parts in the genus *Dolicholobium*.

	male:	4	4	5	5	6
	female:	4	5	5	6	6
D. minutilobum		×				
D. graciliflorum		×				
D. brassii		×	×			
D. nakiki			×			
D. cordatum			×			
D. rubrum			×			
D. ridsdalei			×			
D. solomonense			×			
D. philippinense			×	×		(×)
D. oblongifolium			×	×		
D. rheophilum			×	×		
D. moluccense				×		
D. seruiense				×		
D. leptocarpum				×		
D. linearilobum				×		
D. forbesii				×		
D. crassicarpum				×		
D. parviflorum				×		
D. riuense				×		
D. macgregorii				×		
D. rufiflorum			×	×	×	
D. oxylobum					×	
D. gertrudis					×	
D. barbatum					×	
D. longifructum					×	
D. peekelii					×	
D. acuminatum				×	×	×
D. glabrum					×	×

Anthers — Anthers with hairy bases are known from *D. barbatum* and *D. oxylobum.*

Fruits — The mode of dehiscence is constant. The exocarp dries, disintegrates, and the fruit splits septicidally, the two halves of the endocarp, which were laterally inwardly curved, bend open and seed release is possible. With age the two halves of the endocarp fall and only the fascicled thickened strands (the vascular bundles) remain.

In some cases the peduncle seems to continue to elongate after flowering. The fruit is usually topped by the remnants of the calyx and it is often possible to see the form and nature of the female calyx from these remnants. Unfortunately in a group of closely related species with thin fruits the calyx is caducous in some species and persistent in others.

VALETON's WORK

Some of the most important contributions to the taxonomy of *Dolicholobium* were those of Valeton (1911, and particularly 1925). Some of Valeton's manuscripts and documents are kept at the Rijksherbarium. Unfortunately he seemed to have made his descriptions and annotations on loose pieces of paper, or in odd exercise books. The former may well once have been arranged according to genera and species with critical notes and sometimes with drawings. These drawings met several fates: to be stuck in an interleafed copy of one of the early volumes of Nova Guinea together with some of the above mentioned notes, probably done by Valeton himself; to be placed scattered in the Rijksherbarium Icones collection; or to remain scattered with the rest of his papers, which no longer have any particular order. This is unfortunate as some are sketches of parts of flowers or fruits of type specimens which have since been lost. By chance some of his notes on *Dolicholobium* were found and these included part of his work for *Dolicholobium* in the Botanische Jahrbücher. From these notes it is clear that there were many discrepancies between the final printed work and the manuscript, often important passages being completely omitted; also the designations ♂ and ♀ were omitted from the printed descriptions, particularly important regarding flower size. Discrepancies may also occur in other genera of the Rubiaceae and Zingiberaceae. Further to the omission of the ♂ and ♀ signs the following should be noted: *D. peekelii*; in the key 'Infloreszenz fast ungeteilt' should read 'Infloreszenz fast ungestielt'; the description of the calyx should read: '.... truncatus, sericeo-pilosus *et ciliatus, intus sericeo-tomentellus.* Corolla *tubus calyce fere totus inclusus glaber, petala ....*'.

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Monoecious shrubs, treelets, or trees. *Stipules* interpetiolar, laterally free, appressed in bud, inside glabrous and basally with dactyliform, glabrous colleters, parallel-nerved, margins entire. *Leaves* decussate, entire; midrib and nerves flattened above, prominent below. *Inflorescences* dichasia, simple cymes or simple thyrses, axillary, only on second node of ultimate branchlets, solitary or up to 3 per axil; (comparable) opposite inflorescences usually in the same stage of development; within the same axil the lower inflorescence less richly branched and flowering and fruiting later; bracts usually absent; terminal flower female, other flowers male, peduncle dorsi-ventrally flattened. *Flowers* 4–6-merous. Calyx truncate to lobed, net-nerved, sometimes basal part parallel-nerved, sometimes splitting longitudinally by protruding corolla, usually accrescent and persistent in fruit, often at inside basally with colleters arranged in a circle or in antipetalous groups. Corolla hypocrateriform; tube often apically widened, glabrous inside; lobes contorted, base unequal, margins entire. Stamens antipetalous, inserted in upper part of the tube; filaments shorter than the anthers; anthers dorsifixed, not or only apically exserted from the throat, usually glabrous, dehiscing introrsely with longitudinal slits, apex usually rounded, base cordate to rounded. Disk annular, usually glabrous and not lobed. Styles 2 but more or less firmly connate, usually glabrous, each with a usually glabrous stigma. *Male flowers* pedicellate, pedicel sometimes articulate. Style reduced; stigma linear to filiform. Ovary absent. *Female flowers* sessile or pedicellate, pedicel never articulate. Placentas 2, cylindrical, for the greater part of their length adaxially adnate to the septum. Ovules atropous, erect, numerous. Anthers reduced, without pollen, indehiscent. Stigma adaxially with a longitudinal white ridge, obtuse, glabrous, not or only apically exserted from the throat. *Fruits* on third node of ultimate branchlet, cylindrical, straight or curved; upon ripening the outer layer of the fruit desintegrates, freeing the vascular bundles which remain attached to the base of the fruit; the thin

horny endocarp dehisces septicidally into two caducous halves. *Seeds* small, lenticular, surrounded by a thin narrow wing which is prolonged into a tail apically and basally. Rod-shaped or punctiform crystals can be present in all parts.

Distribution. 28 species from the Philippines through New Guinea and the Solomon Islands to the New Hebrides and Fiji, none of these wide-spread.

Ecology. In understorey of rainforests but often in more open situations like banks of streams or exposed ridges; on well-drained to swampy soils. *D. rheophilum* is a rheophyte. Altitudinal range: sea level–1500(–1900) m.

KEY TO THE SPECIES

1a. *Flowering material:* Calyces of the male flowers 0.75–1.6 times as long as those of the female flowers. Sometimes calyx tubes partly or entirely split or ruptured. *Fruiting material:* Either leaf base (sub)cordate or, if leaf base not subcordate, fruits 2.5–5 × 0.8–1 cm and/or plant occurring in the Bismarck Archipelago or in the Moluccas 2

b. *Flowering material:* Calyces of the male flowers at the most 0.6 times as long as those of the female flowers. Calyx tubes never split. *Fruiting material:* Leaf base never (sub)cordate. Fruits either 0.6 cm in diameter or more but then (1) plants from Solomon Islands, or (2) fruits longer than 6 cm and plant not occurring in the Bismarck Archipelago and not in the Moluccas, or fruits up to 6 mm wide and calyx absent 12

2a. Leaf base (sub)cordate; peduncle 7–12(–15) cm long. Louisiade Archipelago **5. D. cordatum**

b. Leaf base rounded, obtuse or acute to attenuate; peduncle up to 7 (rarely 8) cm long. Not in Louisiade Archipelago 3

3a. Calyces spindle-shaped, often longitudinally split or cylindrical to infundibular and split or ruptured 4

b. Calyces cylindrical, campanulate or obconical, never split 6

4a. Male flowers 5-merous. Fruit over 2.5 mm diameter. Moluccas **1. D. moluccense**

b. Male flowers 4-merous. Fruit various. Bismarch Archipelago or Bougainville . 5

5a. Leaf base obtuse to rounded. Stipules ovate-oblong, 9–17 × 3–7 mm. Peduncle 4–7.5 cm long. Fruits over 2.5 mm diameter. Bougainville . . . . **26. D. ridsdalei**

b. Leaf base acute to attenuate. Stipules (obovate-)oblong to (obovate-)lanceolate, 15–32 × (4–)6–12 mm. Peduncle 1–3 cm long. Fruits 1–2.5 mm diameter. Bismarck Archipelago . . . . . **6. D. nakiki**

6a. Calyces of the male and female flowers up to 1.5 mm long. Peduncle up to 0.7 cm long. Japen I. . . . . **12. D. seruiense**

b. Calyces of the male and female flowers over 4 mm long. Peduncle over 1 cm long 7

7a. Female flowers 6-merous, calyces over 10 mm long, corolla lobes up to 17 mm long. Male flowers 5-merous, calyces 11–13 mm long equal in length to the calyces of female flowers. New Ireland . . . . . **7. D. peekelii**

b. Female flowers 5-merous, calyces mostly up to 10 mm long, rarely to 12 mm but not in Bismarck Archipelago. Male flowers with calyces up to 16 mm long (sometimes with calyces of male flower longer than calyces of female flower, if in Bismarcks then male flowers 4-merous) 8

8 a. Peduncle up to 3.7 cm long, rarely slightly longer but then male flowers 4-merous. Male flowers 4- or 5-merous. Fruits narrowly cylindrical. New Guinea or Bismarck Archipelago 9

b. Peduncle (3–)3.5–7.5 cm long. Male flowers 5-merous. Fruits obconical or cylindrical but then from Moluccas 11

9 a. Male flowers 5-merous. Fruits generally up to 7(–8) cm long. Stipules 4–10 mm broad, 4–5 times longer than broad, densely sericeous becoming glabrous with age. New Guinea mainland . . . . . **3. D. forbesii**

b. Male flowers 4-merous. Fruit generally over 7 cm long. Stipules various . . 10

10 a. Lateral nerves 8–13 pairs. Petiole up to 15 mm long. Stipules linear, 2–4 mm broad, 9–10 times longer than broad, glabrous to sparsely pubescent. Margins of calyces 4- or 5-toothed. Calyces of the male flowers 6 mm long, 0.85 times as long as those of the female flowers. New Guinea mainland . . **2. D. rubrum**

b. Lateral nerves 14–22 pairs. Petiole over 15 mm long. Stipules oblong to lanceolate, densely sericeous or glabrous, (4–)6–12 mm broad, 2–3 times as long as broad. Margins of calyces truncate to undulate. Calyces of male flowers slightly longer than those of female flowers. Bismarck Archipelago **6. D. nakiki**

11 a. Stipules ovate-lanceolate to linear. Petiole up to 16 mm long, glabrous or sparsely short-pubescent. Hypanthium short pubescent. Male flowers with pedicels up to 20 mm long and corolla tubes over 18 mm long. Fruits obconical, 2.5–5 × 0.8–1 cm. New Guinea . . . . . **4. D. crassicarpum**

b. Stipules elliptic to oblong. Petiole over 17 mm long, densely long sericeous. Male flowers with pedicels over 25 mm long, corolla tubes up to 15 mm long. Fruits narrowly cylindrical, 7–17 × 0.3–0.5 cm. Moluccas . . **1. D. moluccense**

12 a. Calyces of female flowers lobed or toothed 13

b. Calyces of female flowers truncate or undulate, or material with fruits 1–3 (–5) mm diameter without persistent calyx 26

13 a. Calyces of female flowers minutely toothed. Corolla lobes of female flowers glabrous. Lateral nerves 8–13 pairs 14

b. Calyces of female flowers minutely or distinctly lobed. Corolla lobes of female flowers hairy, or glabrous but then lateral nerves over 15 pairs 16

14 a. Stipules up to 10 mm long, sericeous to floccose. Female flowers 4-merous, corolla tube up to 10 mm. Male flowers 4-merous, corolla tube 6–7 mm long **14. D. graciliflorum**

b. Stipules 15–36 mm long. Female flowers 5-merous, corolla tubes 8–15 mm long. Male flowers 4- or 5-merous, corolla tubes 9–20 mm long 15

15 a. Stipules, petiole and midrib glabrous to pubescent. Male flowers 4-merous, corolla tubes 15–19 mm long. Fruits 6–9 × 0.3 cm . . . . . **2. D. rubrum**

b. Stipules, petiole and midrib densely sericeous to subhirsute. Male flowers 5-merous, corolla tubes 9 mm long. Fruits 10–24 × 0.1–0.2 cm . **13. D. leptocarpum**

16 a. Female flowers 6-merous, or if absent fruiting material from New Guinea and islands 17
b. Female flowers 4- or 5-merous, or fruiting material from Fiji, through to Solomon Islands, or Philippines 22
17 a. Fruits 1–2 mm diameter. New Guinea ..... **13. D. leptocarpum**
b. Fruits 5 mm or more in diameter, or material with flowers 18
18 a. Stipules 2–6 mm broad. Philippines ..... **11. D. philippinense**
b. Stipules 7–30 mm broad. New Guinea and Solomon Islands 19
19 a. Calyces of female flowers and fruits over 10 mm long, as long as or longer than broad, lobes conspicuously lanceolate to lingulate. Anthers hairy at the base **8. D. oxylobum**
b. Calyces of the female flowers and fruit up to 12 mm long, broader than long, shallowly or inconspicuously lobed. Anthers hairy or glabrous at the base . 20
20 a. Calyces of the female flowers outside glabrous or sparsely to densely pubescent but then margins distinctly ciliate. Anthers glabrous at the base. Solomon Islands ..... **25. D. acuminatum**
b. Calyces of the female flowers outside densely long pubescent to sericeous, or sparsely pubescent but then the margins not distinctly ciliate. New Guinea and islands 21
21 a. Stipules elliptic or obovate to oblong. Calyces of the male flowers inside and outside glabrous. Corolla tubes 36–66 mm long, lobes obovate to elliptic (-oblong), 22–27 × 12–15 mm. Anthers basally sparsely hairy. D'Entrecasteaux Islands ..... **9. D. barbatum**
b. Stipules (elliptic-)oblong to lanceolate. Calyces of male flowers inside and outside pubescent to sericeous, rarely glabrous, corolla tubes 13–32 mm long, lobes oblong to lanceolate, 7–20 × 3–8 mm. Anthers glabrous at the base. New Guinea mainland ..... **10. D. gertrudis**
22 a. Calyces of the female flowers generally over 3 mm long, corolla tubes 15 mm long or more. Male flowers with corolla tubes generally 20 mm long or more. Fruits 5–7 mm diameter or if 1–4 mm diameter then distribution Fiji ... 23
b. Calyces of female flowers up to 3 mm long, corolla tubes up to 14 mm long; male flowers with corolla tubes up to 20 mm long. Fruits up to 4 mm diameter. Not in Fiji 24
23 a. Leaves 2–3.5 × as long as broad, lateral nerves 7–15 pairs. Calyces of the male flowers 1–2 times broader than long, calyces of female flowers as long as or up to 2 times longer than broad. Fruits 2–4 mm diameter. Fiji to New Hebrides **27. D. oblongifolium**
b. Leaves 1.5–2 times as long as broad, lateral nerves 13–25 pairs. Calyces of the male flowers 2 times as long as broad or as long as broad, calyces of female flowers 1–1.5 times broader than long. Fruits 5–7 mm diameter. Solomon Islands ..... **25. D. acuminatum**
24 a. Lateral nerves 16–20 pairs. Female flowers 4-merous, corolla tubes up to 6 mm long, lobes 5–7 mm long. Solomon Islands ..... **20. D. minutilobum**

b. Lateral nerves 10–18 pairs. Female flowers 5- (or 6-)merous, corolla tubes 9 mm long or more, lobes over 10 mm long. New Guinea or Philippines 25

25 a. Corolla tubes of male flowers up to 10 mm long. Corolla tubes and lobes of male and female flowers glabrous. Fruits 1–2 mm diameter. New Guinea **13. D. leptocarpum**

b. Corolla tubes of male flower 17–22 mm long. Corolla tubes and lobes of male and female flowers densely (tomentose-)pubescent or sericeous(-hirsute). Fruits 2–3 mm diameter. Philippines ..... **11. D. philippinense**

26 a. Calyces of the female flowers 4 mm long or more 27

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27 a. Stipules conspicuously persistent on several nodes. Hypanthia glabrous or pubescent to floccose. Fiji ..... **28. D. macgregorii**

b. Stipules caducous (sometimes belatedly so). Hypanthia never glabrous ... 28

28 a. Calyces of male flowers 4 mm long or more, as long as or longer than the calyces of the female flowers. Corolla tubes of the female flowers up to 10 mm, rarely up to 15 mm but then glabrous outside and distribution New Guinea, rarely only up to 2 mm then distribution Solomon Islands 29

b. Calyces of the female flowers longer than the calyces of the male flowers, these up to 3 mm long. Corolla tubes of the female flowers 11 mm long or more, sometimes slightly less but than in Solomon Islands. Distribution Fiji, Solomon Islands, Trobriand Islands or Louisiade Archipelago 31

29 a. Lateral nerves 14–17 pairs. Inflorescence peduncle (4–)5–7 cm. Corolla lobes of male and female flowers 2–3 mm long. (Only buds known.) Calyces of male and female flowers longitudinally splitting. Solomon Islands .. **26. D. ridsdalei**

b. Lateral nerves 8–13 pairs. Inflorescence peduncle 1–4(–4.5) cm. Corolla lobes of the male and female flowers 8 mm or more. Calyces of male and female flowers cylindrical, never splitting. New Guinea mainland 30

30 a. Stipules (ovate-)lanceolate to linear, 4–8 mm wide, 20–35 mm long, 4–5 times longer than broad, densely sericeous, becoming glabrous with age. Female flowers 5-merous. Corolla lobes outside glabrous or sericeous. Fruits generally up to 7(–8) cm long ..... **3. D. forbesii**

b. Stipules linear, 2–4 mm wide, 20–36 mm long, 9–10 times longer than broad, glabrous to sparsely pubescent. Male flowers 4-merous. Corolla lobes outside glabrous. Fruits generally over 7 cm long ..... **2. D. rubrum**

31 a. Corolla tubes of the male flowers (18–)20 mm long or more. Corolla tubes of the female flowers 15 mm long or more. Disk minute 0.1–0.2 mm high. Fiji to New Hebrides ..... **27. D. oblongifolium**

b. Corolla tubes of the male flowers 0.8–2 cm long and then corolla tubes of female flowers up to 14 mm long, or if 40–65 mm long then with a well developed disk, 0.5–1.0 mm high. Solomon Islands and Louisiade Archipelago .. 32

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34 a. Stipules 2.5–4.5 times longer than wide, up to 8 mm wide. Corolla tubes of male and female flowers densely pubescent to sericeous. Corolla lobes of male flowers 15–20 × 3–4 mm, ovate-lanceolate to linear. Fruits 16–30 × 0.2 cm. Louisiade Archipelago and Trobriands . . . . . **19. D. longifructum**

b. Stipules 1.5–2 times longer than wide, 10 mm wide or more. Corolla tubes of the male and female flowers glabrous. Corolla lobes of the male flowers 6–15 × 3–6 mm, elliptic. Fruits 5.5–15 × 0.3–0.6 cm. Solomon Islands **24. D. glabrum**

35 a. Corolla tubes of the male flowers (18–)20 mm long or more, of the female flowers 15 mm long or more. Fiji to New Hebrides . . . . **27. D. oblongifolium**

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b. Female flowers 5- or 6-merous 40

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42 a. Corolla tube of male flowers 10 mm. New Guinea . . . . . **16. D. rufiflorum**

b. Corolla tube of male flowers 11–16 mm. Solomon Islands . . . . **22. D. brassii**

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b. Lateral nerves 11–16 pairs. Petiole up to 23 mm. New Guinea, Morobe district **16. D. rufiflorum**

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47 a. Corolla lobes of male flowers 17–22 mm long. Philippines . **11. D. philippinense**

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65 a. Lateral nerves 7–9 pairs, in the middle of the lamina at an angle of 20°–30° to the midrib. Leaves lanceolate-linear, 1–3 cm wide. Rheophyte **17. D. rheophilum**
b. Lateral nerves 9–17 pairs, in the middle of the lamina at an angle of 30°–50° to the midrib. Leaves elliptic- to obovate-oblong or (ob)lanceolate, 3–12.5 cm wide ... 66

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ENUMERATION OF SPECIES

1. Dolicholobium moluccense M.E. Jansen, *spec. nov.*

Frutices vel arbusculae usque ad 5 m altae. Indumentum pallido-fuscum. *Stipulae* caducae ellipticae ad oblongae, 16–55 × 7–22 mm, dense longe pubescentes vel longe sericeae, apicibus obtusis vel rotundatis. Petiolus 17–24 × 1–2 mm. *Lamina folii* obovata vel obovato-oblonga (ad oblonga), 7.5–24(–29.5) × 3–11.5 cm, supra rare pubescens vel glabra, subtus rare longe pubescens, in costa atque nervis dense pubescentibus (vel hirsutis), apice acuto vel usque ad 15 mm acuminato, basi acuto ad obtusa, nervibus lateralibus 16–20(–32) paribus. Cyma 5–7 floribus, pedunculo (30–)38–75 × 1 mm. *Flores masculi* 5-meri. Pedicellus articulatus, 26–36 × 0.5–1

mm, longe pubescens, plerumque caducus post anthesin. Calyx cylindrico-campanulatus vel fusiformis, extus sparse ad dense longe pubescens, intus longe sericeus, margine longe ciliato, intus ad basem 10–40 colleteribus in turmis 5 antipetalis 2–8 colleterum. Tubus corollae 10–14 mm longus, parte inferiore 1–1.5 mm lata, in parte summa 4–6 mm longa ad 2 mm dilatata, glaber; lobi ovato-oblongi ad ovato-lanceolati 17–19 × 6 mm, partibus superponentibus extus glabris ad sericeis, intus glabris, partibus superpositis extus glabris ad sparse pubescentibus, intus glabris, marginibus glabris. Antherae lineares, 3.5–4.5 × 0.4–0.6 mm. Discus 0.2–0.6 mm altus, 0.6–1.0 mm latus. Stylus 0.4–0.6 mm longus glaber vel sparse pubescens; stigmata 4 mm longa abaxialiter sparse ad dense longe puberula, adaxialiter glabra. *Flores feminei* 5-meri, sessiles. Hypanthium cylindricum, 12–18 × 2–4 mm, dense longe sericeum. Calyx cylindricus vel leviter obconicus margine leviter undulato, vel fusiformis et ad apicem in lobis parvis rumpens, extus glaber ad longe pubescens, intus breviter ad longe sericeus, margine longe ciliato, intus ad basem annulo 15–40 colleterum. Tubus corollae 9–11 × 1–2 mm, in fauce 2.5–3 mm dilatatus, glaber; lobi ovato-lanceolati, 22–29 × 5–7 mm, partibus superponentibus extus glabris ad sparse breve pubescentibus, intus glabris, partibus superpositis extus glabris vel sparse breve pubescentibus, intus glabris, marginibus glabris vel sparse pubescentibus. Antherae lanceolatae ad lineares, 2–3 × 0.5 mm. Discus 0.5 mm altus, 0.5–1.5 mm latus. Stylus 3.5–4 mm longus; stigmata obovato-lanceolata ad linearia, 7–9 × 1.5–2 mm. *Fructus* cylindricus, filis vascularibus 8 incrassatis, 7.5–17 × 0.3–0.5 cm, pubescens et glabrescens vel sparse hirsutus, pedunculo (3–)6–9.5 cm longo, pubescenti vel sparse hirsuto. — T y p u s : *Pleyte 235* (L).

