



Notes on Malesian *Fabaceae* (*Leguminosae-Papilionoideae*)

19. *Callerya vasta*

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Key words

Borneo
Callerya
Fabaceae
Leguminosae-Papilionoideae
new species

Abstract Two new tree species of *Callerya* from Borneo, *C. katinganensis* and *C. sarawakensis* are described. The new species are closely related to *C. vasta*. The differences between the three species are discussed.

Published on 27 November 2019

INTRODUCTION

Rather surprisingly the material of *Callerya vasta* (Kosterm.) Schot in the collections of Naturalis (L) is not uniform. Schot (1994) in her revision of the genus *Callerya* does not mention any great variability for this species. However, the specimens are easily distributed over three stacks, which at close inspection proved to represent three species. The main differences are found in the colour of the indumentum: grey in stack 1 and 2, brown in stack 3; the insertion of the bracteoles: at the base of the calyx in stack 1 and 2, halfway up the calyx in stack 3; the hairiness of the calyx: almost totally glabrous outside and inside with few hairs in stack 1, sericeous outside and inside sericeous in the upper part in stack 2 and 3; the size of the lowest calyx tooth: inconspicuous in stack 1, very conspicuous, 2–3 by 4–5 mm in stack 2, conspicuous, c. 1.5 by 3 mm in stack 3 (Table 1). Glandular hairs at the lower surface of the leaflets: present in stack 1, absent in stack 2 and 3 (Neduvoto Mollel pers. comm.). Several other differences in size of inflorescences, flower parts, seeds, etc. are also present.

Stack 1 includes the type of *C. vasta* and contains specimens from Sarawak and Central and East Kalimantan; stack 2 contains plants from Sabah and Sarawak; stack 3 contains material from Sarawak and Central Kalimantan (Upper Katingan River). The description of *C. vasta* is amended. The specimens of stacks 2 and 3 are described as new species.

DESCRIPTIONS

Callerya katinganensis Adema, sp. nov.

Vegetatively very similar to *C. vasta*. Different in indumentum colour: brown in *C. katinganense*; grey in *C. vasta*, indumentum of the calyx: in *C. katinganensis* sericeous outside, sericeous inside in upper part, in *C. vasta* outside with few hairs at the margin, inside with some hairs in upper part. The pods of *C. katinganensis* (14–23 by 2.5–3 cm) are usually smaller than those of *C. vasta* (23–24 by 4–4.5 cm). — Type: *Mogea* 4276 (holo L0772470; iso BO?, K, L00772469), Borneo, Kalimantan, Upper Katingan River, c. 50–100 km WNW of Tumbang Samba.

Trees, 17–25 m high, dbh 23–80 cm, usually with red exudate. *Indumentum* brown. *Bark* light grey, smooth, inner bark reddish

brown. *Wood* white. *Twigs* terete, 6–7 mm diam, strigose, soon glabrous. *Stipules* caducous. *Leaves* with 5 or 7 leaflets. *Petioles* 5–18 cm long, striate, glabrous; rachis 5.5–11 cm long, striate, glabrous; pulvinus 8–10 mm long. *Stipellae* absent. *Leaflets*: terminal one elliptic, 13.5–18.5 by 4.5–8.5 cm, 2.2–2.8 times as long as wide, base cuneate, apex rounded or shortly broad-acuminate, acumen c. 5 mm long, rounded, both surfaces glabrous, midrib and nerves above flat, nerves 5–7 per side, 8–35 mm apart, nervation ± reticulate-scalariform; lateral leaflets mostly as the terminal one, narrowly ovate to elliptic, 8.5–16 by 4–6 cm, 2.1–3.1 times as long as wide, ± equal-sided at base; pulvinus 10–11 mm long. *Inflorescences* axillary or terminal, panicles, c. 9.5 cm long, peduncle c. 2 cm long, brown velutinous, branches c. 5.5 cm long. *Bracts* to the flowers triangular, c. 1.6 by 1.2 mm, outside sericeous, inside glabrous. *Pedicels* c. 3 mm long. *Bracteoles* ± halfway up the calyx, ovate-triangular, 1.7–1.8 by c. 1.2 mm, outside sericeous, inside glabrous. *Calyx* c. 5 mm high, tube c. 4 mm high; upper lobes inconspicuous, lateral teeth inconspicuous, median tooth triangular, c. 1.5 by 3 mm; outside brown sericeous, inside thinly sericeous in upper part. *Corolla* lila-pink, standard with a small yellow spot at the base. *Standard*: claw c. 2 mm long; blade orbicular, c. 14 by 15 mm, apex emarginate, without auricles or callosities, both sides glabrous. *Wings*: free from the keel petals; claw c. 3.5 mm long; blade obliquely hastate, c. 13.5 by 5 mm, apex rounded, upper auricle c. 2 mm long, parallel to axis of wing, lower auricle c. 1 mm long, perpendicular to axis of wing, both sides glabrous. *Keel petals*: claw c. 4 mm long; blade ± boat-shaped, c. 12 by 6 mm, apex rounded, upper auricle c. 2 mm long, parallel to axis of keel, both sides glabrous. *Stamens* diadelphous (9 + 1), c. 16 mm long, filaments free for 5.5–7 mm, glabrous; free stamen c. 12 mm long, glabrous; anthers c. 1.1 by 0.5 mm, glabrous. *Disc* obliquely tubular, vexillary side higher, c. 2 mm high, glabrous. *Ovary* c. 6 mm long, ± one row of hairs along lower suture, stipe c. 5 mm long, glabrous; ovules 2, towards top of ovary; style c. 5 mm long, some hairs at lower side in basal part. *Pods* ± thick-strap-like, reddish, 14–23 by 2.5–3 by c. 1 cm, stipe 8–10 mm long, outside glabrous. *Seeds* obliquely transverse-ovoid, 