Shrubs or treelets up to 5 m high. Indumentum light brown. Ultimate branchlets long pubescent; upper 1 or 2 internodes flattened, 5–16 × 2–4 mm; lower internodes and nodes 4–7 mm thick. *Stipules* caducous, elliptic to (obovate-)oblong, 16–55 × 7–22 mm, often keeled, chartaceous to coriaceous, (densely) long pubescent or long sericeous, apex obtuse to rounded; nerves 19–22; colleters 300–450. *Petiole* above flattened to canaliculate, 17–42 × 1–2 mm, densely long pubescent to sericeous (and hirsute), ultimately glabrescent. *Leaf blade* obovate to obovate-oblong (to oblong), 7.5–24(–29.5) × 3–11.5 cm, papyraceous, above thinly long hairy to glabrous, below thinly long pubescent, densely so (or hirsute) on midrib and nerves, apex acute or up to 15 mm acuminate, base acute to obtuse; lateral nerves 16–20(–23) pairs, in the middle of the blade at an angle of 40°–65° to the midrib. *Inflorescence* a 5–7-flowered cyme, solitary; peduncle (30–)38–75 × 1 mm, densely long pubescent and hirsute). M a l e f l o w e r s 5-merous. *Pedicel* articulate, 26–36 × 0.5 0.5–1 mm, long pubescent, usually dropping after flowering. *Calyx* cylindrical-campanulate or spindle-shaped; outside thinly to densely long pubescent, inside long sericeous, margin long ciliate; inside basally with 10–40 colleters in 5 groups of 2–8 opposite the petals. *Corolla* tube cylindrical, 10–14 mm long, lower part 1.0–1.5 mm wide, upper 4–6 mm widened to 2 mm, glabrous; throat strongly thickened; lobes ovate-oblong to ovate-lanceolate, 17–19 × 6 mm, membranous, overlapping parts glabrous to sericeous outside, glabrous inside, overlapped parts glabrous or sparsely short pubescent outside, glabrous inside, margins glabrous, apex obtuse. *Stamens* inserted 4–6 mm under the throat; anthers linear, 3.5–4.5 × 0.4–0.6 mm. *Disk* 0.2–0.6 mm high, 0.6–1.0 mm wide. *Style* 0.4–0.6 mm long, glabrous or sparsely pubescent; stigma 4.0 mm long, abaxially sparsely to densely long puberulous, adaxially glabrous. F e m a l e f l o w e r s 5-merous, sessile. *Hypanthium* cylindrical, 12–18 × 2–4 mm, densely long sericeous. *Calyx* cylindrical to slightly obconical with slightly undulate margin, or spindle-shaped and apically rupturing into small

lobes; outside glabrous to long pubescent, inside short to long sericeous, margin long ciliate; inside basally with 15–40 colleters arranged in a circle. *Corolla* tube cylindrical to slightly obconical, 9–11 × 1–2 mm, at throat 2.5–3 mm wide, glabrous; throat strongly thickened; lobes ovate-lanceolate, 22–29 × 5–7 mm, membranous, overlapping parts glabrous or short pubescent outside, glabrous inside, overlapped parts glabrous or sparsely short pubescent outside, glabrous inside, margins glabrous or sparsely hairy, apex obtuse. *Stamens* inserted 4–5 mm under the throat; anthers lanceolate to linear, 2–3 × 0.5 mm. *Disk* 0.5 mm high, 0.8–1.5 mm wide. *Style* 3.5–4.0 mm long; stigmas obovate-lanceolate to linear, 7–9 × 1.5–2.0 mm, glabrous. *Fruits* cylindrical, with 8 thickened strands, 7.5–17 × 0.3–0.5 cm, pubescent and glabrescent or sparsely hirsute; stalk (3–)6–9.5 cm long, pubescent or thinly hirsute.

Distribution. Moluccas.

KEY TO THE SUBSPECIES

1a. Calyx cylindrical-campanulate to obconical, truncate . . . **a. subsp. moluccense**
b. Calyx spindle-shaped, apical opening narrow in the bud, ruptured by the protruding corolla into two small lobes . . . . . **b. subsp. fusiformis**

a. subsp. moluccense M.E. Jansen

Calyx cylindrical, cylindrical-campanulate to obconical, truncate, margin sometimes slightly undulate; in male flowers 9–11 × 3.0–3.5 mm, in female flowers 6–9 × 3.0–5.0 mm.

MOLUCCAS. Talaud I.: Karakelang, S. slope of Mt Dauta, Lam 2812 (A, L). – Halmaheira: Peak of Jailolo, Alston 16836 (BM), de Vogel 3403 (L); Tugu Aer, Pleyte 235 (L, holotype); Djiko Djiko, Lelengon, Nedi 347 (L). – Ternate: Foramadiahi, Beguin 1369 (L). – Tidore: Buku Tagafuru, Lam 3776 (L). – Batjan: Mt Sibela, Alston 17008 (BM), de Vogel 3546 (L). – Ambon: Salahoetoe, Rant 723 (L).

Ecology. Lowland to submontane rainforest, on slopes as well as on less well-drained soils; porous volcanic soils or clays derived from grey schists. Alt. 70–1800 m. Fl. Aug.–Jan., fr. Oct.–July.

Field notes. Calyx reddish green; corolla white, pale pink with red base, pink. Fruit greenish yellow to brown.

Note. *Lam 2812* (in fruit only) has on many parts long patent hairs in various densities, giving an hirsute appearance comparable to that of *D. cordatum*.

b. subsp. fusiformis M.E. Jansen, *subsp. nov.*

Differt a subsp. moluccense calyx fusiformis et ad apicem in lobis parvis rumpens. — Typus: *de Vogel 3982* (L).

Calyx spindle-shaped, apical opening narrow in bud, ruptured by protruding corolla into two lobes; only buds seen: in male buds 10–15 × 2–3 mm, lobes up to 4 × 3 mm, in female buds 12 × 3 mm, lobes up to 6 × 4 mm.

MOLUCCAS. O b i : Anggai, Mt Batu Putih, de Vogel 3982 (L, holotype).

Ecology. Hill side on deep clayey soil: rather open primary forest of 30 m high along small stream, with rather dense undergrowth. Alt. 500 m. Fl. buds & immature fr. Nov.

Note. This specimen differs from the remainder of *D. moluccense* by its spindle-shaped calyx, a character which I consider of taxonomic importance. As, however, the shape of the calyx is the only differentiating character, a subspecific rank seems most appropriate.

In both subspecies the calyx of the male flowers is slightly to distinctly longer than the calyx of the female flower in the same inflorescence.

2. Dolicholobium rubrum Schlechter ex Valeton

D. rubrum Schltr. ex Valeton, Bot. Jahrb. 60 (1926) 17. – Lectotype (here chosen): *Schlechter 17360* (K); syntypes: *Schlechter 17901* (B, lost; K), *15148* (B, lost).

Distribution. New Guinea.

NEW GUINEA. E a s t : Madang Dist., Kani Mts, Schlechter 17360 (K), 17901 (K), Finisterre Mts, Schlechter 15148 (B, lost). Morobe Dist., Wantoat, Clemens 41189 (A).

Ecology. Forests at 900–1000 m alt. Fl. Feb., April; fr. April.

3. Dolicholobium forbesii Wernham

D. forbesii Wernham, J. of Bot. 56 (1918) 69; Valeton, Bot. Jahrb. 60 (1926) 15. – *D. rogersii* in err., Britten, Index J. of Bot. 56 (1918). – Type: *Forbes 853* (MEL, holo; BM, K, L).

Distribution. New Guinea.

NEW GUINEA. E a s t : Central Dist., upper Brown R. area, S. of Manumu village, Isles & Vinas LAE 59020 (L). Sogeri Region, Mt Gawada, Forbes 853 (BM, K, L, MEL); ibid., Subitana area, Schodde 3113 (CANB, L).

Ecology. Hill rainforest. Alt. 480–900 m. Fl. & fr. Sept.

Field notes. Bark flaky, striate, mid greyish brown outside, mid brown inside; wood cream-brown; flowers white or dark dull cream.

Note. Very closely related to *D. crassicarpum*: that species has larger flowers, the hypanthium about as long as the appertaining calyx, and thick fruits; the present species has smaller flowers, the hypanthium about twice as long as the appertaining calyx, and slender fruits.

4. Dolicholobium crassicarpum M.E. Jansen, *spec. nov.*

Arbusculae usque ad 8 m latae. Indumentum album (corollam) vel pallido- ad atro-fuscum. *Stipulae* caducae ovato-lanceolatae ad lineares, 28–58 × 5–11 mm, longe sericeae, glabrescens apicibus acutis. Petiolus (8–)11–16 × 1 mm. *Lamina folii* obovato-oblonga, 10.5–20.5 × 4–10

cm, supra glabra, subtus glabra (in costae atque nervis juvenalibus sparse pubescentibus), apice usque ad 20 mm cuspidato, basi acuta ad anguste truncata, nervibus lateralibus 11–13 paribus. Cyma simplex, 4- vel 5-floribus, pedunculo 39–59(–78) × 1 mm. *Flores masculi* 5-meri. Pedicellus non articulatus, 8–19 × 1 mm, sericeus vel floccosus, glabrescens, caducus post anthesis. Calyx cylindricus vel laeviter obconicus, plerumque margine laeviter undulato, extus dense pubescens, glabrescens, intus sericeus, margine longe ciliato intus ad basem annulo 3–8 colleterum. Tubus corollae 19–24 × 1.5 mm, glaber, parte summa 8–10 mm longa, 3 mm dilatatus pubescens; lobi oblongi ad lanceolati 18–21 × 5–7 mm, partibus superponentibus extus breve pubescentibus, intus glabris, partibus superpositis extus glabris ad breviter pubescentibus. Antherae lineares, 5–6 × 0.7–0.9 mm. Discus 0.3–0.4 mm altus, 0.5–0.8 mm latus. Stylus 0.3–1 mm longus, stigmata 4 mm longa. *Flores feminei* 5-meri. Pedicellus 0.8 mm longus, breviter pubescens. Hypanthium fusiforme, 8–12 × 2–4 mm, breviter pubescens, glabrescens. Calyx obconicus, truncatus, utrinque sericeus, margine dense ciliato, intus ad basem annulo 6 colleterum. Tubus corollae c. 17 × 2 mm, parte summa leviter pubescens, 5 mm dilatatus; lobi ovato-oblongis, 20–25 × 8–9 mm, partibus superponentibus extus breve pubescentibus, intus glabris, partibus superpositis utrinque glabris. Antherae linearis, 3 × 0.7 mm. Discus 0.7 mm altus, 1.8 mm latus. Stylus 2 mm longus, stigmata linearia. *Fructus* cylindricus, basim angustatus, filis vascularibus 10 incrassatis, 2.5–5 × 0.8–1 cm, breve pubescens, exocarpio crasso, pedunculo 4–5.5 cm longo pubescenti. — Typus: *Brass 23370* (L, holo; A).

Treelets up to 8 mm high. Indumentum white (corolla) or light to dark brown. Ultimate branchlets glabrous; upper 1 or 2 internodes flattened, 5–56(–170) × 3–4 mm; lower internodes and nodes 4–7 mm thick. *Stipules* caducous, ovato-lanceolate to linear, 28–58 × 5–11 mm, sometimes slightly keeled, cartilagineous, long pubescent, glabrescent, apex acute; nerves c. 11; colleters 140–160. Petiole above flat to distally canaliculate, (8–)11–16 × 1 mm, glabrous or sparsely short pubescent. *Leaf blade* (obovate to) obovate-oblong, 10.5–20.5 × 4–10 cm, papyraceous, above glabrous, below glabrous but sparsely pubescent on midrib and nerves when young, margin pubescent, apex up to 20 mm cuspidate, base acute to narrowly truncate; lateral nerves 11–13 pairs, in the middle of the blade at an angle of 45°–60° to the midrib. *Inflorescence* a 4- or 5-flowered cyme, solitary; peduncle 39–59(–78) × 1 mm, densely hirsute, glabrescent. Male flowers 5-merous. *Pedicel* not articulate, 8–19 × 1 mm, sericeous to floccose, glabrescent, dropping after flowering. *Calyx* cylindrical to slightly obconical, 6–10 × 3 mm, truncate, sometimes margin slightly undulate; outside densely pubescent, glabrescent, inside sericeous, margin long ciliate; inside basally with 3–8 colleters arranged in a circle. *Corolla* tube subcylindrical obconical, 19–24 mm long, lower part c. 1.5 mm wide, almost glabrous, upper 8–10 mm widened to c. 3 mm, towards apex short pubescent; throat thickened; lobes oblong to lanceolate, 18–21 × 5–7 mm, membranous, overlapping parts short pubescent outside, glabrous inside, overlapped parts glabrous to short pubescent outside, glabrous inside, margins basally short pubescent on overlapped parts, apex obtuse. *Stamens* inserted 8–9 mm under the throat; anthers linear, 5–6 × 0.7–0.9 mm. *Disk* 0.3–0.4 mm high, 0.5–0.8 mm wide. *Styles* 0.3–1 mm long; stigmas 7.5–9 mm long. Female flowers 5-merous. *Pedicel* 0–8 mm long, short pubescent. *Hypanthium* spindle-shaped, 8–12 × 2–4 mm, short pubescent, glabrescent. *Calyx* slightly obconical, 8–10 × 5 mm, truncate; sericeous on either side, margin densely ciliate; inside basally with 6 colleters arranged in a circle. *Corolla* tube slightly obconical, c.

17 × 2 mm, at throat 5 mm wide, apically short pubescent; throat thickened; lobes ovate-oblong, 20–25 × 8–9 mm, membranous, overlapping parts outside short pubescent, inside glabrous, overlapped parts glabrous on either side, apex obtuse. *Stamens* inserted 4 mm under the throat; anthers linear, 3 × 0.7 mm. *Disk* c. 0.7 mm high, 1.8 mm wide. *Style* c. 2 mm long; stigmas linear, 15 × 2 mm. *Fruits* cylindrical, tapering towards base, with 10 thickened strands, 2.5–5 × 0.8–1 cm, short pubescent, exocarp thick; stalk 4–5.5 cm long, pubescent.

Distribution. New Guinea.

NEW GUINEA. East: Milne Bay Dist., Mt Dayman, Brass 23045 (A, L), 23111 (A, CANB, L), 23370 (A, L).

Ecology. As undergrowth in gullies and along streams in (oak-)forest. Alt. 1370–1550 m. Fl. June, July; fr. July.

Field notes. Leaves more or less fleshy. Flowers fragrant; cream, pale yellow.

Note. This species has a relatively short and thick fruit; the hypanthium is about as long as the appertaining calyx. See also note sub *D. forbesii.*

5. Dolicholobium cordatum M.E. Jansen, *spec. nov.*

Arbusculae usque ad 5 m altae. Indumentum albidum vel pallido- ad atrofuscum. *Stipulae* caducae, oblongae ad lanceolatae, 39–41 × 12–18 mm, sparse hirsutae, apicibus rotundatis. Petiolus 15–21 × 2 mm. *Lamina folii* elliptica ad obovata, 19–27 × 12–15.5 cm, supra glabra, subtus puberulus et hirsutus dense in costa atque nervis, apice acuto usque 25 mm cuspidato, basi (sub-) cordata, lobi 2–5 mm longi, nervibus lateralibus 18–20 paribus. Cyma 4–7 floribus, pedunculo 72–117(–155) × 1–2 mm, floribus masculis florescentibus primum. *Flores masculi* 4-meri. Pedicellus non articulatus, 37–49 × 1 mm, puberulus et sparse hirsutus, caducus post anthesin. Calyx obconicus, 9–12 × 2–3 mm, truncatus extus puberulus et hirsutus intus ad basem breviter sericeus, margine breve ciliato, intus ad basem annulo 25–30 colleterum. Tubus corollae 18–20 × 1–2 mm, glaber in fauce 2–3 mm dilatatus, lobi ovati ad ovato-oblongi, 15–19 × 5–6 mm, utrinque glabri, marginibus glabris. Antherae lineares, 6 × 0.6 mm. Discus 0.05 mm altus, 1 mm latus. Stylus 3–8 mm longus, stigmata 4 mm longa. *Flores feminei* 5-meri (alabastria tantum cogniti), pedicelli puberuli. Hypanthium fusiforme ad cylindricum, 17–21 × 2–4 mm, puberulum et hirsutum. Calyx obconicus vel laeviter campanulatus, 8–9 × 5–8 mm, truncatus, extus sparse puberulus et hirsutus, margine sparse ciliato, intus ad basem annulo c. 40 colleterum. Tubus corollae usque ad 11 × 2 mm, glaber, in fauce 4 mm dilatatus, lobi usque ad 14 mm longi, marginibus glabris. Antherae ovato-oblongae. Discus 1 mm altus. Stylus c. 2 mm longus; stigmata lanceolata, c. 7 × 2 mm. *Fructus* cylindricus, filis vascularibus 12 incrassatis, 7–9 × 0.5–0.6 cm sparse pubescens, exocarpio tenui, pedunculo 6–13 cm longo, dense pubescenti et sparse hirsuto. — Typus: *Brass 28276* (L, holo; A, US).

Treelet up to 5 m high. Indumentum whitish or light to dark brown. Ultimate branchlets puberulous and hirsute; upper 1–3 internodes flattened, 4–7 × 3–4 mm; lower internodes and nodes 4–7 mm thick. *Stipules* caducous, oblong to lanceolate, 39–41 × 12–18 mm, sometimes slightly keeled, chartaceous, thinly hirsute, apex rounded; nerves c. 26; colleters c. 50. *Petiole* flattened above, 15–21 × 2 mm, densely puberulous and hirsute. *Leaf blade* elliptic to obovate, 19–27 × 12–15.5 cm, papyraceous, above glabrous, below puberulous and hirsute, densely so on midrib and

nerves, apex acute or up to 25 mm cuspidate, base (sub)cordate with lobes 2–5 mm long; lateral nerves 18–20 pairs, in the middle of the blade at an angle of 50°–60° to the midrib. *Inflorescence* a 4–7-flowered cyme, solitary; peduncle 72–117(–155) × 1–2 mm, puberulous and hirsute; male flowers flowering first. Male flowers 4-merous. *Pedicel* not articulate, 37–49 × 1 mm, peduncles of lateral cymes 0–20 mm long, puberulous and sparsely hirsute, dropping after flowering. *Calyx* obconical, 9–12 × 2–3 mm, truncate; outside puberulous and hirsute, inside basally short sericeous, margin shortly ciliate; inside basally with 25–30 colleters arranged in a circle. *Corolla* tube cylindrical, 18–20 × 1–2 mm, glabrous; throat 2–3 mm wide, thickened; lobes ovate to ovate-oblong, 15–19 × 5–6 mm, membranous, glabrous on either side, margins glabrous, apex obtuse. *Stamens* inserted 8 mm under the throat; anthers linear, 6 × 0.6 mm. *Disk* 0.05 mm high, 1 mm wide. *Style* 3.8 mm long; stigmas 2 mm long. Female flowers 5-merous. *Only buds present. Pedicel* 3–7 mm long, puberulous. *Hypanthium* spindle-shaped to cylindrical, 17–21 × 2–4 mm, puberulous and hirsute. *Calyx* obconical to slightly campanulate, 8–9 × 5–8 mm, truncate; outside rather thinly puberulous and hirsute, inside basally short sericeous, margin sparsely ciliate; inside basally with c. 40 colleters arranged in a circle. *Corolla* tube cylindrical, up to 11 × 2 mm, glabrous; throat 4 mm wide, thickened; lobes up to 14 mm long, glabrous, margins glabrous, apex obtuse. *Stamens* with ovate-oblong anthers. *Disk* 1 mm high, 2.5 mm wide. *Style* c. 2 mm long; stigmas lanceolate, c. 7 × 2 mm. *Fruits* cylindrical, with 12 thickened strands, 7–9 × 0.5–0.6 cm, thinly puberulous, exocarp thin; stalk 6–13 cm long, densely puberulous and sparsely hirsute.

Distribution. Louisiade Archipelago.

NEW GUINEA. East: Papuan I., Louisiade Arch., Rossel I., Abaleti, Brass 28276 (A, L, US).

Ecology. Moist ravine in rainforest. Alt. 50 m. Fl. & fr. Oct.

Field notes. Corolla yellowish, lobes edges with red.

Note. Characteristic features of this species are the leaf base, the long peduncle, and the long pedicels of the male flowers. The indumentum consists of a dense puberulous layer from which long hairs arise, forming a rather dense to lax layer.

6. Dolicholobium nakiki M.E. Jansen, *spec. nov.* – Fig. 1.

Arbusculae usque ad 10.5 m altae. Indumentum pallido-fuscum. *Stipulae* caducae, oblongae ad lanceolatae, 15–32 × (4–)6–12 mm, dense pubescenti-sericeae ad tomentosae vel floccosae, apicibus acutis vel obtusis ad anguste rotundatis. Petiolus 15–30(–35) × 1–2 mm. *Lamina folii* (obovato-)oblonga ad (obovato-)lanceolata, 11–29.5 × 4–10 cm, supra glabra, (juvenali pubescenti vel dense lanati), subtus glabra vel sparse pubescentibus, (in costa atque nervis juvenali sericeis ad floccosis), apice acuto vel usque ad 15 mm acuminato, basi acuta ad attenuata, nervis lateralibus 14–22 paribus. Cyma vel dichasium simplex, 3–5 floribus, pedunculo (2–)4–29 × 1 mm, floribus femineis florescentibus primum. *Flores masculi* 5-meri. Pedicellus non articulatus, 19–29 × 0.5–1 mm, sparse pubescenti-sericeus ad lanatus. Calyx cylindricus vel obconicus, 8–16 × 2–5 mm, truncatus interdum 1/3 fissus, extus glabrus vel (dense) longe pubescens, intus dense breve pallido-sericeus, margine sparse ad dense longe ciliato, colleteribus destitutis. Tubus corol-

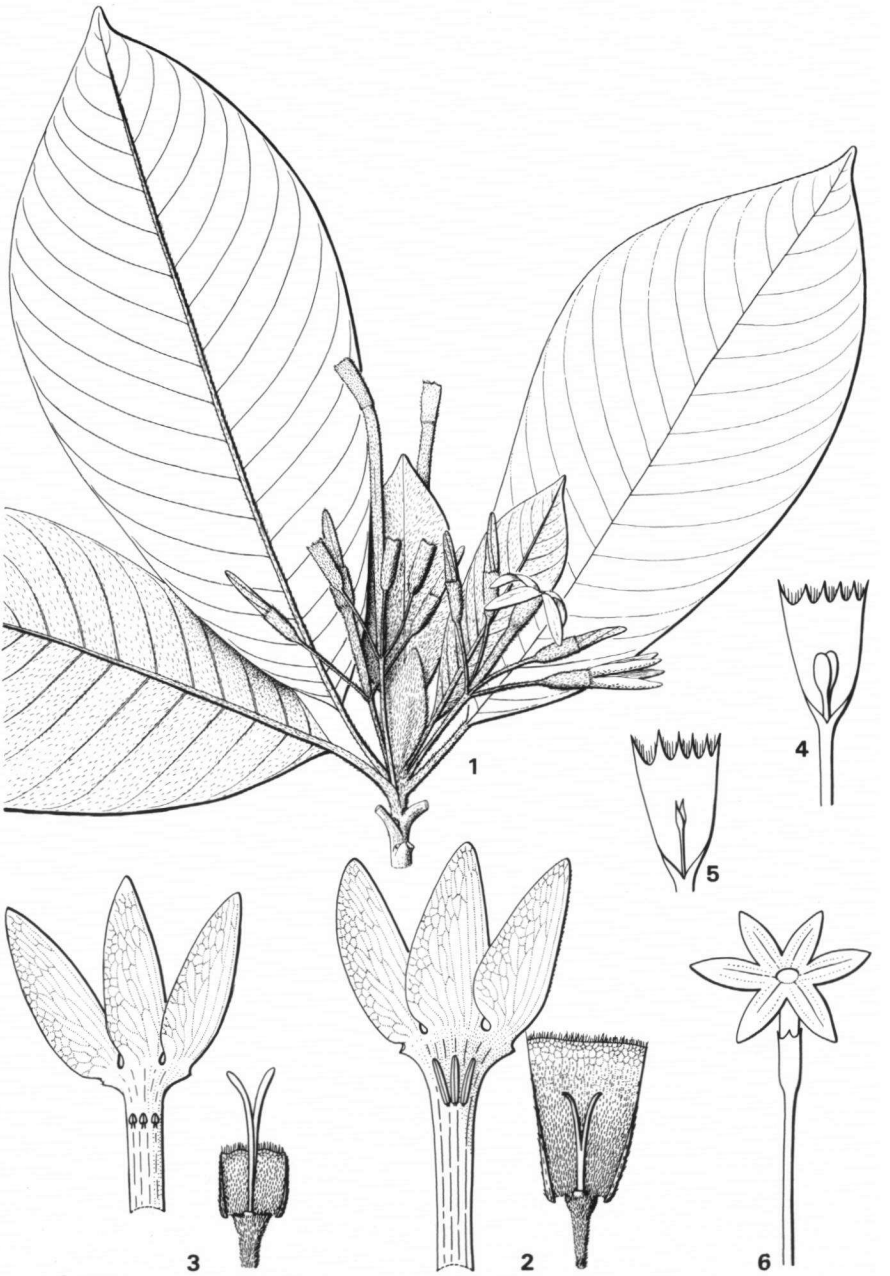

Fig. 1. *Dolicholobium nakiki.* 1. Habit, ×½; 2. dissected female flower, × 1½; 3. dissected male flower, × 1½ (1 & 2. *LAE 53626*, 3. *NGF 27343*). – *D. peekelii.* 4. Dissected calyx of female flower, × c. 1; 5. dissected calyx of male flower, × c. 1; 6. female flower, x c. 1 (4–6. after Peekel manuscript, 1947).

lae 19–23 × 1 mm, in fauce 5–7 mm dilatatus; lobi ovato-lanceolati vel oblongi ad lanceolati, 17–23 × 5–10 mm, partibus superponentibus extus glabris vel dense breve pubescenti-sericeis, intus glabris vel marginibus lanatis, partibus superpositis extus glabris vel marginibus sparse ciliatis. Antherae lineares, 4–4.5 × 0.5–0.8 mm. Discus 0.3–0.5 mm altus, 0.4–0.8 mm latus. Stylus 1.5–4.0 mm longus; stigmata 2–5 mm longa. *Flores feminei* 5-meri, sessiles. Hypanthium cylindricum, 18–27(–37) × 1–2 mm, dense longe sericeum vel floccosum. Calyx cylindricus ad obconicus, 7–14 × 3–5 mm interdum 1/2 fissus, persistens, margine truncato vel undulato, extus sparse pubescens vel dense longe sericeus, intus dense longe sericeus, margine longo ciliato, interdum ad basem 1–5 colleterum. Tubus corollae 13–15 × 2 mm, in fauce 2.5–3 mm dilatatus, glabrus vel parte summa dense pubescenti-lanatus; lobi lanceolati, 18–21 × 5–6 mm, partibus superponentibus extus glabris vel sericeo-lanatis, intus glabris, partibus superpositis extus ad basem lanatis vel glabris, intus glabris, marginibus glabris. Antherae (ovato-)lanceolatae, 1.5–2 × 0.4–0.6 mm. Discus 0.5–0.8 mm altus, 1.5–2.5 mm latus. Stylus 2–6 mm longus; stigmata linearia, 9–11 × 1–2 mm. *Fructus* cylindricus filis vascularibus 8 incrassatis, 7–22 × 0.1–0.25 cm, glaber, exocarpio tenui, pedunculo 1.5–2 cm longo, dense sericeo. — T y p u s : *LAE 53626* = *Stone & Streiman 10316* (L, holo; A, BISH, K).

Small trees up to 10.5 m high, bole up to 12.5 cm in diam. Indumentum light brown. Ultimate branchlets densely tomentose to pubescent-sericeous; upper 1 or 2 internodes flattened, 3–6 × 2–6 mm; lower internodes and nodes 3–7 mm thick. *Stipules* caducous, oblong to lanceolate, 15–32 × (4–)6–12 mm, sometimes keeled, subcoriaceous to chartaceous, densely pubescent-sericeous to tomentose or floccose, apex acute or obtuse to narrowly rounded; nerves 13–21; colleters 150–200. *Petiole* above flattened to distally canaliculate, 15–30(–35) × 1–2 mm, densely long sericeous to floccose, more or less glabrescent. *Leaf blade* (obovate-)oblong to (obovate-)lanceolate, 11–29.5 × 4–10 cm, chartaceous, above glabrous, pubescent to densely lanate when young, below glabrous or sparsely pubescent on midrib and nerves, densely pubescent-sericeous to floccose especially on midrib and nerves when young, margins glabrous, apex acute or up to 15 mm acuminate, base acute to attenuate; lateral nerves 14–22 pairs, at the middle of the blade at an angle of 25°–60° to the midrib. *Inflorescence* a 3–5-flowered simple dichasium or cyme, solitary or 2 developing from serial buds; peduncle 2–29 × 1 mm, densely pubescent-sericeous to floccose, female flower flowering first. M a l e f l o w e r s 4-merous. *Pedicel* not articulate, 19–29 × 0.5–1.0 mm, thinly pubescent-sericeous to lanate, sometimes persistent under fruits. *Calyx* cylindrical to obconical, 8–16 × 2–5 mm, truncate, sometimes split to 1/3 of its length; outside glabrous or (densely) long pubescent, inside densely short white sericeous, margin sparsely to densely long ciliate; no colleters. *Corolla* tube cylindrical to obconical, 19–23 mm long, 1 mm wide, upper 5–7 mm widened to 1.5–2.5 mm, glabrous or upper part densely pubescent; throat thickened; lobes ovate to ovate-lanceolate or oblong to lanceolate, 17–23 × 5–10 mm, membranous, overlapping parts glabrous or densely short pubescent-sericeous outside, glabrous inside, overlapped parts glabrous outside, inside glabrous to sparsely lanate along the margin, margin glabrous or sparsely ciliate, apex narrowly obtuse. *Stamens* inserted 5–6 mm under the throat; anthers linear, 4–4.5 × 0.5–0.8 mm. *Disk* 0.3–0.5 mm high, 0.4–0.8 mm wide. *Style* 1.5–4.0 mm long; stigmas 2–5 mm long. F e m a l e f l o w e r s 5-merous, sessile. *Hypanthium* cylindrical, 18–27(–37) × 1–2 mm, densely long sericeous to floccose. *Calyx* cylindrical to obconical, 7–14 × 3–5

mm, truncate or margin undulate; not rarely split to 1/2 of its length; persistent in fruit; outside sparsely pubescent or densely long sericeous, inside densely long sericeous, margin long ciliate; sometimes inside basally with up to 5 colleters opposite the petals. *Corolla* tube cylindrical to obconical, 13–15 × 2 mm, at throat 2.5–3 mm wide, glabrous or upper part densely pubescent-lanate; throat thickened; lobes lanceolate, 18–21 × 5–6 mm, membranous, overlapping parts outside glabrous or sericeous-lanate, inside glabrous, overlapped parts outside basally lanate or glabrous, inside glabrous, margins glabrous, apex obtuse. *Stamens* inserted 3–6 mm under the throat; anthers ovate-lanceolate to lanceolate, 1.5–2 × 0.4–0.6 mm. *Disk* 0.5–0.8 mm high, 1.5–2.5 mm wide. *Style* 2–6 mm long; stigmas linear, 9–11 × 1–2 mm. *Fruits* cylindrical, with 8 thickened strands, 7–22 × 0.1–0.25 cm, glabrous, exocarp thin; stalk 1.5–2 cm long, densely sericeous.

Distribution. Bismarck Archipelago.

NEW GUINEA. East: Bismarck Archipelago. Manus I., Mt Dremsel, Stone & Streiman 10326 = LAE 53626 (BISH, K, L). New Ireland, Sands 2104 (L). New Britain, N. of Aesiga village, Cape Gloucester, Frodin NGF 26668 (A, CANB, L); Benim village, upper Pulie R., Henty & Frodin NGF 27343 (CANB, L); Pulie R., 10 miles from mouth, Henty & Frodin NGF 27225 (CANB, L); road W. of Fullerborn Harbour, Croft & Isles NGF 12960 (BISH, L, US).

Probably belonging here: New Hannover, Naumann s.n. (fragm. WRSL), sterile, identified by Schumann as *D. gertrudis*.

Ecology. In lowland rainforest on hillsides and ridges or on rock banks of gullies. Alt. 30–540 m. Fl. & fr. March–June.

Field notes. Trunk straight, fluted. Bark red-grey, red-brown, brown, shallowly fissured, with thin narrow scales; inner surface of outer bark green; inner bark white or pink; wood hard, straw or dark yellow. Flowers white or reddish green.

Vernacular names. New Britain: nakeekee (Aesiga village), slangadach (Benim village).

Note. *Sands 2104* from New Ireland differs from the other specimens in its indumentum; in the description this specimen accounts for: glabrous calyx and corolla in male flowers, sparsely pubescent calyx and glabrous corolla in female flowers. The sterile specimen *Nauman s.n.* closely corresponds to *Sands 2104* in vegetative characters.

7. Dolicholobium peekelii Valeton – Fig. 1.

D. peekelii Valeton, Bot. Jahrb. 60 (1926) 17; Peekel, Ill. Fl. Bismarck Arch., manuscript (1947) 1698, 1699. – Type: *Peekel 597* (B, lost), neotype (here chosen): Peekel, Ill. Fl. Bismarck Arch., manuscript (1947) t. 1698.

Distribution. Bismarck Archipelago.

NEW GUINEA. East: Bismarck Archipelago. New Ireland, Namatamai, Hare Bay, descent to Marianum, 300 m alt., Peekel 597 (B, lost).

Note. None of the available collections matches the description of *D. peekelii* close enough to consider it as conspecific. *D. peekelii* is very close to *D. nakiki*,

which has 4-merous male flowers, 5-merous female flowers, and female calyces about 1.5 times as long as the male ones.

8. Dolicholobium oxylobum K. Schumann

D. oxylobum K. Sch. in K. Sch. & Laut., Fl. Schutzgeb. (1900) 554; Valeton, Nova Guinea 8, Bot. (1911) 449; ibid. 14, Bot. (1926) 256; Bot. Jahrb. 60 (1926) 16. – *D. oxylobum* var. *genuinum ('genuina')* Valeton, Nova Guinea 14, Bot. (1926) 256; Bot. Jahrb. 60 (1926) 15. – Type: *Rodatz & Klink 199* (B, lost); neotype (here chosen): *Thomsen 874* (L, holo; K).

Guettarda loeseneriana Laut. in K. Sch. & Laut., Fl. Schutzgeb., Nachtr. (1905) 395. – Type: *Schlechter 14581* (B, lost, seen by Valeton).

D. pubescens Valeton, Nova Guinea 8, Bot. (1911) 448. – *D. oxylobum* var. *pubescens* Valeton, Nova Guinea 14, Bot. (1926) 257; Bot. Jahrb. 60 (1926) 15. – Lectotype (here chosen): *Versteeg 1424* (L, holo; K).

D. oxylobum var. *glabrescens* Valeton, Nova Guinea 14, Bot. (1926) 257; Bot. Jahrb. 60 (1926) 15. – Type: *Feuilleteau de Bruyn 75* (L).

Distribution. New Guinea.

NEW GUINEA. West: Jayapura Dist., Mamberamo R., Thomsen 874 (K, L). Idenburg R., Feuilleteau de Bruyn 75 (L). Mimika Dist., Noord R., Geitenkamp Bivouac, Versteeg 1424 (K, L); Kloofbivak, Pulle 135, 135a (L); Resi Mts, Beaufort R., Pulle 322 (K, L). – East: West Sepik Dist., Aitape Subdist., Pieni R. near Walwali, Darbyshire & Hoogland 8054 (CANB, L); 28 km SW. of Aitape, Heyligers 1726 (CANB). East Sepik Dist., Balek Ck, Ninihok valley, vicinity of Bur, 40 miles W. of Wewak, Pullen 1380 (CANB). Ambunti Subdist., Yapa (Hunstein) R., Hoogland & Craven 10533 (BRI, CANB, L). Madang Dist., Aiome, Tiganants R., Pullen 989 (A, L), 1012 (L), Womersley NGF 24756 (A, BRI, CANB, L).

Ecology. River- and creekbanks, floodplains, river terraces in the borders of (*Pometia, Pometia-Celtis*) forest; up to 250 m alt. Fl. June–Dec., fr. July–Nov.

Field notes. Flowers scented, white or white and yellow at throat.

Vernacular names. Fehgiri (Orne lang., Walwali); galang-galang-buang (Waskuk, Hunstein); miku (Wagu, Hunstein).

Notes. For relationships, see under *D. barbatum*.

As Valeton found the collection by Thomsen to be almost identical to the (lost) type and thus included it in his var. *genuinum*, this specimen is chosen as the neotype. Although Valeton mentions two specimens for his *D. pubescens, von Römer 592* (n.v.) is mentioned almost casually and not repeated when he described var. *pubescens*; also the introduction points out that Valeton based his description on *Versteeg 1424*.

9. Dolicholobium barbatum M.E. Jansen, *spec. nov.*

Arbusculae usque ad 6 m altae. *Stipulae* tarde caducae, ellipticae vel obovatae ad oblongae, 26–52 × 15–21 mm, dense longe pubescentes vel floccosae, apicibus rotundatis. Petiolus 12–43 × 2–4 mm. *Lamina folii* obovata, 20–35.5 × 11–20 cm, supra sparse pubescens vel glabra, subtus rare puberula, in costa atque nervis dense pubescentibus, apice usque ad 15 mm acuminato, basi acuta ad obtusa, nervibus lateralibus 17–20 paribus. Cyma 4–6 floribus, pedunculo 8–15 × 2–3 mm. *Flores masculi* 5-meri. Pedicellus non articulatus, persistens post anthesin, 7–15 × 1–2 mm,

rare pubescens. Calyx cylindricus ad obconicus, 2–3 × 2–4 mm, truncatus plerumque margine laeviter undulato, utrinque glabrus, intus ad basem 1–9 colleteribus. Tubus corollae 36–66 × 2–2.5 mm, parte superiore 10–12 mm longus, 3–4 mm dilatatus; lobi obovati vel elliptici ad oblongi, partibus superponentibus extus pubescentibus, partibus superpositis extus glabris ad sparse ciliatis. Antherae lineares, 6–7 × 1–1.5 mm, ad basem hirsutos. Discus 1 mm altus, 1.6 mm latus. Stylus 2 mm longus; stigmata 7.5 mm longa. *Flores feminei* (alabastria tantum cogniti). Hypanthium cylindricum, 20–25 × 3–4 mm, sericeo-pubescens ad floccosum. Calyx late campanulatus ad infundibularis, 8–10 × 12–15 mm, leviter ad profunda lobatus, lobi semi-orbiculati ad deltati 2–5 × 3–8 mm, apicibus late acutis vel obtusis ad rotundatis; insidens fructui usque ad 16–28 mm et lobi usque ad 7 × 10 mm; extus longe pubescens, glabratus, intus glabrus, margine ciliato, intus ad basem annulo c. 20 colleterum. Tubus corollae usque ad 25 × 4 mm, longe sericeus, lobi usque ad 30 mm longi, partibus superponentibus extus sericeo-pubescentibus, intus glabris, partibus superpositis extus rare puberulis, intus glabris. Antherae ad basem hirsutos. Discus 1 mm altus, 3 mm latus. Stylus usque ad 7 mm longus; stigmata anguste oblanceolata usque ad 19 × 3 mm. *Fructus* cylindricus filis vascularibus 12 incrassatis, 7–14 × 0.5–0.9 cm, pubescens, glabrescens, pedunculo 1–3.5 cm longo, glabro. — Typus: *Brass 27046* (L, holo; A, K, US).

Treelets up to 6 m high. Indumentum whitish. Ultimate branchlets densely long pubescent, glabrescent, upper 1 or 2 internodes flattened, 5–12 × 4–7 mm; lower internodes and nodes 7–9 mm thick. *Stipules* caducous, dropping after young leaves and flowers have elongated considerably, elliptic or obovate to oblong, 26–52 × 15–21 mm, not keeled, subcoriaceous, densely long pubescent to floccose, glabrescent, margin densely pubescent, apex rounded; nerves 16–21; colleters c. 300. *Petiole* canaliculate or flattened above, 12–43 × 2–4 mm, glabrous, densely pubescent to floccose when young. *Leaf blade* obovate, 20–35.5 × 11–20 cm, firmly papyraceous, above sparsely pubescent to glabrous, below thinly puberulous but denser so or pubescent on midrib and nerves, when young densely pubescent on either side, apex up to 15 mm acuminate, base acute to obtuse; lateral nerves 17–20 pairs, at the middle of the blade at an angle of 40°–55° to the midrib. *Inflorescence* a 4–6-flowered cyme, solitary; peduncle 8–15 × 2–3 mm, pubescent. Male flowers 5-merous. *Pedicel* persistent after flowering, sometimes also under the fruit, not articulate, 7–15 × 1–2 mm, thinly pubescent. *Calyx* cylindrical to obconical, 2–3 × 2–4 mm, truncate, sometimes margin slightly undulate, glabrous on either side, margin glabrous; inside basally with up to 9 colleters. *Corolla* tube cylindrical, 36–66 mm long and 2–2.5 mm wide, upper 10–12 mm widened to 3–4 mm, long pubescent; throat not or slightly thickened; lobes obovate or elliptic to oblong, 22–27 × 12–15 mm, glabrous inside, overlapping parts pubescent outside, overlapped parts glabrous to sparsely short pubescent outside, margins glabrous to sparsely ciliate, apex obtuse. *Stamens* inserted 11–12 mm under the throat; anthers linear, 6–7 × 1–1.5 mm, base hairy. *Disk* 1 mm high, 1.6 mm wide. *Style* 2 mm long; stigmas 7.5 mm long. Female flowers 6-merous. *Only buds present. Pedicel* 0–5 × 1 mm, pubescent. *Hypanthium* cylindrical, 20–25 × 3–4 mm, sericeous-pubescent to floccose. *Calyx* broadly campanulate to infundibular, 8–10 × 12–15 mm, shallowly to rather deeply lobed, lobes semi-orbicular to deltoid, 2–5 × 3–8 mm, apex broadly acute or obtuse to rounded; in fruit calyx often recurved, up to 16 × 28 mm, lobes up to 7 × 10 mm; outside long pubescent, glabrescent, inside glabrous, margin ciliate; inside basally up to 20 colleters arranged in a circle. *Corolla* tube cylindrical, up to 25 × 4 mm, long

sericeous; throat thickened; lobes up to 30 mm long, inside glabrous, overlapping parts sericeous-pubescent outside, overlapped parts thinly puberulous outside. *Stamens* with linear anthers hairy at base. *Disk* 1 mm high, 3 mm wide. *Style* up to 7 mm long; stigmas narrowly oblanceolate, up to 19 × 3 mm. *Fruits* cylindrical, with 12 thickened strands, 7–14 × 0.5–0.9 cm, pubescent, glabrescent; stalk 1–3.5 cm long, glabrous.

Distribution. D'Entrecasteaux Islands.

NEW GUINEA. East: D'Entrecasteaux I. Fergusson I., mountains between Agamoia and Ailuluai, Brass 27046 (A, K, L, US), Croft et al., LAE 68676 (L). Normanby I., Mt Pabinama, Brass 25720 (A, L, US).

Ecology. Ravine in tall mossy forest, edge of clearing in forest; alt. 820–950 m. Fl. June, fr. May–June.

Field notes. Stipules reddish; flowers fragrant, white.

Note. This species is very closely related to *D. oxylobum*, with which it shares the bearded anthers but from which it differs in the smaller female calyx with broader obtuse lobes. It was decided not to rank these specimens as a subspecies of *D. oxylobum* as the distributional areas are far apart and the intermediate space is largely occupied by *D. gertrudis*. In the cluster of species *D. oxylobum. D. barbatum, D. gertrudis, D. acuminatum* and *D. glabrum*, the first two species are characterized by their bearded anthers. Of the remaining species *D. acuminatum* has male and female corolla tubes much longer than the others; *D. gertrudis* has the female calyx lobed, *D. glabrum* has a truncate female calyx. Nevertheless, these five species are very closely allied to each other.

10. Dolicholobium gertrudis K. Schumann

D. gertrudis K.Sch. in K.Sch. & Laut., Fl. Schutzgeb. (1900) 553; Valeton, Bot. Jahrb. 60 (1926) 17. – Type: *Lauterbach 2144* (B, lost); neotype (here chosen): *Schlechter 17755* (L, holo; A, BRI, K).

Distribution. New Guinea.

NEW GUINEA. East: Madang Dist., Oertzen Mts, Lauterbach 2144 (B, lost). Kani Mts, Schlechter 16958 (B, lost), 17726 (B, lost), 17755 (A, BRI, K, L). Finisterre Ra., Budemu, Sayers NGF 21282 (L), Pullen 5995 (A, BRI, CANB, L). – Eastern Highlands Dist., Arau, Brass 31915 (US), 32088 (A, CANB, L, NY, US). – Morobe Dist., Wantoat, Clemens 11043bis (A), Womersley & Thorne NGF 11880 (A, CANB, L). Masba Creek, near Pindiu, Hoogland 8894 (A, BRI, CANB, L). Ogeramnang, Clemens 4614 (A). Sattelberg, Clemens 432 (L), 539 (A, L). Upper Watut, Upper Minnoa Creek, Streimann & Kairo NGF 27935 (A, BISH, BRI, CANB, L). Herzog Ra., Wagau, Womersley NGF 19317 (CANB, L), Millar NGF 23348 (CANB, L). SW. of Garaina, Bakaia, Hartley 12682 (A, CANB). Mo R., 24 km SW. of Morobe, Ana, Streimann NGF 24307 (A, BISH, CANB, L). – Central Dist., Port Moresby Subdist., Efogi, Croft & Lelean LAE 60569 (L).

Ecology. Primary or secondary (lowland or) montane (incl. *Castanopsis-Lithocarpus*) forest, often on stream banks or other open spaces like cliffs; *LAE 60569* is

from grassland with Eucalypts. Altitudinal range: (30–)600–1900 m, but mostly 1000–1500 m. Fl. & fr. Jan., May, June, Oct.

Field notes. Crowns lax. Bark scaly or flaky, light or reddish brown, inner bark almost white to light red; wood reddish straw. Young leaves reddish. Flowers sweet scented. Calyx green, tinged pink or brown. Corolla white turning creamy yellow, lobes recurved on edge. Fruits reddish brown.

Vernacular names. Imon, kwiasópo (Naho lang., Finisterre Mts); kababra (Oertzen Mts); kapek (Herzog Ra.).

Typification. The citation of *Rodatz & Klink 199* (holotype of *D. oxylobum*) under this species is interpreted as a bibliographic error. Schumann clearly considered the flowering specimen, *Lauterbach 2144*, as the most important specimen. Later Valeton examined the material and correctly cited both specimens. In Valeton's paper not all cited specimens are provided with an exclamation mark but, in his manuscript of this paper, there is one with every cited number. As the type was lost at Berlin, Valeton is the only taxonomist who was able to compare the types of *D. gertrudis* and *D. oxylobum* with later collections. Therefore *Schlechter 17755*, studied by Valeton, is chosen as the neotype.

Notes. In K. Schumann & Lauterb., Nachtr. Fl. Schutzgeb. (1905) 393, Schumann identified the sterile specimen *Naumann s.n.* from New Hannover as *D. gertrudis*. We think that this specimen probably belongs to *D. nakiki*.

The variation in flower size is rather wide. The larger sizes occur N. of the Ramu-Markham valley (the Sattelberg specimens are inconclusive) as in the Eastern Highlands locality close to this valley; between Lae and Port Moresby the flowers are distinctly smaller (e.g. hypanthia 15–22 versus 9–16 mm long), but there is no distinct break. Also the length of the calyx lobes varies widely.

D. gertrudis is closely allied to *D. oxylobum* occurring west of the Ramu R., and *D. barbatum* from d'Entrecasteaux Islands; both these species have bearded anthers, whereas *D. gertrudis* has them glabrous.

11. Dolicholobium philippinense Trelease

D. philippinense Trel., Elmer Leafl. Philip. Bot. 3 (1911) 984; Merr., En. Philip. 3 (1923) 507. – Type: *Elmer 12252* (PNH, holo, lost; A, BISH, GH, L, NY, US, WRSL).

D. hirsutum Elmer, Leafl. Philip. Bot. 9 (1934) 3247. – Type: *Elmer 14370* (PNH, holo, lost; A, BM, GH, L, NY, US).

Distribution. Philippines.

PHILIPPINES. Luzon: Prov. Camarines Sur, Ramos BS 1538 (BRI, GH, L, NY); Kamugong R., Edaño BS 75877 (NY); Mt Potianay, Edaño BS 76006 (NY); Mt Madooy, Edaño BS 76065 (NY); Her-It R., Edaño BS 76445 (NY). – Prov. Sorsogon, Ramos BS 23366 (US). Mt Bulusan, Sulit PNH 2655 (A, L), Elmer 14370 (A, BM, GH, L, NY, US), 15261 (BM, GH, L, NY, US). – Catanduanes: Ramos & Edaño BS 75367 (NY). – Sibuyan: Mt Giting-Giting, Magallanes, Elmer 12252 (A, BISH, GH, L, NY, US, WRSL). – Samar: Catubig R., Ramos BS 24328 (US); Balongiga, Madulid PNH 118400 (L).

Ecology. In forest along banks of creeks or along trails at 225–1200 m alt. Fl. April, Aug.–Dec., fr. Feb.–May, Oct.–Dec.

Field notes. Flowers not scented; corolla white, yellowish white, pink.

Notes. Both the indumentum of the whole plant and the lobing of the female calyx are very variable. In *Elmer 15261* the only 6-merous female flower seen has its calyx (also in fruits) very shortly lobed or more precisely, with an undulate margin. Otherwise the calyx lobes apparently continue to grow in fruit.

12. Dolicholobium seruiense M.E. Jansen, *spec. nov.*

Indumentum pallide luteo-fuscum. *Stipulae* caducae, juvenali lanceolatae ad lineares, 9–12 × 2 mm, longe pubescenti-sericeae ad hirsutae, apicibus acutis. Petiolus 10–18 × 1 mm. *Lamina folii* lanceolata, 12–15 × 3–4 cm, supra glabra vel rare hirsuta, in costa atque nervis dense pubescentibus, apice acuto, basi acuta, nervis lateralibus 14–16 paribus. Cyma vel dichasium simple, 3 vel 4 floribus, pedunculo (2–)5–7 × 1 mm. *Flores masculi* 5-meri (alabastria tantum cogniti). Pedicellus non articulatus, 12–17 × 0.1 mm, longe pubescens. Calyx campanulatus usque ad 1.2 × 1.5 mm, truncatus ad undulatus, extus ad basem longe pubescens, intus ad basem breve pubescens, margine longe ciliato, colleteribus destitutis. Tubus corollae c. 13 mm longus, parte inferiore 0.7 mm lata, parte summa 4 mm longa, 1.5 mm lata, pubescens, lobi utrinque glabri, marginibus partibus superponentibus ad basem pubescentibus. Antherae lineares. Discus 0.1 mm altus, 0.3 mm latus, sparse pubescens. Stylus c. 1 mm longus; stigmata c. 1.8 mm longa. *Flores feminei* 5-meri (alabastria tantum cogniti). Pedicellus c. 1 mm longus, dense pubescens. Hypanthium cylindricum usque 18 × 1 mm, dense pubescens. Calyx campanulatus usque ad 1.5 × 2.5 mm, truncatus plerumque margine leviter undulato, extus dense longe pubescens, intus breve sericeus, margine longe ciliato, colleteribus destitutis. Tubus corollae usque ad 3.5 × 1 mm, pubescens, in fauce 1.5 mm latus, lobi utrinque glabri, marginibus partibus superponentibus ad basem pubescentibus. Antherae lineares. Discus 0.5 mm altus, 0.8 mm latus, sparse pubescens. Stylus c. 2 mm longus; stigmata c. 3 × 0.5 mm. Fructus ignotus. — T y p u s : *Aet & Idjan 230* (L, holo).

Indumentum light yellow-brown. Ultimate branchlets short sericeous; upper 1 or 2 internodes flattened, 2–4 × 1–2 mm; lower internodes and nodes 2–3 mm thick. *Stipules* caducous; young ones lanceolate to linear, 9–12 × 2 mm, not keeled, chartaceous, long pubescent-sericeous to hirsute, apex acute; nerves 12–14; colleters 100–120. *Petiole* above distally slightly canaliculate, 10–18 × 1 mm, densely long not-appressed pubescent. *Leaf blade* lanceolate, 12–15 × 3–4 cm, papyraceous, above glabrous or sparsely hairy, sparsely pubescent on midrib and nerves when young, below thin-pubescent, densely so on midrib and nerves, moderately to densely hirsute when young, margins glabrous, apex acute, base acute; lateral nerves 14–16 pairs, at the middle of the blade at an angle of 30°–40° to the midrib. *Inflorescence* a 3- or 4-flowered simple dichasium or a cyme, solitary; peduncle (2–)5–7 × 1 mm, densely pubescent and long pilose. M a l e f l o w e r s 5-merous. *Only buds present. Pedicel* not articulate, 12–17 × 0.1 mm, long not-appressed pubescent. *Calyx* campanulate, up to 1.2 × 1.5 mm, truncate to undulate; outside basally long pubescent, inside basally short pubescent, margin long ciliate; no colleters. *Corolla* tube cylindrical, up to 13 mm long, lower part 0.7 mm wide, upper 4 mm widened to 1.5 mm, pubescent; throat slightly thickened; lobes glabrous, margin basally pubescent on overlapping side. *Stamens* with linear anthers. *Disk* 0.1 mm high, 0.3 mm wide, sparsely hairy.

Style up to 1 mm long; stigmas up to 1.8 mm long. Female flowers 5-merous. *Only buds present. Pedicel* c. 1 mm long, densely pubescent. *Hypanthium* cylindrical, up to 18 × 1 mm, densely pubescent. *Calyx* campanulate, up to 1.5 × 2.5 mm, truncate, sometimes margin slightly undulate; outside densely long pubescent, inside short sericeous, margin densely long ciliate; no colleters. *Corolla* tube cylindrical, up to 3.5 × 1 mm, moderately pubescent; throat 1.5 mm wide, thickened; lobes glabrous, margins basally pubescent on overlapping side. *Stamens* with linear anthers. *Disk* 0.5 mm high, 0.8 mm wide, sparsely hairy. *Style* up to 2 mm long; stigma linear, up to 3.0 × 0.5 mm. *Fruits* unknown.

Distribution. Japen I.

NEW GUINEA. West: Geelvink Bay Dist., Japen I., Antam near Seroei, Aet & Idjan 230 (L).

Field notes. Flowers white.

Notes. This species is characterized by its narrow stipules, rather narrow leaves, and small calyces and sparsely hairy disks in both male and female flowers.

A series of eleven species is characterized by rather small leaves, slender to filiform male pedicels, very small male calyces, small but distinctly larger female calyces, and (as far as known) slender fruits. They cover a range from Japen I., Geelvink Bay, West New Guinea, to San Christobal I. in the Solomon Islands, with a break in New Britain; a distance of more than 3000 km. Except for *D. brassii* with 10 collections, they are known from 1–3 collections each and several only with flowerbuds. As a whole this series is strongly related to *D. solomonense*, which has wider stipules and usually larger female calyces.

In view of the variability encountered in species like *D. solomonense, D. acuminatum*, and *D. gertrudis* at least part of the variability found in the series of ten species could be intra-specific variability and combination of several of these species would certainly be justified. However, the species under consideration allow different sets of combinations. The incomplete materials do not offer complete information. Apparently these plants are rare on the New Guinea mainland and the collecting localities are far apart. All these circumstances result in a situation where it is impossible to draw sound delimitations. Lumping them all together certainly exceeds an acceptable range of variation. Therefore, although reluctantly, we have adopted the method of describing several new species, thereby at least preventing that the available information gets lost in a cloudy general description and leaving open the possibility to make, with more material, rearrangements that now cannot sensibly be achieved. The species of this series are:

D. seruiense	West New Guinea, Japen I.	1 collection(s)
D. leptocarpum	West New Guinea, Idenburg R.	1 „
D. graciliflorum	East New Guinea, Sepik area	1 „
D. linearilobum	East New Guinea, Sepik area	1 „
D. rufiflorum	East New Guinea, Huon Pen./P. Moresby	2 „
D. rheophilum	East New Guinea, Papuan Islands	2 „

D. ruiense	East New Guinea, Papuan Islands	2	collection(s)
D. longifructus	East New Guinea, Papuan Islands	3	„
D. parviflorum	Solomon Islands, Bougainville	1	„
D. minutilobum	Solomon Islands, Santa Isabel	4	„
D. brassii	Solomon Islands (widely)	10	„

The two species from the Sepik area are the most different ones within this series!

13. Dolicholobium leptocarpum Merr. & Perry

D. leptocarpum Merr. & Perry, J. Arn. Arbor. 25 (1944) 183. – Type: *Brass 13887* (A, holo; BRI, L).

Distribution. New Guinea.

NEW GUINEA. West: Jayapura Dist., Idenburg R., Bernhard Camp, Brass 13887 (A, BRI, L).

Ecology. Rainforest on slopes at 70 m alt. Fl. & fr. April.

Field notes. Flowers white.

Note. Among the closely related species *D. leptocarpum* stands apart by its entirely glabrous corolla.

14. Dolicholobium graciliflorum Valeton

D. graciliflorum Valeton, Bot. Jahrb. 60 (1926) 19. – Lectotype (here chosen): *Ledermann 12825* (L); syntypes: *Ledermann 9750, 12630, 13033* (all B, lost).

Distribution. New Guinea.

NEW GUINEA. East: West Sepik Dist., Felsspitze, Ledermann 12630 (B, lost), 12825 (L), 13033 (B, lost); Lager 18, April R., Ledermann 9750 (B, lost). From Valeton's manuscripts it appears that 'Ledermann .... 126305 – Aug. 1913' is a printing error for 'Ledermann .... 12630 – 5 Aug. 1913'.

Field notes (from Valeton). Leaves dark green above, grey-green below; young leaves red; corolla light yellow; fruit coral red.

Notes. The above description is compiled from the lectotype and from Valeton's description and his manuscript notes.

This species is closely related to *D. rufiflorum*, which has an attenuate leaf base with crowded lateral nerves raising the number of nerves to 11–16, three-flowered inflorescences, 5- or 6-merous female flowers, and calyces inside hairy and provided with a few colleters.

Another close relative is *D. linearilobum*, also occurring in the West Sepik District. That species has 18–21 pairs of secondary nerves in the larger leaves, its male flowers are inserted in one tier under the female flower, both male and female flowers are 5-merous, and the male calyx is not toothed and is sericeous inside.

15. Dolicholobium linearilobum M.E. Jansen, *spec. nov.*

Arbusculae usque ad 3.5 m altae. Indumentum aureo-ad griseo-fuscum. *Stipulae* caducae, juvenali lineari-lanceolatae usque ad 42 × 7 mm, dense floccosae, apicibus acutis. Petiolus 22–46 (–62) × 1–2 mm. *Lamina folii* elliptico-oblonga, (7.5–)12.5–25 × (2.5–)5–11 cm, supra glabra, subtus in costa atque nervis pubescentibus, apice usque ad 15 mm acuminato, basi acuta ad obtusa et breve attenuata, nervibus lateralibus 18–21 paribus. Cyma 6–9 floribus, pedunculo 21–30 × 1 mm. *Flores masculi* 5-meri (alabastria tantum cogniti). Pedicellus articulatus 3–13 × 1 mm, rare pubescens. Calyx campanulatus, 0.5–1 × 1.5 mm, truncatus, extus glabris vel ad basem longe pubescens, intus sericeus, margine glabro, colleteribus destitutis. Tubus corollae usque ad 9 × 1 mm, in parte summa 3 mm longa ad 1.5 mm dilatatus, dense pubescens, lobi usque ad 18 mm longi, partibus superponentibus extus dense longe pubescentibus, intus glabris, partibus superpositis glabris, apicibus obtusis. Antherae lineares. Discus 0.2 mm altus, 0.5 mm latus. Stylus c. 1 mm longus; stigmata c. 2.8 mm longa. *Flores feminei* 5-meri, sessiles. Hypanthium cylindricum, 25–37 × 2 mm, floccosum. Calyx cylindricus ad obconicus, 2–3 × 4 mm, truncatus, extus dense pubescens, intus sericeus, colleteribus destitutis. Tubus corollae 5.5–8 × 1.5 mm, in fauce 2.5 mm dilatatus, sericeus ad basem fere glabrum, lobi lineares, 17–19 × 3 mm, partibus superponentibus extus dense pubescenti-sericeis, intus glabris, partibus superpositis glabris, marginibus ad basem dense ciliatos. Antherae lanceolatae 2.5 × 0.6 mm. Discus 0.7 mm altus, 1.8 mm latus. Stylus 2 mm longus; stigmata linearia 5 mm longa. *Fructus* cylindricus filis vascularibus 8 incrassatis, 6–30 × 0.2 cm, glabrus, pedunculo 2 cm longo, sparse pubescens. — T y p u s : *Henty & Foremann NGF 42559* (L, holo; A, BISH, BRI).

Treelet 3.5 m high. Indumentum gold- to grey-brown. Ultimate branchlets densely long pubescent; upper internodes flattened, 4–7 × 1.5–2 mm; lower internodes and nodes 3–4 mm thick. *Stipules* caducous; young ones linear-lanceolate, up to 42 × 7 mm, not keeled, subcoriaceous, densely floccose, apex acute; nerves 14; colleters c. 150. *Petiole* canaliculate, 22–48(–62) × 1–2 mm, glabrous, densely long pubescent when young. *Leaf blade* elliptic-oblong, (7.5–)12.5–25 × (2.5–)5–11 cm, papyraceous, above glabrous, below pubescent on midrib, nerves and veins, floccose when young, apex up to 15 mm acuminate, base acute to obtuse and shortly attenuate; lateral nerves 18–21 pairs, in the middle of the blade at an angle of 45°–55° to the midrib. *Inflorescence* a 6–9-flowered cyme, solitary; peduncle 21–30 × 1 mm, pubescent. M a l e f l o w e r s 5-merous. *Only buds present. Pedicel* articulate, 3–13 × 1 mm, thinly pubescent. *Calyx* campanulate, 0.5–1 × 1.5 mm, truncate; outside glabrous or basally long pubescent, inside sericeous except near margin, margin glabrous; no colleters. *Corolla* tube cylindrical, up to 9 mm long, 1 mm wide but in upper third 1.5 mm wide, densely pubescent; throat strongly thickened; lobes up to 18 mm long; overlapping parts densely long pubescent outside, otherwise glabrous, apex obtuse. *Stamens* with linear anthers. *Disk* 0.2 mm high, 0.5 mm wide. *Style* up to 1 mm long; stigmas up to 2.8 mm long. F e m a l e f l o w e r s 5-merous, sessile. *Hypanthium* cylindrical, 25–37 × 2 mm, floccose. *Calyx* cylindrical to obconical, 2–3 × 4 mm, truncate; outside densely pubescent, inside sericeous; no colleters. *Corolla* tube cylindrical, 5.5–8 × 1.5 mm, at throat 2.5 mm wide, sericeous but lower half almost glabrous; throat not thickened; lobes linear, 17–19 × 3 mm, papyraceous, overlapping parts densely pubescent-sericeous, otherwise glabrous, margin of overlapping parts basally densely ciliate, apex obtuse. *Stamens* inserted 4 mm under the throat; anthers lanceolate, 2.5 × 0.6 mm. *Disk* 0.7 mm high, 1.8 mm wide. *Style* 2 mm long;

stigmas linear, 5 mm long. *Fruit* cylindrical, with 8 thickened strands, 6–30 × 0.2 cm, glabrous; stalk 2 cm long, sparsely pubescent.

Distribution. New Guinea.

NEW GUINEA. East: W. Sepik Dist., Telefomin Subdist., Prospect Ck near Frieda R., Henty & Foreman NGF 42559 (A, BISH, BRI, L).

Ecology. Ridge forest on copper-rich soil, 500 m alt. Fl. & fr. June.

Note. Strongly related to *D. graciliflorum* (see there).

16. Dolicholobium rufiflorum S. Moore

D. rufiflorum S. Moore, J. of Bot. 65 (1927) 242: C.T. White, J. Arn. Arbor. 10 (1929) 266. – Type: *Brass 1046* (BM, holo; A, BISH, K).

Distribution. New Guinea.

NEW GUINEA. East: Morobe Dist., Yunziang, Clemens 2933 (A). Central Dist., Vailala R., Hohoro, Brass 1046 (A, BM, BRI, K).

Ecology. Forests at 100–1200 m alt. Fl. Feb., April.

Notes. The high-altitude Clemens collection differs from the type in its 4-merous male flowers (female flowers 5-merous; type: male 5-, female 5- or 6-merous) and its much thinner indumentum.

D. rufiflorum is closely related to *D. graciliflorum* and *D. longifructum* (see there).

17. Dolicholobium rheophilum M.E. Jansen, *spec. nov.*

D. rheophilum M.E. Jansen, *nov. sp. ined.*, Steenis, Rheophytes of the World (1981) 349.

Frutices vel arbusculae rheophyticae. Indumentum pallido-fuscum. *Stipulae* caducae lineares, 15–30 × 2–4 cm, sericeae, apicibus acutis. Petiolus 6–13(–18) × 1–2 mm. *Lamina folii* lanceolati-linearis saepe leviter falcata, 7.5–16.5(–20.5) × 1–3 cm, glabra, (juvenuli super rare pubescens), subtus in costa atque nervis longe sericea, apice anguste acuto, basi anguste acuto ad attenuato, nervibus lateralibus 7–9 paribus. Cymae 1–3 per axilla, 3–5 floribus, pedunculo 9–32 × 1 mm. *Flores masculi* 4-meri. Pedicellus articulatus, 9–10 × 0.5 mm, sericeus. Calyx cylindricus ad campanulatus, 0.3–1 × 1–1.5 mm, truncatus, extus sericeus vel fere glabrus, intus ad basem sericeus, margin glabro, colleteribus destitutis. Tubus corollae 10–13 × 0.5 mm, in parte summa 4 mm longa ad 1.5 mm dilatatus, breve pubescens, lobi ovato-oblongi ad ovato-lanceolati, 7–12 × 1.5–3.5 mm, partibus superponentibus extus sparse breve sericeis ad glabris, intus glabris, partibus superpositis utrinque glabris, apicibus obtusis. Antherae lineares 3 × 0.4–0.6 mm. Discus 0.2 mm altus, 0.5 mm latus. Stylus 1.5–2 mm longus; stigmata 2.5–3 mm longa. *Flores feminei* 5-meri, sessiles. Hypanthium cylindricum, 7–14 × 0.8–1.5 mm, dense sericeum. Calyx caducus, cylindricus, 1–2 × 1.5–2.5 mm, truncatus, extus dense breve sericeus, intus sericeus, margine sparse ciliato, colleteribus destitutis. Tubus corollae 8 × 2 mm, in fauca 4 mm latus, dense breve pubescens; lobi ovato-lanceolati, 8–14 × 2–3 mm, partibus superponentibus extus sparse breve pubescentibus, partibus superpositis utrinque glabris. Antherae ovato-lanceolatae, 1–1.5 × 0.3 mm. Discus 0.2 mm altus, 1 mm latus. Stylus 4 mm longus; stigmata obovato-lanceolata, 6 × 1.8 mm. *Fructus* cylindricus filis vascularibus incrassatis, 4.5–5.5 × 0.1 cm, dense breve pubescens, pedunculo 2–3.5 cm longo, pubescenti. — Typus: *Brass 28261* (L, holo; A, US).

Rheophytic shrubs or small trees. Indumentum light brown. Ultimate branchlets sericeous-tomentose; upper internode sometimes flattened, 3–5 × 2–3 mm; lower internodes and nodes 3–4 mm thick. *Stipules* caducous, linear, 15–30 × 2–4 mm, sometimes keeled, sericeous, apex acute; nerves 9–12; colleters c. 130. *Petiole* canaliculate, 6–13(–18) × 1–2 mm, sparsely pubescent, glabrescent. *Leaf blade* lanceolate-linear, often slightly falcate, 7.5–16.5(–20.5) × 1–3 cm, papyraceous, glabrous, when young above thinly pubescent, below long sericeous on midrib and nerves, apex narrowly acute, base narrowly acute to attenuate; lateral nerves 7–9 pairs, at the middle of the blade at an angle of 20°–30° to the midrib. *Inflorescence* a 3–5-flowered cyme, 1–3 per leaf axil; peduncle 9–32 × 1 mm, densely short pubescent. Male flowers 4-merous. *Pedicel* articulate, 9–10 × 0.5 mm, sericeous. *Calyx* cylindrical to campanulate, 0.3–1 × 1–1.5 mm, truncate, outside sericeous to almost glabrous, inside basally sericeous, margin glabrous; no colleters. *Corolla* tube cylindrical, 10–13 × 0.5 mm, upper 4 mm widened to 1.5 mm, short pubescent; throat thickened, sparsely long pubescent; lobes ovate-oblong to ovate-lanceolate, 7–12 × 1.5–3.5 mm, overlapping parts sparsely short sericeous to glabrous, otherwise glabrous, apex obtuse. *Stamens* inserted 4 mm under the throat; anthers linear, 3 × 0.4–0.6 mm. *Disk* 0.2 mm high, 0.5 mm wide. *Style* 1.5–2 mm long; stigmas 2.5–3 mm long. Female flowers 5-merous, sessile. *Hypanthium* cylindrical, 7–14 × 0.8–1.5 mm, densely sericeous. *Calyx* not persistent after flowering, cylindrical, 1–2 × 1.5–2.5 mm, truncate; outside densely short sericeous, inside sericeous, margin sparsely ciliate; no colleters. *Corolla* tube subcylindrical, 8 × 2 mm, at throat 4 mm wide, densely short pubescent; throat not thickened; lobes ovate-lanceolate, 8–14 × 2–3 mm, overlapping parts sparsely short pubescent, otherwise glabrous, apex obtuse. *Stamens* inserted 3.5 mm under the throat; anthers ovate-lanceolate, 1–1.5 × 0.3 mm. *Disk* 0.2 mm high, 1 mm wide. *Style* 4 mm long; stigmas obovate-lanceolate, 6 × 1.8 mm. *Fruits* cylindrical, with 10 thickened strands, 4.5–5.5 × 0.1 cm, densely short pubescent; stalk 2–3.5 cm long, pubescent.

Distribution. Louisiade Archipelago.

NEW GUINEA. East: Milne Bay Dist., Louisiade Arch., Rossel I., Abaleti, Brass 28261 (A, L, US), Henty NGF 27064 (BRI, K, L).

Ecology. Rheophytic on rocky floodbanks or streambeds at 5–30 m alt. Fl. & fr. Sept., Nov.

Field notes. Spreading shrub; leaves very pale below; flowers white, with a spicy fragrance.

Notes. Easily recognizable by its long narrow leaves, relatively small flowers and short fruit. Fruit remnant remarkably long-persistent: up to the 8th node. See also sub *D. ruiense*.

18. Dolicholobium riuense M.E. Jansen, *spec. nov.*

Arbusculae usque ad 8 m altae. Indumentum pallido vel aureo-fuscum. *Stipulae* caducae, ellipticae ad elliptico-oblongae, 8–22 × 4–7 mm, sericeae ad floccosae, glabratae, apicibus acutis.

Petiolus 7–22 × 3–8 mm. *Lamina folii* elliptico-oblonga vel (ob)lanceolata, 10–20 × 3–8 cm, supra glabra, (juvenali longe pubescenti), subtus in costa atque nervis pubescentibus vel glabris, apice usque ad 10 mm acuminato, basi acuta; nervis lateralibus 9–13 paribus. Cymae 1 vel 2 per axilla. Cyma vel dichasium simplex, 3–5 floribus, pedunculo 11–27(–37) × 1 mm *Flores masculi* 5-meri. Pedicellus caducus, articulatus, 5–20 × 1.5–2 mm, pubescens. Calyx obconicus, 0.5–1 × 1.5–2 mm, truncatus, extus ad basem pubescens ad glabrus, intus sericeus, margine glabro, colleteribus destitutis. Tubus corollae 13–16 × 1–1.5 mm, in parte summa 5–7 mm longa ad 1.5–2.5 mm dilatatus, pubescens; lobi ovato-lanceolati, 13–16 × 3–4 mm, partibus superponentibus (dense) pubescentibus, partibus superpositis ad marginem pilosis, intus glabris. Antherae lineares, 4.5–5 × 0.5–0.7 mm. Discus 0.2 mm altus, 0.7 mm latus. Stylus 1 mm longus; stigmata 4–5 mm longa. *Flores feminei* 5-meri, sessiles. Hypanthium cylindricum, 17–27 × 1 mm, dense pubescens. Calyx cylindricus ad obconicus, 1–3 × 2–3 mm, truncatus, extus dense pubescens, intus sericeus, margine ciliato, colleteribus destitutis. Tubus corollae 11–12 × 1–2 mm, in fauce 3–4 mm dilatatus, sericeus; lobi (ovato-)lanceolati, 17–21 × 4–6 mm, partibus superponentibus extus dense pubescentibus, intus glabris, partibus superpositis utrinque glabris. Antherae lanceolatae, 2 × 0.4 mm. Discus 0.5 mm altus, 1.2 mm latus. Stylus 5 mm longus; stigmata lanceolata, 6 × 1.3 mm. *Fructus* cylindricus filis vascularis 8 incrassatis, 6–20.5 × 0.1–0.2(–0.3) cm, (rare) pubescens, pedunculo 1–2.5 cm longo, rare pubescenti. — T y p u s : *Brass 27969* (L, holo; A, CANB, US).

Treelets up to 8 m high. Indumentum light or yellowish brown. Ultimate branchlets sericeous to floccose; upper 1 or 2 internodes flattened, 5–6 × 2–3 mm; lower internodes and nodes 3–4 mm thick. *Stipules* caducous, elliptic to elliptic-oblong, 8–22 × 4–7 mm, subcoriaceous, keeled, sericeous to floccose, glabrescent, apex acute; nerves c. 18; colleters c. 260. *Petiole* flattened above or distally canaliculate, 7–22 × 3–8 mm, glabrous, pubescent to floccose when young. *Leaf blade* elliptic-oblong to (ob)lanceolate, 10–20 × 3–8 cm, papyraceous, above glabrous, when young long pubescent, below pubescent on midrib and nerves to glabrous, when young puberulous, pubescent on midrib and nerves, apex up to 10 mm acuminate, base acute; lateral nerves 9–13 pairs, at the middle of the blade at an angle of 30°–40° to the midrib. *Inflorescence* a 3–5-flowered simple dichasium or cyme, 1 or 2 per leaf axil; peduncle 11–27(–37) × 1 mm, pubescent to tomentose. M a l e f l o w e r s 5-merous. *Pedicel* not persistent under fruit, articulate, 5–20 × 0.5 mm, pubescent. *Calyx* obconical, 0.5–1 × 1.5–2 mm, truncate, outside (basally) pubescent to glabrous, inside sericeous, margin glabrous; no colleters. *Corolla* tube cylindrical, 13–16 mm long and 1–1.5 mm wide, upper 5–7 mm widened to 1.5–2.5 mm, pubescent; throat slightly thickened; lobes ovate-lanceolate, 13–16 × 3–4 mm, outside overlapping parts (densely) pubescent, overlapped parts more or less close to the margin sometimes minutely hairy, inside glabrous, apex obtuse. *Stamens* inserted 6–7 mm under the throat; anthers linear, 4.5–5 × 0.5–0.7 mm. *Disk* 0.2 mm high, 0.7 mm wide. *Style* 1 mm long; stigmas 4–4.5 mm long, just below apex over 0.5–0.8 mm slightly widened and thickened. F e m a l e f l o w e r s 5-merous, sessile. *Hypanthium* cylindrical, 17–27 × 1 mm, densely pubescent. *Calyx* cylindrical to obconical, 1–3 × 2–3 mm, truncate; outside densely pubescent, inside sericeous, margin ciliate; no colleters. *Corolla* tube slightly obconical, 11–12 × 1–2 mm, at throat 3–4 mm wide, sericeous; throat not thickened; lobes (ovate-)lanceolate, 17–21 × 4–6 mm, overlapping parts densely pubescent outside, otherwise glabrous, apex acute. *Sta-*

mens inserted 6 mm under the throat; anthers lanceolate, 2 × 0.4 mm. *Disk* 0.5 mm high, 1.2 mm wide. *Style* 5 mm long; stigmas lanceolate, 6 × 1.3 mm. *Fruits* cylindrical, with 8 thickened strands, 6–20.5 × 0.1–0.2(–0.3) cm, (thinly) pubescent; stalk 1–2.5 cm long, thinly pubescent.

Distribution. Louisiade Archipelago.

NEW GUINEA. East: Louisiade Arch., Sudest I., Mt Rui, Brass 27969 (A, CANB, L, US), 28017 (A, L, US).

Ecology. Stream banks in rainforest at 250 m alt. Fl. & fr. Sept.

Field notes. Flowers pink, fragrant.

Notes. In the Papuan Islands *Dolicholobium* is known by a few collections only. Of the taxa presently recognized, *D. cordatum* differs from the others not only by the form of its leaf base, but also by the about equally large calyces of male and female flowers. *D. longifructum* has large, lobed female calyces and thick fruits, it has a close relationship with *D. gertrudis* from the Sepik area in the northern mainland of New Guinea. The others are quite less easily distinguished from each other. They all have small male and medium-sized female calyces and in measurements they form a series *rheophilum–riuense–longifructum*. They are represented by two, two and three collections respectively. In view of the scarcity of material available and of the differences in distribution it is preferred to treat them as separate species; further material is needed to evaluate their precise taxonomical status. It is not impossible that *D. riuense* is the terrestrial counterpart of *D. rheophilum*.

19. Dolicholobium longifructum M.E. Jansen, *spec. nov.*

Arbusculae usque ad 8 m altae. *Stipulae* caducae, lanceolatae ad lineares, (18–)27–38 × (4–)6–8 mm, sericeae ad floccosae vel breve tomentosae ad hirsutae, apicibus acutis ad rotundatis. Petiolus 20–26(–37) × 1–3 mm. *Lamina folii* elliptico- ad obovato-oblonga, 15.5–31 × 8–12.5 cm, utrinque glabra, (juvenalis supra rare longe molliter pilosa), subtus in costa atque sericeo-floccosis vel tomentosis et hirsutis, apice usque ad 20 mm acuminato, basi acuta ad attenuata; nervibus lateralibus (12–)14–17 paribus. Cyma vel dichasium vel thyrsus simplex, solitarius, 5–7 floribus, pedunculo 18–34(–48) × 1 mm. *Flores masculi* 5-meri. Pedicellus non articulatus, 10–27 × 0.2–0.5 mm, dense pubescens. Calyx campanulatus, 0.7–1.5 × 1–2.5 mm, truncatus, utrinque glabrus vel extus ad basem dense pubescens, margine glabro vel ciliato, intus ad basem 3–5 colleteribus. Tubus corollae 15–19 mm longus, parte inferiore 1–1.5 mm lata, in parte summa 6–7 mm longa ad 2.5 mm dilatatus, dense pubescens, lobi ovato-lanceolati ad lineari 15–20 × 3–4 mm, partibus superponentibus extus pubescentibus, intus glabris, partibus superpositis utrinque glabris. Antherae lineares, 5 × 0.5–0.7 mm. Discus 0.3 mm altus, 0.6 mm latus. Stylus 2.7–5 mm longus; stigmata 3.5–5 mm longa. *Flores feminei* 6-meri sessiles. Hypanthium cylindricum, 25–51 × 2 mm, dense sericeum ad floccosum. Calyx campanulatus, 2–5 × 5–7 mm, truncatus, extus rare vel dense pubescens, intus breve sericeus, margine dense ciliato, intus ad basem c. 18 colleteribus in turmis 6 antipetalis 3 colleterum. Tubus corollae 10–13 × 2–3, in fauce 3–4 mm dilatatus, dense breve sericeus, lobi ovato-lanceolati, 18–28 × 4–6 mm, partibus superponentibus extus dense ad rare pubescentibus, intus glabris, partibus superpositis utrinque glabris. Antherae ovato-lanceolatae, c. 2 × 0.4 mm. Discus 0.6 mm altus, 1.2 mm latus. Stylus 4 mm longus; stigmata linearia 9 × 1.5 mm. *Fructus* cylindricus, filis vascularibus 8 incrassatis, 16–30 × 0.2–0.3 cm, sparse pubescens, pedunculo 4.5–5 cm longo, sparse hirsuto. — Typus: *Brass 27513* (L, holo; A).

Treelets up to 8 m high. Indumentum light brown. Ultimate branchlets densely pubescent; upper 2 or 3 internodes flattened, 3–9 × 3–4 mm; lower internodes and nodes 4–7 mm thick. *Stipules* caducous; lanceolate to linear, (18–)27–38 × (4–)6–8 mm, keeled, subcoriaceous, sericeous to floccose or shortly tomentose and hirsute, apex obtuse or broadly acute to rounded; nerves c. 16; colleters c. 50. *Petiole* narrowly canaliculate, 20–26(–37) × 1–3 mm, sericeous or shortly tomentose and hirsute, glabrescent. *Leaf blade* elliptic- to obovate-oblong, 15.5–31 × 8–12.5 cm, papyraceous, glabrous on either side, when young above thinly long soft hairy, below sericeous-floccose or tomentose and hirsute on midrib and nerves; apex up to 20 mm acuminate, base acute to attenuate; lateral nerves (12–)14–17 pairs, in the middle of the blade at an angle of 30°–50° to the midrib. *Inflorescence* a 3–8-flowered simple dichasium, cyme, or simple thyrse, solitary; peduncle 18–34(–48) × 1 mm, densely long pubescent or shortly tomentose and hirsute. Male flowers 5-merous. *Pedicel* not articulate, 10–27 × 0.2–0.5 mm, peduncle of lateral dichasia 0–12 mm, densely pubescent. *Calyx* campanulate, 0.7–1.5 × 1–2.5 mm, truncate; glabrous on either side or outside basally densely pubescent, margin glabrous or ciliate; inside basally with 3–5 colleters. *Corolla* tube cylindrical, 15–19 mm long, lower part 1–1.5 mm wide, upper 6–7 mm widened to 2.5 mm, densely pubescent; throat not thickened; lobes ovate-lanceolate to linear, 15–20 × 3–4 mm, membranous, overlapping parts densely pubescent outside, otherwise glabrous, apex obtuse. *Stamens* inserted 6.5–7 mm under the throat; anthers linear, 5 × 0.5–0.7 mm. *Disk* 0.3 mm high, 0.6 mm wide. *Style* 2.7–5 mm long; stigmas 3.5–5 mm long. Female flowers 6-merous, sessile. *Hypanthium* cylindrical, 25–51 × 2 mm, densely sericeous to floccose. *Calyx* obconical or campanulate, 2–5 × 5–7 mm, truncate; outside thinly or very densely pubescent, inside short sericeous, margin densely ciliate; inside basally with c. 18 colleters in 6 groups of 3 opposite the petals. *Corolla* tube subcylindrical, 10–13 × 2–3 mm, at throat 3–4 mm wide, densely short sericeous; throat somewhat thickened; lobes ovate-lanceolate, 18–28 × 4–6 mm, membranous, overlapping parts densely to thinly pubescent outside, overlapped parts more or less close to the margin often minutely hairy outside, otherwise glabrous, apex obtuse. *Stamens* inserted c. 6 mm under the throat; anthers ovate-lanceolate, c. 2 × 0.4 mm. *Disk* 0.6 mm high, 1.2 mm wide. *Style* 4 mm long; stigmas linear, 9 × 1.5 mm. *Fruits* cylindrical, with 8 thickened strands, 16–30 × 0.2–0.3 cm, sparsely pubescent; stalk 4.5–5 cm long, sparsely pubescent.

Distribution. New Guinea: Papuan Islands.

NEW GUINEA. East: Papuan Islands: Woodlark I., Kulumadau, Brass 28611 (A, L, US); Misima I., Mt Sisa, N. slopes, Brass 27455 (L), 27513 (A, L), Sohmer LAE 75085 (L).

Ecology. Stream banks in rainforest at up to 500 m alt. Fl. July, Nov.; fr. July.

Field notes. Flowers cream, reddish. Fruits pendent.

Notes. The indumentum of the Woodlark specimen consists of a layer of dense short hairs from which long hairs protrude; the latter are long but not dense on stipules and leaves, shorter and denser and thus forming an almost closed layer in the inflorescence and especially on the flower. In the Misimi I. specimens the indumen-

tum consists of softer, denser hairs (often floccose) of medium length. See also sub *D. riuense*.

Among the related species *D. longifructum* shares with *D. rufiflorum* the presence of colleters in the calyces of 6-merous female flowers; they differ in leaf width and size of the female flowers.

KEY TO THE SPECIES OF THE SOLOMON ISLANDS
(including Bougainville I.)

1a. Calyces of male and female flowers spindle-shaped, rupturing when corolla protrudes through apical opening; calyx of male flower as long as to longer than that of the female flower. Fruits 2 mm thick . . . . . **26. D. ridsdalei**
b. Calyces of male and female flowers cylindrical to campanulate; calyx of male flower distinctly shorter than that of the female flower 2
2a. Corolla tube of male flowers 40–65 mm long, of female flowers 19–38 mm long. Fruits 5–7 mm thick . . . . . **25. D. acuminatum**
b. Corolla tube of male flowers up to 20 mm long, of female flowers up to 15 mm long 3
3a. Male flowers 4-merous 4
b. Male flowers 5– or 6-merous 6
4a. Fruits 3–4.5 mm thick. Stipules 7–20 mm wide. In female flowers calyx 3–7 mm long, corolla tube 8–14 mm long, lobes 15–33 mm long **23. D. solomonense**
b. Fruits 1–2 mm thick. Stipules up to 10 mm wide. In female flowers calyx 2–4 mm long, corolla tube 5–9 mm long, lobes 5–18 mm long 5
5a. Lateral nerves 8–13 pairs. Pedicel of male flowers (5–)10–25 mm long, corolla lobes 8–18 mm long; of female flowers corolla lobes 6–18 mm long **22. D. brassii**
b. Lateral nerves 12–20 pairs. Pedicel of male flowers 3–10 mm long, corolla lobes 4.5–5.5 mm long; of female flowers corolla lobes 5–7 mm long **20. D. minutilobum**
6a. Leaves 8.5–12.5 × 2–3.5 cm. Fruits 2 mm thick . . . . . **21. D. parviflorum**
b. Leaves (19–)23.5–49 × 10–23.5 cm. Fruits 3–6 mm thick . . . **24. D. glabrum**

20. Dolicholobium minutilobum M.E. Jansen, *sp. nov.* – **Fig. 2, 3.**

Frutices vel arbores parvae usque ad 9 m altae. Indumentum fuscum. *Stipulae* caducae, elliptico- ad ovato-oblongae vel lanceolatae, 10–22 × 2–8 mm, dense tomentosae ad hirsutae. Petiolus 10–21 (–32) × 1–2 mm. *Lamina folii* (anguste) obovata, plerumque anguste elliptica, 8–16.5 × 2.5–7 cm, supra sparse longe pubescens vel hirsuta, subtus rare pubescens in costa atque nervis tomentosis, margine longe piloso, apice acuminato vel usque ad 25 mm caudato, basi obtusa ad acuta, nervibus lateralibus 12–20 paribus. Cyma vel dichasium simplex, solitarium 3–6 floribus, pedunculo 14–21 (–26) × 1 mm. *Flores masculi* 4-meri. Pedicellus non articulatus, 3–10 × 0.3–0.4 mm, tomentoso-pubescens. Calyx campanulatus ad obconicus, 0.6–1.0 × 1.2–1.5 mm, trun-

Fig. 2. *Dolicholobium minutilobum*. 1. Habit, ×½; 2. male flower, ×3 (1. *BSIP 3604*, 2. *BSIP 2658*). – *D. brassii*. 3. Habit with flowers, ×½; 4. female flower, ×3; 5. habit with fruits, ×½ (3 & 4. *BSIP 3005*, 5. *BSIP 5213*).

catus, extus tomentoso-pubescens, ad apicem glabrus, intus glabrus margine glabro, intus ad basem 0–3 colleteribus. Tubus corollae c. 10 × 1 mm, in parte summa 5 mm longo ad 1.5 mm dilatatus, tomentoso-pubescens; lobi ovati 4.5–5.5 × 2.5–3.5 mm, partibus superponentibus extus tomentoso-pubescentibus, intus glabris, partibus superpositis extus ad basem tomentoso-pubescentibus, intus glabris, marginibus glabro. Antherae lineares 2.5 × 0.3 mm. Discus 0.2 mm altus, 0.4 mm latus. Stylus 1 mm longus, puberulus; stigmata 1.5 mm longa ad basem sparse puberula. *Flores feminei* 4-meri, sessiles. Hypanthium cylindricum, 7–13 × 1–2 mm, tomentoso-pubescens ad longe sericeus. Calyx obconicus 2–3 × 1–2 mm, margine undulato ad breviter lobo, extus tomentoso-sericeus, intus breviter sericeus, margine dense ciliato, intus ad basem c. 8 colleteribus. Tubus corollae 5–6 × 1 mm, in fauce 2–2.5 mm latus, tomentoso-sericeus, partibus superponentibus extus tomentoso-sericeis intus glabris, partibus superpositis utrinque glabris. Antherae lineares 1.8–2 × 0.3 mm. Discus 0.4 mm altus, 0.8 mm latus. Stylus 2.5–3 mm longus, glabrus; stigmata oblonga, 2.5–4.5 × 0.6–0.9 mm, glabra. *Fructus* cylindricus filis vascularis 10 incrassatis, 9–14(–17.5) × 0.1–0.2 cm, rare tomentosus, pedunculo 1.5–2(–3) cm longo, tomentoso-pubescenti. — Typus: *BSIP 2658* (L, holo; K).

Shrubs or small trees up to 9 m high, d.b.h. up to 10 cm. Indumentum brown. Ultimate branchlets coarsely sericeous to tomentose; upper 1–3 internodes flattened, 2–3 × 1–2 mm; lower internodes and nodes 2–4 mm thick. *Stipules* caducous, elliptic- or ovate-oblong to lanceolate, 10–22 × 2–8 mm, not or slightly keeled, densely tomentose to hirsute; nerves c. 19; colleters c. 200. *Petiole* rounded, sometimes distally narrowly canaliculate, 10–21(–32) × 1–2 mm, thinly tomentose-pubescent, glabrescent, densely so when young. *Leaf blade* (narrowly) obovate, sometimes narrowly elliptic, 8–16.5 × 2.5–7 cm, papyraceous, above sparsely long pubescent or hispid, denser so on midrib, below thinly pubescent, tomentose on midrib and nerves, margins rather long hairy, apex acuminate or up to 25 mm caudate, base obtuse to acute; lateral nerves 12–20 pairs, at the middle of the blade at an angle of 30°–40° to the midrib. *Inflorescence* a 3–6-flowered simple dichasium or cyme, solitary; peduncle 14–21(–26) × 1 mm, tomentose-pubescent. Male flowers 4-merous. *Pedicel* not articulate, 3–10 × 0.3–0.4 mm, tomentose-pubescent. *Calyx* campanulate or obconical, 0.6–1.0 × 1.2–1.5 mm, truncate, outside tomentose-pubescent, towards apex often glabrous, inside glabrous, margin glabrous; inside basally with 0–3 colleters. *Corolla* tube cylindrical, c. 10 × 1 mm, upper half widened, to 1.5 mm, tomentose-pubescent; throat not thickened; lobes ovate, 4.5–5.5 × 2.5–3.5 mm, overlapping parts and base of overlapped parts tomentose-pubescent outside, otherwise glabrous, margins glabrous. *Stamens* inserted 4.5 mm under the throat; anthers linear, 2.5 × 0.3 mm. *Disk* 0.2 mm high, 0.4 mm wide. *Style* 1 mm long, puberulous; stigma 1.5 mm long, basally sparsely puberulous. Female flowers 4-merous, sessile. *Hypanthium* cylindrical, 7–13 × 1–2 mm, tomentose-pubescent to long sericeous. *Calyx* obconical, 2–3 × 1–2 mm, margin undulate to very shortly lobed, outside tomentose-sericeous, inside short sericeous, margin densely ciliate; inside basally with c. 8 colleters. *Corolla* tube subcylindrical, 5–6 × 1 mm, at throat 2–2.5 mm wide, tomentose-sericeous; throat slightly thickened; lobes ovate to ovate-oblong, 5–7 × 3–4 mm, overlapping parts short tomentose-sericeous outside, otherwise glabrous. *Stamens* inserted 3–3.5 mm under the throat; anthers linear, 1.8–2 × 0.3 mm. *Disk* 0.4 mm high, 0.8 mm wide. *Style* 2.5–3 mm long, glabrous; stigmas oblong, 2.5–4.5 × 0.6–0.9 mm, glabrous. *Fruits* cylindrical, with 10 thickened

strands, 9–14(–17.5) × 0.1–0.2 cm, thinly tomentose; stalk 1.5–2(–3) cm long, tomentose-pubescent.

Distribution. Solomon Islands.

SOLOMON ISLANDS. Santa Isabel Group: Barora Fa I., Pazaghere area, Mauriasi BSIP 16095 (L). Barora Ite I., Sugululiu Mt area, Mauriasi BSIP 16049 (L). Santa Isabel I., Allardyce Harbour, Sore et al. BSIP 2658 (K, L), Whitmore BSIP 3604 (K, L).

Ecology. Well drained lowland rainforest, on hillside or on riverbanks, up to 50 m alt. Fl. & fr. Jan., July–Aug.

Field notes. Bole crooked. Bark dark brown, smooth. Flowers (pale) white, unscented.

Vernacular names. Butadenga, bulua (Kwara'ae lang.).

Note. A species with small flowers, especially the male ones. The lateral nerves are closer together than those of *D. brassii.*

21. Dolicholobium parviflorum M.E. Jansen, *spec. nov.* – Fig. 3.

Arbusculae usque ad 3.5 m altae. Indumentum pallidissimo-fuscum. *Stipulae* caducae lineares, 12–16 × 2–3 mm, dense longe pubescentes ad floccosae, apicibus acutis. Petiolus 7–12 × 1 mm. *Lamina folii* (obovato-)lanceolata, 8.5–12.5 × 2–3.5 cm, supra glabra, subtus in costa dense longe pubescentibus, (juvenali utrinque rare longe pilosi), apice usque ad 15 mm acuminato, basi acuta vel obtusa, nervibus lateralibus 12–20 paribus. Dichasium simplex solitarium, 3 floribus, pedunculo 15–19 × 0.5 mm. *Flores masculi* 5-meri. Pedicellus non articulatus, 13–15 × 0.5 mm, dense longe pubescens. Calyx obconicus, 0.8–1 × 1–1.6 mm, truncatus ad leviter undulatus, extus longe pubescens, intus glabrus, margine longe ciliato, colleteribus destitutis. Tubus corollae 12–13 × 0.7–1 mm, parte summa ad 1.5–2 mm dilatatus, dense longe pubescens; lobi 6.5–7 × 2.2–2.6 mm, partibus superponentibus extus longe pubescentibus, intus glabris, marginibus ciliatis, partibus superpositis utrinque glabris. Antherae lineares, 3.5 × 0.3 mm. Discus 0.1 mm altus, 0.8 mm latus. Stylus 0.7 mm longus; stigmata 1 mm longa. *Flores feminei* 5-meri, sessiles. Hypanthium cylindricum, 15–20 × 1–2 mm, dense longe pubescens ad floccosum. Calyx obconicus c. 2 × 4 mm, margine undulato ciliato, extus dense longe pubescens, intus glabrus, colleteribus destitutis. Tubus corollae c. 7 × 1 mm, in fauce 2.5 mm latus, dense longe pubescens; lobi 6–8 × 3 mm, partibus superponentibus extus pubescentibus, intus glabris, marginibus ciliatis, partibus superpositis utrinque glabris. Antherae ovato-lanceolatae, 1.5–2 × 0.4 mm. Discus 0.2 mm altus, 0.8 mm latus. Stylus 3 mm longus; stigmata obovato-lanceolata, 5 × 1.3 mm. *Fructus* dehiscentus filis vascularis 10 incrassatis, 6–12 × 0.2 cm. — Typus: *Lavarack & Ridsdale NGF 31102* (L, holo; K).

Treelets up to 3.5 m high. Indumentum very light brown. Ultimate branchlets densely long pubescent to floccose; upper 4–7 internodes flattened, 4–8 × 1.5–3 mm; lower internodes and nodes 2–3 mm thick. *Stipules* caducous, linear, 12–16 × 2–3 mm, slightly keeled, densely long pubescent to floccose, apex acute; nerves c. 10; colleters c. 100. *Petiole* canaliculate, 7–12 × 1 mm, sparsely pubescent, glabrescent, when young densely long pubescent. *Leaf blade* (obovate-)lanceolate, 8.5–12.5 × 2–3.5 cm, chartaceous, above glabrous, below thinly long pubescent on midrib, when young thinly long hairy on either side, apex up to 10 mm acuminate, base acute; lateral nerves 11–13 pairs, in the middle of the blade at an angle of 40°–55°

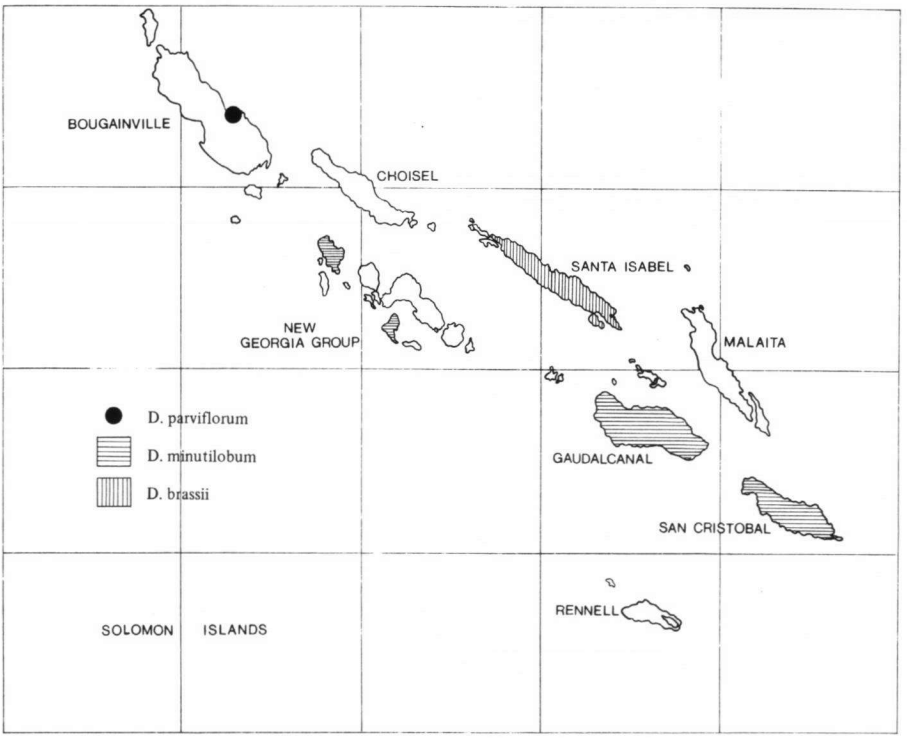

Fig. 3. Distribution of *Dolicholobium minutilobum* Jansen, *D. parviflorum* Jansen and *D. brassii* Merr. & Perry.

to the midrib. *Inflorescence* a 3-flowered simple dichasium, solitary; peduncle 15–19 × 0.5 mm, densely long pubescent to hirsute. Male flowers 5-merous. *Pedicel* not articulate, 13–15 × 0.5 mm, densely long pubescent. *Calyx* obconical, 0.8–1 × 1–1.6 mm, truncate to slightly undulate; outside long pubescent especially in lower half, inside glabrous, margin long ciliate; no colleters. *Corolla* tube cylindrical, 12–13 mm long and 0.7–1 mm wide, upper widened to 1.5–2 mm, densely long pubescent; throat slightly thickened; lobes 6.5–7 × 2.2–2.6 mm, overlapping parts sparsely long pubescent outside, otherwise glabrous, margin of overlapping parts ciliate. *Stamens* with linear; inserted 6 mm under the throat; anthers linear, 3.5 × 0.3 mm. *Disk* 0.1 mm high, 0.8 mm wide. *Style* 0.7 mm long; stigmas 1 mm long. Female flowers 5-merous, sessile. *Hypanthium* cylindrical, 15–20 × 1–2 mm, densely long pubescent to floccose. *Calyx* obconical, c. 2 × 4 mm, margin undulate; outside densely long pubescent, inside glabrous, margin densely long ciliate; no colleters. *Corolla* tube subcylindrical, c. 7 × 1 mm, at throat 2.5 mm wide, densely long pubescent; throat not thickened; lobes 6–8 × 3 mm, overlapping parts long pubescent outside, otherwise glabrous, margin of overlapping parts ciliate. *Stamens* inserted 3 mm under the

throat; anthers ovate-lanceolate, 1.5–2 × 0.4 mm. *Disk* 0.2 mm high, 0.8 mm wide. *Style* 3 mm long; stigmas obovate-lanceolate, 5 × 1.3 mm. Dehisced *fruit* with 10 thickened strands, 6–12 × 0.2 cm.

Distribution. Solomon Islands.

SOLOMON ISLANDS. Bougainville I.: Pavairi, Lavarack & Ridsdale NGF 31102 (K, L).

Ecology. Rainforest on hillside at c. 800 m alt. Flowerbuds and old fruits Jan.

Field notes. Bark brown; wood brown. Leaves dark glossy green above, light green below. Flowers pink.

22. Dolicholobium brassii Merr. & Perry – Fig. 2, 3.

D. brassii Merr. & Perry, J. Arn. Arbor. 25 (1944) 184; Whitmore, Guide For. Brit. Solomon I. (1966) 178. – Type: *Brass 3005* (A, holo; BISH, BM, BRI, K, L).

Treelets up to 8 m high, d.b.h. up to 10 cm. Indumentum light to dark brown. Ultimate branchlets glabrous; upper 1–3 internodes flattened, 4–10(–52) × 1.5–3 mm; lower internodes 2–4 mm, lower nodes 2–6 mm thick. *Stipules* caducous, (ob)-lanceolate to -linear, 10–32 × 2–6 mm, keeled, glabrous and with ciliate to pubescent to hirsute margin, apex obtuse to acute; nerves 13–15; colleters c. 200. *Petiole* canaliculate to partly flattened, 7–23(–32) × 0.5–1 mm, glabrous or thinly pubescent. *Leaf blade* elliptic to obovate-oblong, 6–21 × 2–8 cm, papyraceous, above glabrous or sparsely pilose, below minutely pubescent but sericeous to thinly hirsute on midrib and nerves, glabrescent; margin densely pubescent, glabrescent, apex acute or up to 20 mm cuspidate, base acute; lateral nerves 8–13 pairs, at the middle of the blade at an angle of 30°–45° to the midrib. *Inflorescence* a 3–6-flowered simple dichasium or cyme, solitary; bracts sometimes present, filiform, up to 3 mm long, glabrous; peduncle 7–25 × 0.5 mm glabrous to hirsute. Male flowers 4-merous. *Pedicel* not articulate, (5–)10–25 × 0.2(–0.5) mm, glabrous to densely pubescent. *Calyx* campanulate, or obconical, 0.6–1 × 1.5 mm, truncate, outside glabrous to thinly pubescent, inside sericeous, margin densely ciliate; no colleters. *Corolla* tube cylindrical, 11–16 mm long and 0.5 mm wide, upper half widened to 2 mm, lower part glabrous to sparsely pubescent, upper part thinly to densely pubescent; throat thickened; lobes ovate-oblong to lanceolate, 8–18 × 3–5 mm, membranous, overlapping parts glabrous to densely pubescent outside, otherwise glabrous, apex rounded. *Stamens* inserted 4–6 mm under the throat; anthers linear, 5 × 0.5 mm. *Disk* 0.2 mm high, 0.5 mm wide. *Style* 1.3 mm long, basally long pubescent; stigmas 0.8 mm long, glabrous. Female flowers 4- or 5-merous, sessile. *Hypanthium* cylindrical, 13–18 × 0.8–1.2 mm, densely sericeous to tomentose. *Calyx* cylindrical or obconical, 2–4 × 2–3 mm, truncate, outside glabrous or thinly pubescent, inside densely (long) sericeous, margin sparsely long ciliate; no colleters. *Corolla* tube subcylindrical, 6–9 × 1 mm, at throat 2.5 mm wide, lower part glabrous, upper part densely long pubescent; throat slightly thickened; lobes ovate-oblong to linear, 6–18 × 2–4 mm, mem-

branous, overlapping parts densely long pubescent to tomentose outside, otherwise glabrous, apex obtuse. *Stamens* inserted 4 mm under the throat; anthers linear, 2 × 0.3 mm. *Disk* 0.3 mm high, 1 mm wide. *Style* 1 mm long, glabrous stigmas linear, 5–8 × 0.7–1.3 mm, glabrous. *Fruits* cylindrical, with 8 thickened strands, 9.5–11.5 × 0.1 cm, glabrous to sparsely pubescent.

Distribution. Solomon Islands.

SOLOMON ISLANDS. New Georgia Group: N. Kolombangra, Shoulder Hill area, Mauriasi BSIP 8776 (L). SE. Rendova I., Burn-Murdoch BSIP 7479 (L). – Florida Group: Big Nggela, Naghela area, Gafui BSIP 15213 (L). – Guadalcanal: Wanderer Bay, W. of Bilikovu R., Gafui BSIP 9128 (K, L); Mt Popomanasiu, Corner RSS 178 (A, K, L); Avu Avu, Betebete, Runikera BSIP 9719 (L); Rere R., Lipaqeto BSIP 3390 (L); Marau, Makina R., Boraule BSIP 9304 (L), Makina area, Mauriasi BSIP 11219 (L). – San Cristobal: Huro R., Brass 3005 (A, BISH, BM, BRI, L).

Ecology. Well-drained primary or secondary forest, on hillsides and riverbanks, at 45–1050 m alt. Fl. Jan., April, May, Sep.–Nov.; fr. May, June, Aug.–Oct.

Field notes. Bole straight or crooked; bark smooth or slightly fissured, light to dark brown, inner bark yellowish green; wood hard, brownish. Flowers unscented or with vanilla-smell, corolla white, whitish yellow, pinkish, purplish white. Fruits reddish brown to brown.

Vernacular name: Butadenge (Kwara'ae lang.).

Note. *BSIP 8776, 9304 & 9719* have larger leaves and more lateral nerves than the other specimens, but otherwise no differences can be established.

23. Dolicholobium solomonense Merr. & Perry – Fig. 4.

D. solomonense Merr. & Perry, J. Arn. Arbor. 25 (1944) 185; Whitmore, Guide For. Brit. Solomon I. (1966) 178. – Type: *Brass 2850* (A, holo; BISH, BM, BRI, L).

D. kajewskii Merr. & Perry, l.c. 184; Whitmore, l.c. – Type: *Kajewski 2577* (A, holo; BISH, BM, L).

D. ulawense Merr. & Perry, l.c. 185; Whitmore, l.c. – Type: *Brass 2967* (A, holo; BISH, BM, BRI, L).

Small shrubs to trees up to 27 m high and d.b.h. up to 20 cm. Indumentum light brown, red- or dark yellow-brown. Ultimate branchlets glabrous to densely puberulous-velutinous to woolly-hispid; upper 1–3 internodes flattened, 5–30(–50) × 2–7 (–9) mm; lower internodes and nodes 2–8 mm thick. *Stipules* caducous, elliptic or obovate to (obovate-)oblong, 15–43 × 7–20 mm, often keeled, chartaceous to coriaceous, glabrous or (only basally) densely puberulous to hirsute, floccose, or woolly, glabrous or densely ciliate, apex obtuse to rounded; nerves 16–23; colleters 50–150. *Petiole* flattened above to (distally) canaliculate, (15–)30–75 × 1–2 mm, glabrous to densely puberulous-velutinous. *Leaf blade* ovate to obovate or obovate-oblong, 7.5–31 × 4–20 cm, papyraceous to subcoriaceous, above glabrous or thinly pubescent to puberulous on midrib and nerves, below glabrous to thinly puberulous, indumentum dense on midrib and nerves, when young densely pubescent to lanate on either side, apex acute or up to 15 mm acuminate, base acute to obtuse (to rounded);

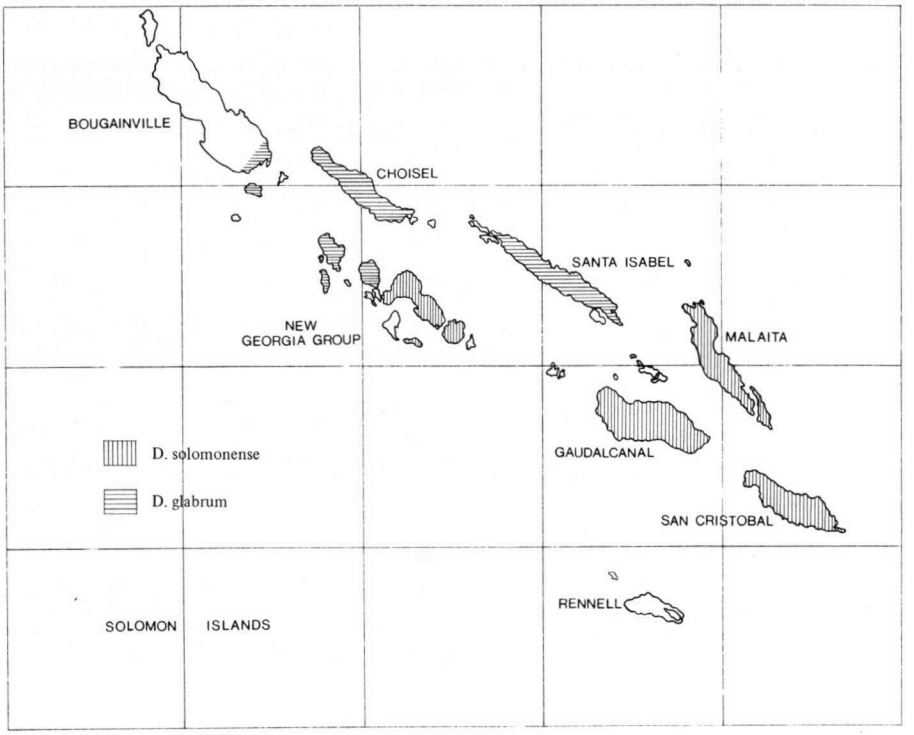

Fig. 4. Distribution of *Dolicholobium solomonense* Merr. & Perry and *D. glabrum* Jansen.

lateral nerves 8–14 pairs, at the middle of the blade at an angle of 30°–65° to the midrib. *Inflorescence* a 3–14-flowered simple dichasium or cyme, 1 (or 2) per leaf axil; bracts rarely present, filiform, up to 2.5 mm long; peduncle 10–70 × 0.7–1.5 mm, sparsely puberulous to tomentose. Male flowers 4-merous. *Pedicel* persistent after flowering, sometimes also under the fruit, not articulate, 7–18 × 0.5–0.7 mm, peduncle of lateral dichasia, 0–8 mm, glabrous to densely pubescent. *Calyx* campanulate (to cylindrical) 0.6–1.5 × 1–2.5 mm, truncate, sometimes margin undulate, outside glabrous to densely pubescent, inside short sericeous, margin glabrous to densely ciliate; colleters 0(–2). *Corolla* tube subcylindrical, 11–19 mm long and 1 mm wide, upper 5–6 mm widened to 1.5–2.5 mm, glabrous to tomentose; throat thickened; lobes ovate-oblong to linear, 11–24 × 2–6 mm, inside glabrous, outside glabrous or overlapping parts pubescent to tomentose, apex obtuse to rounded. *Stamens* inserted 5–8 mm under the throat; anthers linear, 4–6 × 0.3–0.7 mm. *Disk* 0.4–0.6 mm high, 0.6–0.8 mm wide, glabrous or sometimes sparsely hairy. *Style* 1–3 mm long, glabrous or basally pubescent; stigmas 0.5–1.5 mm long, glabrous. Female flowers 5-merous, sessile. *Hypanthium* cylindrical, 12–24 × 1–3 mm, densely sericeous to puberulous-velutinous. *Calyx* cylindrical to obconical, 3–8 ×

2–4(–6) mm, truncate or margin undulate, outside glabrous to tomentose, inside (basally) sericeous, margin glabrous to densely ciliate; inside basally up to 20 colleters in 5 groups of (2–)3–5 opposite the petals, or colleters absent. *Corolla* tube cylindrical to slightly obconical, 8–14 × 1–2.5 mm, at throat 2–3 mm wide, glabrous to densely pubescent; throat thickened; lobes (ovate-)lanceolate to linear, 15–33 × 3–7 mm, inside glabrous, outside glabrous or overlapping parts densely pubescent to tomentose, apex obtuse. *Stamens* inserted, 3.5–5 mm under the throat; anthers (ovate-)lanceolate to linear, 1.5–3 × 0.3–0.7 mm. *Disk* 0.2–0.6 mm high, 1–1.8 mm wide. *Style* 1–5.5 mm long, glabrous; stigmas obovate-lanceolate to linear, 6–11 × 1.3–2 mm, glabrous. *Fruits* cylindrical, with 10 thickened strands, 9–22 × 0.3–0.45 cm, thinly pubescent to tomentose; stalk 3–7.5 cm long, sparsely pubescent to puberulous-velutinous.

Distribution. Solomon Islands.

SOLOMON ISLANDS. New Georgia Group: New Georgia I., Burn-Murdoch BSIP 6880, 6984 (L, US), 7449 (L); Cowmeadow BSIP 3187, 3197, 3245, 4754 (all L); Cowmeadow & Teona BSIP 2539 (L); Kere BSIP 5077 (L); Maenu'u BSIP 5165 (L, US); Waterhouse 184 (A, L); C.T. White BSIP 201 (A, BRI, CANB, L); Whitmore BSIP 1947 (L). Tetepari I.: Mauriasi BSIP 15953 (L). Vangunu I.: Whitmore BSIP 934 (L). – Guadalcanal: Gafui BSIP 9125 (L); Kajewski 2577 (A, BISH, BM, BRI, L); Whitmore BSIP 672 (L; fruits only 2 mm diam.). – Malaita Group: Malaita I., Gafui BSIP 10678 (L); Fa'arodo BSIP 13476 (L); Lipaqeto BSIP 3409, 3465 (L); Mauriasi BSIP 13533 (L). Small Malaita I.: Corner RSS 255 (A, K, L); Gafui BSIP 16374, 16958 (L); Ulawa I.: Brass 2967 (A, BISH, BM, BRI, L); Teona BSIP 6318 (K, L). – San Cristobal I.: Brass 2656 (A, BM, BRI, L), 2657 (BISH), 2850 (A, BISH, BM, BRI, L); Gafui BSIP 10846, 12541, 12657 (all L); Whitmore RSS 6101 (BRI, CANB, L), 6260 (A, CANB, L); Whitmore BSIP 4244 (L).

Ecology. Usually in well-drained, sometimes in swampy or periodically flooded primary forests, often along streams or in other open places, sometimes in poor forest on exposed ridges; on deep to very shallow soils. Altitudinal range: sealevel–400 (–1200) m. Fl. & fr. all year round, mainly Sep.–Dec.

Field notes. Bole straight, leaning, or crooked, sometimes multiple trunks. Bark smooth, sometimes scaly, grey to dark brown (or 'black'); wood hard or soft, from white or straw to dark brown. Young leaves red. Flowers faintly to heavily scented; corolla white turning cream when opening, later pink and becoming red(dish) when shed.

Vernacular names. Butadenge (Kwara'ae lang.), hebae ngongoto (New Georgia).

Notes. *D. solomonense* is rather variable. Most specimens are conspicuously hairy, several specimens from Malaita and Small Malaita have a less conspicuous indumentum and corollas completely glabrous. Within a given inflorescence the pedicels of the male flower are usually distinctly shorter than the hypanthium of the female flower, but in the specimens from Malaita, Small Malaita, and Ulawa the pedicels equal the hypanthium. The range of the length of the calyx of the female flower is very large; the greatest lengths are reached on New Georgia. The indumentum of the stipules varies from densely hirsute, woolly, floccose or puberulous, through only basally hairy but densely ciliate on the margins, to glabrous.

The delimitation against *D. brassii* is difficult. In general *D. brassii* has small delicate leaves and flowers, whereas *D. solomonense* has large leaves and flowers. However, three specimens blurr this picture. *BSIP 8776 & 9304* (inserted in *D. brassii*) have leaves and female flowers somewhat larger than 'normal' *D. brassii* and they have a conspicuous indumentum. The type of *D. kajewskii* is a high-altitude form of *D. solomonense* with small leaves and flowers. In leaf- and flower-size and in number of lateral nerves these specimens bridge the gap between the ranges of the two species. Unfortunately these specimens do not bear fruit.

As the type of *D. brassii* originates from lowland rainforest in San Cristobal from where are also available eight collections of *D. solomonense* with very large and often very coarse leaves and large flowers, the differences cannot be due to differences in ecology or to geographical raciation. As far as can be deduced from the presently available material, there are two constant, differentiating characters. The diameter of the fruit ranges *in sicco* in *D. brassii* from (1.0–)1.8 to 2.1 mm, in *D. solomonense* from 3 to 4.5 mm. Mature stipules of *D. brassii* are at most 6 mm wide; not too young stipules of *D. solomonense* are at least 7, but soon already more than 10 mm wide.

24. Dolicholobium glabrum M.E. Jansen, *spec. nov.* – Fig. 4.

Arbores parvae usque ad 12 m altae. Indumentum fuscum ad ferrugineum. *Stipulae* caducae plerumque semi persistentes, ellipticae ad elliptico- vel ovato-oblongae, 21–40 × 10–24 mm, glabrae vel sparse ad rare tomentosae ad longe pubescentes, margine glabris, apicibus rotundatis. Petiolus 10–45(–55) × 3–5 mm. *Lamina folii* obovata ad obovate-oblonga, (19–)23.5–49 × 10–23.5 cm, utrinque glabra, (juvenali in costa atque nervis sparse pubescentibus), apice acuta, basi attenuata, nervibus lateralibus 15–22 paribus. Dichasium vel thyrsus 1 ad 2 per axilla folii, 3–12 floribus, pedunculo 7–70(–105) × 1–3 mm. *Flores masculi* 5- ad 6-meri. Pedicellus non articulatus, post anthesin caducus vel persistens. Calyx campanulatus 1–2 × 2.5–3 mm, utrinque glabrus, margine undulato, glabro, intus ad basem plerumque 5–6 colleteribus. Tubus corollae 15–20 mm longus, parte inferiore 1–1.5 mm lata, in parte summa 5–7 mm longa ad 2.5 mm dilatatus, glaber; lobi elliptici vel oblongi, 6–15 × 4–6 mm, utrinque glabris. Antherae 6 × 0.7–1 mm. Discus 0.2–0.3 mm altus, 0.8–1.2 mm latus. Stylus 2–4 mm longus; stigmata 2–4 mm longa. *Flores feminei* 6-meri. Pedicellus 0–5 × 2 mm. Hypanthium cylindricum, 16–25 × 3–4 mm, breviter sericeum. Calyx campanulatus 4–7 × 8–12, truncatus vel margine leviter undulatus, utrinque glabrus, intus ad basem c. 17 colleteribus in turmis 6 antipetalis 2–4 colleterum. Tubus corollae 11–13 × 2–3 mm, in fauce 3.5–4 mm latus, glaber; lobi (elliptico-)lanceolati, 21–31 × 6–8 mm, utrinque glabris. Antherae ovato-lanceolatae ad lineares, 2–3.5 × 0.5–0.7 mm. Discus 0.2–0.4 mm altus, 2.5 mm latus. Stylus 4–6 mm longus; stigmata obovato-lanceolata, 8–9 × 2 mm. *Fructus* cylindricus filis vascularibus 8–10 incrassatis, 5.5–16 × 0.3–0.6 cm, glabrus, pedunculo 2–11.5 cm longo, glabro vel sparse pubescens. — Typus: *Whitmore BSIP 9695* (L, holo).

Small trees up to 12 m high; bole often crooked, up to 25 cm d.b.h. Indumentum brown to ferrugineous. Ultimate branchlets glabrous; upper 2–4 internodes flattened, 8–40(–135) × 5–10 mm; lower internodes and nodes 7–10 mm thick. *Stipules* caducous but sometimes semi-persistent, elliptic to elliptic- or ovate-oblong, 21–40 × 10–24 mm, sometimes keeled, horny or subcoriaceous, glabrous or sparsely to thinly tomentose to long pubescent, margin glabrous, apex rounded; nerves 20–30,

colleters 200–250. *Petiole* canaliculate, or flattened in basal part, 10–45(–55) × 3–5 mm, glabrous. *Leaf blade* obovate to obovate-oblong, (19–)23.5–49 × 10–23.5 cm, papyraceous to subcoriaceous, on either side glabrous but sparsely puberulous on nervation and venation when young, apex acute, base attenuate; lateral nerves 15–22 pairs, in the middle of the blade at an angle of 40°–60° to the midrib. *Inflorescence* a 3–12-flowered simple dichasium or simple thyrse, 1 or 2 per leaf axil; bracts sometimes present, filiform, up to 2.5 mm long, glabrous; peduncle 7–70(–105) × 1–3 mm, glabrous or basally shortly tomentose and glabrescent. Male flowers 5- or 6-merous. *Pedicel* not articulate, dropping or persistent after flowering, (5–)13–31 × 0.5–1 mm, glabrous or with a few hairs. *Calyx* campanulate, 1–2 × 2.5–3 mm, margin undulate, on either side glabrous, margin glabrous; inside basally sometimes with 5 or 6 colleters. *Corolla* tube cylindrical, 15–20 mm long, basal part 1–1.5 mm wide, upper third widened to 2.5 mm, glabrous; throat (strongly) thickened; lobes elliptic to oblong, 6–15 × 4–6 mm, membranous, glabrous, apex obtuse. *Stamens* inserted 5–7 mm under the throat; anthers linear, 6 × 0.7–1 mm. *Disk* 0.2–0.3 mm high, 0.8–1.2 mm wide. *Style* 2–4 mm long; stigmas 2–4 mm long. Female flowers 6-merous. *Pedicel* 0–5 × 2 mm, glabrous or with a few hairs. *Hypanthium* cylindrical, 16–25 × 3–4 mm, shortly sericeous. *Calyx* campanulate, 4–7 × 8–12 mm, truncate or margin undulate, on either side glabrous, margin glabrous; inside basally sometimes with c. 17 colleters arranged in 6 groups of 2–4 opposite the petals. *Corolla* tube (sub)cylindrical, 11–13 × 2–3 mm, at throat 3.5–4 mm wide, glabrous; throat slightly to strongly thickened; lobes (elliptic-)lanceolate, 21–31 × 6–8 mm, membranous to subcoriaceous, glabrous, apex obtuse to rounded. *Stamens* inserted 3–4 mm under the throat; anthers ovate-lanceolate to linear, 2–3.5 × 0.5–0.7 mm. *Disk* 0.2–0.4 mm high, 2.5 mm wide. *Style* 4–6 mm long; stigmas obovate-lanceolate, 8–9 × 2 mm. *Fruits* cylindrical, with 8–10 thickened strands, 5.5–16 × 0.3–0.6 cm, glabrous; stalk 2–11.5 cm long, glabrous or sparsely tomentose.

Distribution. Solomon Islands.

SOLOMON ISLANDS. Bougainville I.: Buin Subdist., Tonolei Harbour, Coode et al. NGF 40421 p.p. (mixed with *D. acuminatum*!) (A, BISH, BRI, CANB, L). – Shortland Group: Shortland I., Kupola R., Whitmore BSIP 5869 (L), Runikera BSIP 13126 (L). – Choiseul I.: Sekoloe R., Gafui BSIP 18598 (L); Ologhata Harbour, Gafui BSIP 17407 (L). – New Georgia Group: Vella Lavella, Oula R., Kotali BSIP 9537, 9695 (L). Baga I., Whitmore BSIP 2901 (K, L). SE. Ranongga I., Komali, Mauriasi BSIP 14334 (L); Dae, Mauriasi BSIP 14398 (L): Mone, Mauriasi BSIP 14506 (L). SE. Kolombangara I., Mauriasi BSIP 9805 (L); W. of Vila R., Mauriasi BSIP 8475 (L). – Santa Isabel I.: Allardyce Harbour, Whitmore BSIP 2198 (L), Susui BSIP 8305 (L); Kolokofa R., Beer BSIP 5138 (L, US).

Ecology. In poor- to well-drained (sometimes swampy) primary lowland rainforest, usually in valley bottoms or on riversides, sometimes on hillsides or on flat plains. Altitude range 0–90 m. Fl. May, Aug., Oct.–Feb.; fr. March-Dec.

Field notes. Bark light to dark brown, smooth or, in larger trees, scaly and sometimes fissured; wood straw to brown. Stipules red. Young leaves bronze. Flowers not scented, white, yellow, yellow and red, brownish yellow with red throat, red. Fruits green to brown.

Vernacular name. Butadenge (Kwara'ae lang.).

Notes. *NGF 40421* from Bougainville is a mixed collection taken, according to the label, from different trees, a fruiting and flowering one. This collection proves that *D. glabrum* and *D. acuminatum* can grow very close together. *D. acuminatum* differs from the present species, apart from its more copious indumentum, especially in its shorter peduncles and its far longer corollas, features which taken together make these species look very dissimilar at first sight.

The label of the mixed collection mentions 'covered with small black ants which make nests under leaves and stipules'; it is uncertain whether this observation was made on both trees or only on one of them. There might be a connection between the ants and the mucilage produced by the colleters between the stipules.

The distributional areas of *D. glabrum* and *D. solomonense* do not overlap, as far as presently known, and these species behave as vicariants. *D. glabrum* and *D. acuminatum* differ in quite a number of minor characters; the most useful character is in the inflorescence: in *D. glabrum* the male flowers or their peduncles are inserted at small but distinctly different distances under the female flower, whereas in *D. solomonense* the male flowers or their peduncles are inserted in one tier under the female flower.

25. Dolicholobium acuminatum Burkill – Fig. 5, 6.

D. acuminatum Burk., Hook. Ic. Pl. 27 (1900) t. 2630; K. Sch. & Laut., Fl. Schutzgeb. (1900) 555; Valeton, Nova Guinea 14, Bot. (1926) 257; Bot. Jahrb. 60 (1926) 14, 16; Merr. & Perry, J. Arn. Arbor. 25 (1944) 186. – Syntypes: *Guppy 187* (K), *219* (K; iso in MEL), *Officers H.M.S. 'Penguin'* (K).

D. callianthum Merr. & Perry, J. Arn. Arbor. 25 (1944) 186; Whitmore, Guide For. Brit. Solomon I. (1966) 178. – Type: *Kajewski 2655* (A, holo; BISH, BM, BRI, L).

Treelets or bushy trees up to 24 m high; d.b.h. up to 10 cm. Indumentum white or grey to yellow-brown. Ultimate branchlets glabrous or densely puberulous velutinous or partly hirsute; upper 2–5 internodes flattened, 3–22 × 2–9 mm; lower internodes 6–10 mm thick, lower nodes 6–14 mm thick. *Stipules* caducous, elliptic or ovate to oblong, 20–64 × 7–23 mm, sometimes keeled, (sub)coriaceous, puberulous-velutinous, (wooly) floccose, or tomentose-hirsute to densely hirsute, more or less glabrescent, apex rounded; nerves 17–22, colleters 150–300. *Petiole* terete or distally slightly canaliculate, 10–55(–75) × 2–5 mm, densely pubescent to hirsute and glabrescent or puberulous-velutinous. *Leaf blade* elliptic to -oblong or obovate to -oblong, 10–35(–47) × 4–25 cm, chartaceous, on either side glabrous or puberulous especially on midrib and nerves, when young on either side puberulous-velutinous to densely pubescent, sometimes hirsute at base, apex acute or up to 20 mm acuminate, base acute to attenuate; lateral nerves (8–)13–25 pairs, at the middle of the blade at an angle of 40°–55° to the midrib. *Inflorescence* a 3–10-flowered simple dichasium or thyrse, 1–3 per leaf axil; peduncle 1–32 × 1–2.5(–3) mm, glabrous or puberulous-velutinous to pubescent, glabrescent. Male flowers 5- or 6-merous. *Pedicel* persistent after flowering, usually also under the fruit, not articulate, 2–16 ×

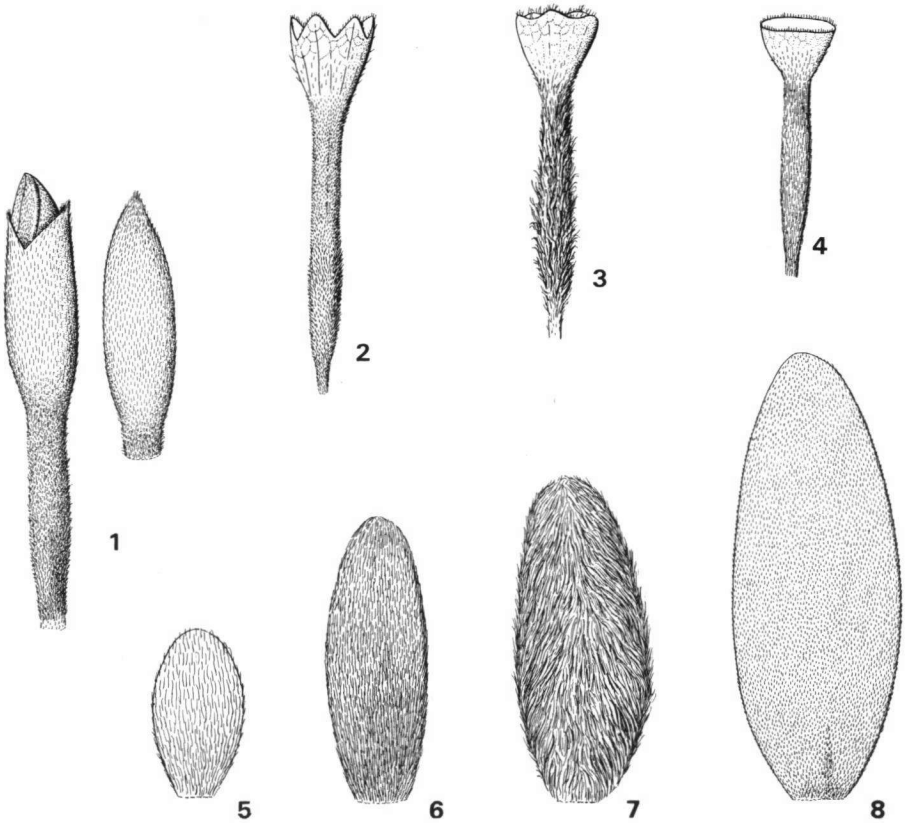

Fig. 5. *Dolicholobium ridsdalei* Jansen. 1. Buds of female flowers, × 3 (*NGF 30644*). – *D. acuminatum* Burk. 2–4. Different forms of hypanthia and calyces, all × 1½ (2 & 4. *Schodde & Craven 3839*, 3. *BSIP 6742*); 5–8. different forms of stipules, all × 1½ (5. *Schodde & Craven 3839*, 6. *BSIP 14130*, 7. *BSIP 7642*, 8. *Schodde & Craven 4032*).

1–2 mm, densely puberulous-velutinous or pubescent to (partly) glabrous. *Calyx* (cylindrical to) cup-shaped to obconical, 1–3 × 0.5–3 mm, truncate or undulate, glabrous on either side, margin glabrous; no colleters. *Corolla* tube cylindrical, 40–65 mm long and 1–3 mm wide, upper 6–15 mm widened to 2–4 mm, long pubescent or long sericeous to floccose; throat thickened, puberulous; lobes elliptic to elliptic-oblong or ovate-lanceolate to lanceolate, 16–30 × 6–12 mm, overlapping parts densely puberulous to long pubescent outside, glabrous, overlapped parts glabrous outside, glabrous or puberulous inside, margins often ciliate, apex obtuse (to emarginate). *Stamens* inserted 5.5–13 mm under the throat; anthers linear, 4.5–7 × 1 mm. *Disk* 0.5–1 mm high, 1–2 mm wide. *Style* 1–5 mm long; stigmas 3–5 mm long. Female flowers 5- or 6-merous. *Pedicel* 0–7 mm long, puberulous to velutinous, glabrescent. *Hypanthium* cylindrical, (12–)17–25 × 2–4 mm, densely velutinous, pubescent, or floccose, sometimes basally hirsute as well. *Calyx* cylindrical to obconi-

cal to campanulate, 4–8 × 5–12 mm, truncate to up to 1/4 lobed, lobes rounded; outside glabrous or sparsely to densely (long) pubescent, inside glabrous, apically sericeous, or long pubescent, margin glabrous or ciliate; no colleters. *Corolla* tube cylindrical, 19–38 × 3–5 mm, densely short to long pubescent to floccose; throat strongly thickened, glabrous or thinly puberulous; lobes obovate-oblong or elliptic to lanceolate, (15–)18–35 × 7–13(–15) mm, overlapping parts sericeous to pubescent outside, glabrous inside, overlapped parts glabrous or sparsely puberulous on either side, margins ciliate to puberulous or pubescent apex obtuse (to emarginate). *Stamens* inserted 3–15 mm under the throat; anthers ovate-oblong to -lanceolate, 2–3 × 0.4–0.6(–0.8) mm. *Disk* 0.4–1 mm high, 2–3 mm wide. *Style* 4.5–10 mm long; stigmas obovate-lanceolate to linear, 11–27 × 2–4 mm. *Fruits* cylindrical, with 10 thickened strands, 5–20 × 0.5–0.7 cm, glabrous or thinly puberulous; stalk 0.5–3.5 cm long, puberulous-velutinous to pubescent or glabrous.

Distribution. Solomon Islands.

SOLOMON ISLANDS. Bougainville I.: Coode et al. NGF 40421 p.p. (mixed with *D. glabrum*) (BRI, CANB, L); Craven & Schodde 293 (A, BRI, CANB, L); Lavarack & Ridsdale NGF 31160 (A, BRI, L), 31196 (L); van Royen NGF 16426 (A, CANB, L); Schodde & Craven 3839 (A, CANB, L), 3947 (A, BRI, CANB, L), 4032 (A, BISH, BRI, CANB, L): Waterhouse 121 (NY), 169-B (A, BRI, L). – Shortland Group: Fauro I., Guppy 187 (K), 219 (K, MEL); Mauriasi BSIP 13870 (L); Whitmore BSIP 4137 (L). Shortland I., Runikera BSIP 13184 (K, L). Treasury (Mono) I., Mauriasi BSIP 14086, 14130, 14244 (all L); Whitmore BSIP 4177 (L). – Choiseul I.: Gafui BSIP 18424 (L). – New Georgia Group: HMS Penguin s.n. (K). Kolombangara I., Gafui BSIP 8435 (L); Hunt RSS 2521 (A, CANB, L): Mauriasi BSIP 8620, 11544, 11622 (all L); Whitmore BSIP 2122 (L). Tetepari I., Mauriasi BSIP 15872 (L). – Santa Isabel I.: Beer BSIP 6742 (L, US). – Guadalcanal I.: Corner RSS 2116 (A, BISH, BRI, CANB, L); Gafui BSIP 10153 (L); Kajewski 2655 (A, BISH, BM, BRI, L); Mauriasi BSIP 11755 (K, L); Whitmore BSIP 651 (K, L); Whitmore & Corner BSIP 4393 (L).

Ecology. Usually in well-drained, sometimes in swampy primary forests, often along streams or in other open places, sometimes in poor forest on stony soils or exposed ridges, rarely in secondary forest. Altitudinal range: sealevel–870(–1200) m. Fl. March–Jan.; fr. April–Jan.

Field notes. Bole straight or crooked. Bark smooth, scaly, or striate and flaky, light grey to dark brown; wood hard, from white over orange to red-brown and mid-brown. Young stipules pink. Flowers faintly to strongly scented; calyx pink, red-brown in fruit; corolla tube white or cream to pink or red, throat white, yellow, or pink, lobes always white. Fruits grey or brown, young ones green or reddish purple.

Vernacular names. Aira (Bougainville I.), butadenge (Kwara'ae lang.), lowasi (Fauro I.).

Notes. The present species is closely related to *D. glabrum* which differs especially in its less abundant indumentum, its longer peduncles and shorter corolla tubes.

Of *D. acuminatum* there are 33 collections which show a rather wide variability.

Within Bougainville I. the following combinations in number of flower parts are represented:

male	5	5	5–6	6
female	5–6	6	6	6

Together with the combination 5 + 5 from Santa Isabel, this covers already the variability within the entire distributional area.

The characters of the calyx of the flower exhibit similar trends:

margin		*outside*	*inside*
straight	ciliate	glabrous	glabrous
undulate	ciliate	glabrous	glabrous
undulate	glabrous	sparsely hairy	glabrous
straight	ciliate	pubescent	pubescent
lobed	ciliate	sparsely hairy	glabrous
undulate	ciliate	densely long hairy	densely long hairy
undulate	sparsely ciliate	glabrous	glabrous
straight	ciliate	sparsely hairy	apical half sericeous

Of this list the top five combinations were found on Bougainville I., whereas the lower three combinations were found in the Shortland Group (s.l.).

In the number of flower parts as well as in the characters of the calyx of the female flower no regional pattern can thus be established. However, in some other indumentum characters there could certainly exist a regional variation, but far more collections are needed to confirm this; especially New Georgia, Choiseul and Santa Isabel need (better) representation.

Bougainville Island – Upper side of young leaves with long soft appressed wavy hairs. Stipules, petioles, lower side of leaves, peduncle, pedicels, hypanthia, and corolla lobes with short (0.3–0.6 mm) rather stiff subappressed to subpatent hairs which are persistent on petioles and on midrib and nerves of the lower leaf surface.

Shortland Group (s.l.) – As in Bougainville I., but hairs longer (0.4–1.2 mm) and more brownish.

New Georgia Group and Guadalcanal – Hairs on the parts mentioned above rather long (0.5–2 mm), thin, soft and whitish, often wavy or 'fluffy', comparable to indumentum on upperside of young leaves in all islands, densely 'floccose' on young stipules and hypanthia, often soon disappearing from pedicels; mature petioles and leaf blades glabrous.

Choiseul (1 collection only) – Hairs rather short (0.5–1 mm), thin, soft, wavy, but more brownish than those of the former group, interspersed with longer (1–3 mm), thicker but soft hairs, densely so on young stipules and hypanthia. Mature petioles and leaf blades glabrous. This specimen has rather small leaves with only 7 or 8 pairs of lateral nerves.

Santa Isabel (1 collection only) – Indumentum comparable to that of the Choiseul specimen, but the long hairs longer (4–5 mm) and very dense on lower part of internodes, on stipules and petioles, on basal part of midrib on the lower side of the leaf; and on lower part of hypanthia; apparently these long hairs do not drop but weather away.

There are some other differences, e.g. in the height of the insertion of the anthers (Bougainville up to 6.5 mm, Guadalcanal at least 10 mm under the throat), but as many specimens lack open flowers no definite correlations can be made.

26. Dolicholobium ridsdalei M.E. Jansen, *spec. nov.* – Fig. 5, 6.

Arbores usque ad 15 m altae. Indumentum pallido-fuscum. *Stipulae* caducae, ovateo-oblongae, 9–17 × 3–5 mm, floccoso-pubescentes, glabrescentes, apicibus acutis. Petiolus (12–)19–40 × 1 mm. *Lamina folii* oblonga, 10.5–16.5 × 4–7.5 cm, utrinque sparse pubescens, glabrescens, apice usque ad 15 mm acuminato, basi acuta ad obtusa, nervibus lateralibus 14–17 paribus. Cyma solitaria, 3–5 floribus, pedunculo 50–71 × 1 mm. *Flores masculi* 4-meri (alabastria tantum cogniti). Pedicellus articulatus, 10–19 × 0.5–1 mm, breviter sericeus vel puberulus, caducus. Calyx fusiformis usque ad 13 × 1 mm, truncatus et ad apicem constrictus postremo in lobis parvis rumpens, utrinque sericeus, margine dense ciliato, intus ad basem c. 5 colleteribus in turmis 4 antipetalis 8–14 colleterum. Tubus corollae usque ad 3 × 1 mm, glaber; lobi lanceolati usque ad 10 × 2 mm, partibus superponentibus extus dense pubescentibus, intus glabris, partibus superpositis utrinque glabris, marginibus glabris. Antherae oblongae. Discus 0.05 mm altus, 1 mm latus. Stylus c. 1 mm longus; stigmata c. 3 mm longa. *Flores feminei* 5-meri, sessiles (alabastria tantum cogniti). Hypanthium cylindricum usque ad 13 × 2 mm, sericeum ad floccosuro. Calyx fusiformis, truncatus et ad apicem constrictus postremo in lobis parvis rumpens, extus sericeus ad strigosus, intus sericeus, margine dense ciliato, intus ad basem c. 70 colleteribus in turmis 5 antipetalis c. 15 colleterum. Tubus corollae c. 2 × 1 mm, glaber; lobi lanceolati usque ad 8 × 2.5 mm, partibus superponentibus extus sericeus ad strigosis, intus glabris, partibus superpositus utrinque glabris, marginibus sericeis. Antherae ellipticae. Discus 0.1–0.2 mm altus, 1 mm latus. Stylus c. 1 mm longus; stigmata elliptico-lanceolata usque ad 1.8 × 0.5 mm. *Fructus* cylindricus, filis vascularibus 10 incrassatis, 5.5–7 × 0.2–0.3 cm, sparse pubescens, exocarpio tenui, pedunculo 4–6 cm longo, glabro. — T y p u s : *Ridsdale & Lavarack NGF 30644* (L, holo; A, BRI, CANB, K).

Trees up to 15 m high. Indumentum light brown. Ultimate branchlets glabrous; upper 2–4 internodes flattened, 6–13(–25) × 2–3 mm; lower internodes 3–4 mm thick, nodes 3–5 mm thick. *Stipules* caducous, ovate-oblong, 9–17 × 3–7 mm, not keeled, horny, floccose-pubescent, glabrescent, apex acute; nerves c. 20; colleters 250–300. *Petiole* above flat to distally canaliculate, (12–)19–14 × 1 mm, thicker at the base, glabrous, sometimes sparsely pubescent when young. *Leaf blade* oblong, 10.5–16.5 × 4–7.5 cm, papyraceous, sparsely short pubescent on either side, glabrescent, apex up to 15 mm acuminate, base acute to obtuse, lateral nerves 14–17 pairs, in the middle of the blade at an angle of 45°–55° to the midrib. *Inflorescence* a 3–5-flowered cyme, solitary; peduncle 50–71 × 1 mm, glabrous or sparsely pubescent. Male flowers 4-merous. *Only buds present. Pedicel* articulate, 10–19 × 0.5–1.0 mm, short sericeous or puberulous, dropping after flowering. *Calyx* spindle-shaped, up to 13 × 1 mm, in bud apical opening very narrow, truncate, ruptured into tooth-like lobes by protruding corolla; sericeous on either side, margin densely ciliate; inside basally with c. 50 colleters in 4 groups of 8–14 opposite the petals. *Corolla* tube cylindrical, up to 3 × 1 mm, glabrous; throat thickened; lobes lanceolate, up to 10 × 2 mm, coriaceous, overlapping parts densely pubescent outside, glabrous inside, overlapped parts glabrous on either side, margins glabrous, apex acute. *Stamens* with oblong anthers. *Disk* 0.05 mm high, 1.0 mm wide. *Style* up to 1.0 mm long; stigmas up to 3.0 mm long. Female flowers 5-merous, sessile. *Only buds present. Hypanthium* cylindrical, up to 13 × 2 mm, sericeous to floccose. *Calyx* spindle-shaped, up to 9 × 1 mm, in bud apical opening very narrow, truncate, ruptured into tooth-like lobes by protruding corolla; sericeous to strigose outside, sericeous inside, margin densely ciliate; inside basally with c. 70 colleters in 5 groups of c. 15 opposite the

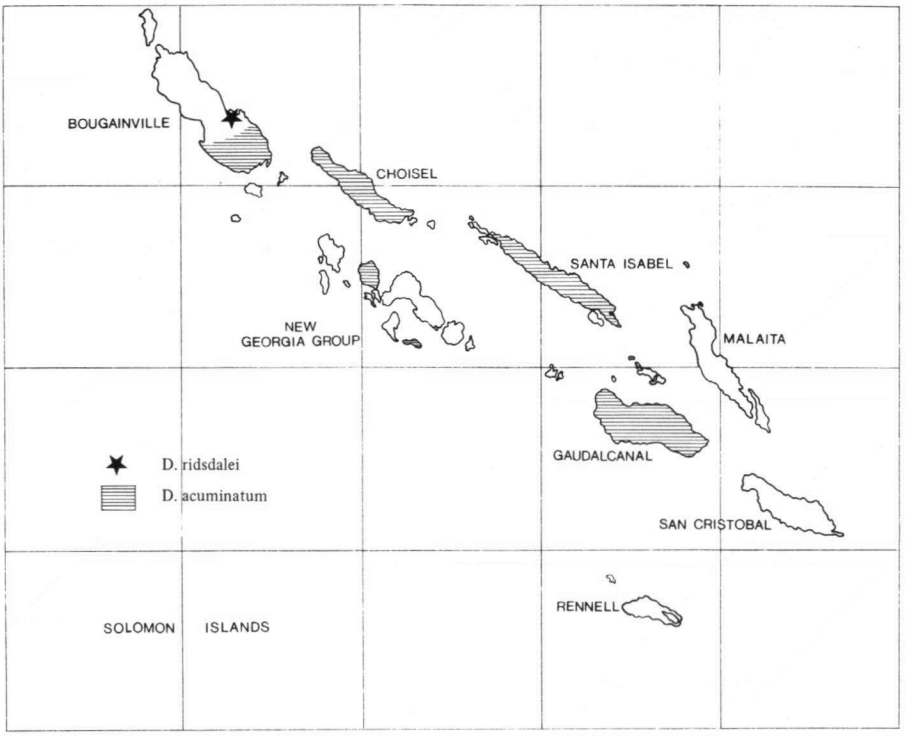

Fig. 6. Distribution of *Dolicholobium acuminatum* Burk. and *D. ridsdalei* Jansen.

petals. *Corolla* tube cylindrical, up to 2 × 1 mm, glabrous; throat thickened; lobes lanceolate, up to 8 × 2.5 mm, coriaceous, thickened in the middle, overlapping parts sericeous to strigose outside, glabrous inside, overlapped parts glabrous on either side, margins sericeous on overlapping side, apex acute. *Stamens* with elliptic anthers. *Disk* 0.1–0.2 mm high, 1 mm wide. *Style* up to 1 mm long; stigma elliptic-lanceolate, up to 1.8 × 0.4 mm. *Fruits* cylindrical, with 10 thickened strands, 5.5–7 × 0.5–0.3 cm, sparsely pubescent, exocarp thin; stalk 4–6 cm long, glabrous.

Distribution. Solomon Islands.

SOLOMON ISLANDS. Bougainville I.: Pavairi, Ridsdale & Lavarack NGF 30644 (A, BRI, CANB, K, L; BO, n.v.).

Ecology. Steep forested slopes between volcanic plugs. Altitude 825 m. Fl. buds and immature fruits: Jan.

Field notes. Immature fruits green. Leaves dark green, young ones wine-coloured.

Note. This species is distinctive by its rather long peduncles and its spindle-shaped calyces. It is named after Dr. C.E. Ridsdale, B.A. Krukoff Botanist of Malesian Botany, at Leiden.

KEY TO THE SPECIES OF FIJI

1a. Stipules persistent on several notes . . . . . **28. D. macgregorii**
b. Stipules caducous before the fruit develops from the same node
27. D. oblongifolium

27. Dolicholobium oblongifolium A. Gray

D. oblongifolium A. Gray, Proc. Am. Ac. 4 (1859) 308; Seem., Fl. Vitiensis (1866) 121; Horne, A Year in Fiji (1881) 260: Drake del Castillo, Ill. Ins. Pac. (1883) 185; Fosberg in Smith, Sargentia 1 (1942) 119. – *D. oblongifolium* var. *oblongifolium* Fosberg in Smith, l.c.; Parham, Pl. Fiji Isl. (1964) 190; 2nd ed. (1972) 268. – Syntypes: *H.M.S. Herald bot. (Milne) 38, 249* (both K), *U.S. Expl. Exp. s.n.* (GH, K, NY, US). Lectotype: see note.

D. latifolium A. Gray, Proc. Am. Ac. 4 (1859) 309; Seem., Fl. Vitiensis (1886) 121; Horne, A Year in Fiji (1881) 260; Drake del Castillo, Ill. Ins. Pac. (1883) 185; Parham, Fiji Dept. Agr. 21a (1942) 4; Pl. Fiji Isl. (1964) 189; 2nd ed. (1972) 267. – Type: *U.S. Expl. Exp. s.n.* (US).

D. longissimum Seem. [Bonplandia 9 (1861) 256; 10 (1862) 36, *nomen*] Fl. Vitiensis (1866) 121, t. 25; Horne, A Year in Fiji (1881) 261; Drake del Castillo, Ill. Ins. Pac. (1883) 185; Guppy, Sol. Isl. Nat. (1887) 297; K. Sch. in Engler & Prantl, Nat. Pfl. Fam. 4, 4 (1891) 51; Hook., Ic. Pl. (1900) ad t. 2630, p. 2; Parham, Fiji Dept. Agr. 21a (1942) 30; Pl. Fiji Isl. 2nd ed. (1972) 267, f. 79. – *D. oblongifolium* var. *longissimum* Fosberg in Smith, Sargentia 1 (1942) 119; Parham, Pl. Fiji Isl. (1964) 191, f. 68. – Type: *Seemann 215* (GH, K).

D. aneityense Guill., J. Arn. Arbor. 13 (1932) 2; Ann. Mus. Col. Marseille 55 (1948) 49. – Type: *Kajewski 775* (A, BISH, BRI, K, NY, US).

D. oblongifolium var. *degeneri* Fosberg in Smith, Sargentia 1 (1942) 119; Parham, Pl. Fiji Isl. (1964) 190; 2nd ed. (1972) 268. – Type: *Smith 1643* (US, holo; BISH, GH, NY).

D. longiflorum A. Gray ex K. Sch. in K.Sch. & Laut., Fl. Schutzgeb. (1900) 552, nomen in err.; Valeton, Nova Guinea 8, Bot. (1911) 449.

Shrubs or trees up to 20 m high, d.b.h. up to 25 cm. Indumentum light-yellowish to dark brown. Ultimate branchlets glabrous to floccose or hirsute; upper 2–6 internodes flattened, 2–28(–104) × 1–7 mm; lower internodes and nodes 2–7(–12) mm thick. *Stipules* (belated) caducous, ovate, elliptic to lanceolate or obovate-oblong, 12–46 × 5–15 mm, sometimes keeled, chartaceous, puberulous to tomentose, floccose, or hirsute, apex obtuse or rounded; nerves 9–14; colleters 55–85. *Petiole* canaliculate to distally flattened, 4–32 × 1–2 mm, glabrous to velutinous, ultimately glabrescent. *Leaf blade* elliptic to lanceolate or obovate to obovate-oblong, 5–24 × 1.5–11 cm, (firmly) papyraceous, above glabrous, or pubescent on midrib, rarely sparsely pilose, when young glabrous to densely pubescent, below glabrous to pubescent and midrib and veins velutinous to hirsute, often glabrescent, apex acute, obtuse or up to 10 mm acuminate, base obtuse to rounded to attenuate; lateral nerves 7–15 pairs, at the middle of the blade at an angle of 45°–70° to the midrib. *Inflorescence* a 3- or 4-flowered simple dichasium or simple cyme, solitary, one of a pair of opposite inflorescences often smaller, lagging behind in flowering, or aborted; bracts sometimes present, filiform, up to 2 mm long; peduncle 1–30 × 1 mm, puberulous to tomentose. Male flowers 4- or 5-merous. *Pedicel* subpersistent, usually not till fruiting stage, not articulate, 2–8 × 0.5–1 mm, glabrous to lanate. *Calyx* cylindrical

to obconical, sometimes margin slightly undulate, 0.5–2(–3) × 1.2–2.5(–5) mm, outside glabrous or pubescent at base, inside glabrous or pubescent, margin glabrous to ciliate; no colleters. *Corolla* tube cylindrical, (18–)23–50(–63) mm long and 1–2 mm wide, upper 5–9 mm widened to 1.5–3 mm, puberulous to short tomentose; throat not thickened, rarely short hairy; lobes elliptic to lanceolate, 8–23 × 2–8(–12) mm, overlapping parts puberulous to densely pubescent outside, glabrous inside, overlapped parts glabrous to thinly puberulous on either side, apex obtuse to rounded (or emarginate). *Stamens* inserted 4.5–10 mm under the throat; anthers linear, 3–6.5 × 0.3–1 mm. *Disk* 0.1–0.2 mm high, 0.6–1(–1.3) mm high. *Style* (1–)2.8–4 mm long; stigmas 2–4 mm long. Female flowers 5-merous. *Pedicel* (0.25–)2–7(–15) mm long, puberulous to pubescent (to tomentose), usually glabrescent. *Hypanthium* cylindrical, 10–17 × 1–3 mm, densely sericeous to hirsute or floccose. *Calyx* obconical to campanulate, 2–10 × 2–13 mm, margin (strongly) undulate, on either side glabrous to lanate-pubescent and outside usually glabrescent, margin ciliate; no colleters. *Corolla* tube subcylindrical, 15–25(–39) × 1–4 mm, at throat 2–7 mm wide, puberulous to lanate; throat not thickened; lobes elliptic to lanceolate, 10–26(–30) × (3–)7–14 mm, overlapping parts puberulous to tomentose outside, glabrous inside, overlapped parts glabrous to thinly puberulous outside, glabrous to pubescent inside, apex obtuse to rounded (to emarginate). *Stamens* inserted 4–6 mm under the throat; anthers ovate-oblong to linear, 2–3 × 0.5–1 mm. *Disk* 0.2–0.6 mm high, 1.2–1.8(–2.5) mm wide. *Style* 6–7 mm long, glabrous to sparsely pubescent; stigmas obovate-lanceolate to linear, 9–14 × 1.5–2 mm, glabrous. *Fruits* cylindrical, with 10 thickened strands, 8–23 × 0.2–0.4 cm, almost glabrous to thinly hirsute; stalk 1.5–3 cm long, glabrous to thinly hirsute.

Distribution. New Hebrides and Fiji.

NEW HEBRIDES. Aneityum: Bernardi 12981 (L), 13005 (L, US); Green RSNH 1138 (K, L); Morrison s.n. (BISH, K); Kajewski 767 (A, US), 775 (A, BISH, BRI, K, NY, US); Raynal RSNH 16154 (K).

FIJI. Horne 518, 868 (GH). – Koro I.: Smith 1053 (BISH, GH, NY). – Ovolau I.: Gillespie 4515 (BISH); Smith 7296 (BISH, GH, K, L, NY, US), 7590 (BISH, GH, K, NY), 7647, 8043 (BISH, GH, L, NY, US); U.S. Expl. Exp. s.n. (US). – Taviuni I.: Gillespie 4721 (B, BISH, NY), 4819 (BISH). – Vanua Levu: Koroveibau & Vodonaivalu 17178 (BISH); Kuruvoli 15073 (BISH); Milne 38, 249 (K); Qoro 13155 (BRI, K); Smith 426, 487 (BISH, GH, NY), 1573, 1643, 1871, 1955 (all BISH, GH, NY, US), 6639 (A, BISH, BRI, L, NY, US), 6840 (A, BISH, BRI, K, L, NY, US); U.S. Expl. Exp. s.n. (US). – Viti Levu: Bryan 372 (A, BISH); Degener 14423 (A, US), 14747 (A, B, BISH, NY, US), 14816 (BISH, K, L, NY, US); Degener & Ordonez 13769 (A, US); Filimoni 1273 (A); Gillespie 2017 (A, BISH, B, K), 2511, 2559, 2597 (all BISH), 2646 (BISH, NY), 2851 (B, BISH), 3036, 3061, 3107, 3140, 3195 (all BISH), 3188 (BISH, NY), 3591 (BISH), 3614 (BISH, NY, US), 3618 (BISH, NY), 3950 (BISH), 4225 (B, BISH), 4284 (B, BISH, NY), 4612 (BISH); Greenwood 52 (BRI), 894 (A, NY, US); Koroveibau 11215, 12508 (BISH, US); Koroveibau & Narayan 11290 (BISH); Koroveibau & Qoro 14207 (BISH, K), 14230 (BISH); Koroveibau & Vodonaivalu 16160 (BRI); Kuruvoli & Mariko 15036 (BRI); Livingston s.n. (US); McDaniels 1057 (BISH); McKee 2846 (L, US); Meebold 16459, 16463, 21941, 24584 (all BISH), 26521 (BISH, NY); Parham 110, 651 (BISH), 1088, 2089 (A, BRI), 2152, 2307, 2444 (all A), 3854 (BISH), 13352 (BISH, BRI); Parks 20059, 20096, 20440 (all BISH, US), 20505a, 20868 (BISH, L, US); Qoro & Douglas 14113 (BISH); Qoro & Kuruvoli 13644 (BISH); Raiqiso 1273 (A); Seemann 215 (GH, K); Smith 4444, 4778, 5109 (all A, BISH,

BRI, L, NY, US), 5229 (BISH, BRI, K, L, NY), 7073 (BISH, US), 8433, 8579 (BISH, GH, K, L, NY, US), 8674, 9031 (BISH, GH, L, NY, US), 9183 (BISH, L, NY, US), 9244 (BISH, GH, K, L, NY, US), 9532 (BISH, GH, L, US), 9560 (BISH, GH, L, NY, US); Smith et al. 16804 (BISH); Tabualewa 15590 (A, BISH, L, NY, US); im Thurn 299 (K); Tothill 227 (BISH).

Ecology. Lowland to lower montane, open or dense, dry or wet rainforest; along drainages, on banks of creeks, streams or rivers, on edges of swamps; in valleys, on slopes, or on mountain summits. Altitude 0–900(–1150) m. Fl. & fr. throughout the year, fl. mainly July–Aug. and Nov., Feb., fr. mainly May–June and Sep., Dec.

Field notes. Bark nearly smooth, light to dark brown. Young leaves red; midrib and nerves green, reddish beneath, or red; petiole green or red. Flowers sweet scented; corolla lobes white; tube white, yellowish white, pale green, reddish, or partly pink; calyx green, accrescent. Fruits yellow-green when young, later green, dull or dark red.

Vernacular names. Bua ni baravi, bua ni wai, buabua ni waitui, fure (Sabatu lang.), kasinga, kaundamu, loaloa lolo, mata ni ura, mbo, meakavika na tute, sosoniura, tavotavo.

Note on typification. Fosberg (Sargentia 1942) designated *D. oblongifolium* as lectotype of the genus *Dolicholobium*, but the typification of the species leaves much to be desired. Fosberg states ".... Gray says that flowering specimens collected by Milne afforded materials necessary for characterizing the genus" but further states "I have seen 3 other U.S. Expl. Exped. sheets (1 GH, 2 NY) .... which are without locality. The National Herbarium sheet is designated as the type as it has a definite locality and is more complete." The specimens are annotated accordingly, type and isotype. However, all the specimens bear only fruit, the Gray herbarium sheet has a drawing of flowers, and buds, and the US sheet fragments of flowers in a capsule. It would seem highly likely that these flower fragments and drawings possibly belong to the Milne collection (not seen by Fosberg during the war years). As A. Gray clearly states that the flowering material of Milne allowed the characterization of the genus we consider the specimen of the U.S. Expl. Exped. in US to be a holo-syntype (type of Fosberg) and the others iso-syntypes (iso-syntypes of Fosberg) and designate the flowering specimen Milne in H.M.S. Herald bot. 38 (K) as *lectotype*.

Notes. In his original description, A. Gray pointed out that *D. oblongifolium* differs from *D. latifolium* in the shape and length of the leaf blade, in the shape of the leaf base, and in the number of corolla lobes. Seemann added *D. longissimum* based on slight differences in the same characters; he mentioned that A. Gray was less certain about the specific status of his taxon. *D. oblongifolium* was based on material from Vanua Levu, *D. longissimum* on material from Viti Levu, and *D. latifolium* on material from Ovalau, the three main islands of Fiji.

In 1942 Fosberg revised the Fijian species of *Dolicholobium*, adding to the differentiating characters those of the indumentum and the number of pairs of nerves. In the alliance of *D. oblongifolium* he distinguished two species: *D. latifolium* and *D. oblongifolium*, the latter divided into three varieties.

In 1932 Guillaumin considered his new species *D. aneityense* from the New Hebrides as particularly related to *D. oblongifolium.*

Scrutinizing the rich material now available, it becomes obvious that there are no clear distinguishing characters that can be used to divide this material into separate taxa. Although on the basis of vegetative characters a few homogeneous groups can be made, these groups are linked to each other by a mass of intermediate collections. Although floral and fruit characters are rather variable, they provide no basis for a grouping and no correlation with the vegetative characters was found.

The variability in *D. oblongifolium* in the present circumscription is certainly not larger than in other species of this genus. Aberrances like the patently hairy fruit of *A.C. Smith 9560* are, in even more extreme form, also found in e.g. *D. philippinense (Edaño BS 76006)*.

For relationships with and delimitation against *D. macgregorii*, see note under that species.

28. Dolicholobium macgregorii Horne ex Baker

D. macgregorii Horne [A Year in Fiji (1861) 261 ('*McGregori*'), *nomen*] ex Baker, J. Linn. Soc. 20 (1883) 360; Drake del Castillo, Ill. Ins. Pac. (1883) 185; Gillespie, Bull. Mus. 74 (1930) 27, 78 (t. 36); Fosberg, Bull. Torrey Bot. Club 67 (1940) 419; Parham, Fiji Dept. Agr. 21a (1942) 23; Pl. Fiji Isl. (1964) 189. – Type: *Horne 690* (K, holo; GH).

D. knollysii Horne [A Year in Fiji (1861) 260, *nomen*] ex Baker, J. Linn. Soc. 20 (1883) 360; Drake del Castillo, Ill. Ins. Pac. (1883) 185; Parham, Pl. Fiji Isl. (1964) 189; 2nd ed. (1972) 267. – Type: *Horne 729a* (K, holo; GH).

Treelets or trees up to 18 m high, d.b.h. up to 60 cm. Indumentum light to dark or golden brown. Ultimate branchlets glabrous or densely sericeous; upper 2–5 internodes flattened, 12–55(–90) × 3–12 mm; lower internodes 3–15, lower nodes 3–20 mm thick. *Stipules* persistent on several nodes, ovate to lingulate or elliptic or obovate to obovate-oblong, 32–130 × 17–78 mm, keeled when young, papyraceous to coriaceous, glabrous or short sericeous-floccose and glabrescent, margin glabrous to ciliate, apex rounded or truncate; nerves 15–26; colleters c. 50. *Petiole* flattened above or shallowly canaliculate, 15–33 × 1–4(–6) mm, glabrous, sometimes pubescent when young. *Leaf blade* elliptic to oblong or obovate to obovate-oblong, 11–49 (–57) × 6.5–27 cm, papyraceous, above glabrous, sometimes sericeous on midrib when young, below glabrous, when young (sparsely) sericeous or pubescent, denser so on midrib and nerves, apex subacute or up to 10 mm acuminate, base cuneate to rounded or subtruncate; lateral nerves 8–14(–24) pairs, at the middle of the blade at an angle of 45°–70° to the midrib. *Inflorescence* a 3–8-flowered simple dichasium or simple thyrse, solitary; bracts sometimes present, dactyliform to obovate, up to 12 × 4 mm, apex rounded; peduncle 10–85(–105) × 1–3 mm, glabrous to densely pubescent. Male flowers 5-merous. *Pedicel* persistent after flowering, usually also under the fruit, not articulate, 9–12 × 1.5–2 mm, glabrous or (basally) pubescent. *Calyx* cylindrical to obconical, 2–2.5 × 2–4 mm, truncate, outside glabrous, inside (basally) short sericeous or pubescent; margin glabrous to densely ciliate; no colleters. *Corolla* tube cylindrical, 45–65 mm long and 1.5–3 mm wide, upper 9–16 mm widened to 3–4 mm, glabrous to tomentose; throat thickened, rarely short hairy;

lobes elliptic-oblong, 18–34 × 6–14 mm, inside glabrous, overlapping parts glabrous to tomentose outside, overlapped parts glabrous to sparsely puberulous outside along margin, apex rounded (to emarginate). *Stamens* inserted 10–16 mm under the throat; anthers linear, 6–11 × 1 mm. *Disk* 0.1–0.5 mm high, 1–1.5 mm wide. *Style* 2.8–5 mm long; stigmas 1–2(–3) mm long. Female flowers 5-merous. *Pedicel* 9–13 mm long, glabrous to tomentose-floccose. *Hypanthium* cylindrical, 15–31(–37) × 2–3 mm, glabrous or puberulous to floccose. *Calyx* campanulate, 5–9 × 10–15 mm, margin undulate, outside glabrous to densely pubescent, inside basally sericeous or pubescent, margin glabrous to densely ciliate; no colleters. *Corolla* tube (sub)cylindrical, 18–38 × 3–4 mm, at throat 3–7 mm wide, glabrous to tomentose-pubescent; throat thickened; lobes elliptic to elliptic-oblong or ovate, 19–35(–44) × 10–16(–23) mm, overlapping parts glabrous to tomentose outside, glabrous inside, overlapped parts glabrous to puberulous outside along margin, glabrous to sparsely pubescent inside, apex rounded (to emarginate). *Stamens* inserted 6–12 mm under the throat; anthers ovate- to elliptic-oblong, 2.5–3.5 × 0.7–1 mm. *Disk* 0.5–0.6 mm high, 2.5–3 mm wide. *Style* 6–10 mm long, glabrous or sparsely pilose; stigmas obovate- to linear-lanceolate, 12–14 × 2–2.5 mm, glabrous. *Fruits* cylindrical, with 10 thickened strands, 15.5–30 × 0.4–0.7 cm, glabrous to thinly pubescent; stalk 3–6 cm long, glabrous.

Distribution. Fiji.

FIJI Viti Levu. Domoniko & Ledua 10907 (BISH); Gillespie 2297 (B, BISH), 2369 (BISH, NY); Horne 690 (GH), 729a (GH, K), s.n. (GH); Koroveibau & Tale 13998 (BISH); Meebold 17077 (BISH, K); Nand & Koroveibau 10655 (BISH); Parks 20127 (BISH), 20284 (BISH, US), 20896 (BISH); Qoro et al. 12556 (BISH, BRI, K); A.C. Smith 4154 (A, BISH, BRI, L, NY, US), 9159 (BISH, K, L, NY, US); Smith et al. 16598 (BISH); Solvalu 12785 (BISH); St. John 18219, 18945 (BISH); Tothill 337, 580 (K); Vaughan 3175 (K).

D. cf. macgregorii:

FIJI. Vanua Levu: Degener & Ordonez 13902 (A, BISH, CANB, L, NY, US); Koroveibau & Vodonaivalu 17181 (BISH), 17189 (BISH, BRI, L, US), 17191 (BISH, BRI, US), 17193 (BISH, US); Smith 363 (BISH, GH, NY, US). – Viti Levu: Parham 11064 (BISH); Smith 7130 (BISH, L, NY, US).

Intermediate between *D. macgregorii* and *D. oblongifolium:*

FIJI. Viti Levu: Parks 20412 (BISH).

Ecology. Lowland or lower montane forests; on creek banks, in wet canyons, on cliffs; alt. 0–330(–1050) m. Fl. March–Aug., Nov.–Dec.; fr. April–Aug., Nov.–Dec.

Field notes. Stipules pale green, red with green margins. Flowers sweet scented; corolla tube white, pinkish, or pale green; lobes pure white.

Vernacular names. Rougaronga, mo lasa, na ura.

Notes. Here *D. macgregorii* and *D. knollysii* are united as the differences are, in view of the variability encountered in the other species of this genus, not tenable as delimiting characters. *D. macgregorii s.s.* has very large stipules, large obovate leaves with a tendency to an attenuate to subtruncate base, more than two male flowers of which one is inserted high above the others. This type grades through *Domoniko &*

Ledua 10907 (hypanthia thinly hairy) to *knollysii*, which has slightly smaller stipules and more elliptic leaves. *D. knollysii* is, except for the persistent stipules, almost identical to some specimens of the larger form of *D. oblongifolium* (e.g. *Smith 6840*) but its hypanthia are quite glabrous which is unique in the genus. *St. John 18219* also belongs to this group, but it has floccose hypanthia!

The technical characters of *D. macgregorii s.s.* break also down in another series of collections which visually could belong to *D. macgregorii* by their large leaves, stipules, flowers, and fruits: *A.C. Smith 363, 7130; Parham 11064; Qoro 13155; Koroveibau & Vodonaivalu 17181, 17189, 17191, 17193; Degener & Ordonez 13902.* Most of these collections have a tendency to drop the stipules rather late and have more than two male flowers. The insertion of the male flowers grades in this series from widely apart as in *D. macgregorii s.s.* to very close and essentially in one tier. These specimens have been identified as *D. cf. macgregorii.*

From the above it appears that the delimitation of *D. macgregorii* against *D. oblongifolium* is very probably artificial. We think that biosystematic work is needed to come closer to unravelling this very complicated situation.

Parks 20412 has small semi-persistent stipules, small leaves, and glabrous hypanthia; it is considered as intermediate between *D. macgregorii* and *D. oblongifolium.*

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INDEX TO SCIENTIFIC NAMES

Numbers refer to the number of the accepted species. Accepted names are in plain type, new names in **bold type**, and synonyms have '=' before the species number to which they belong.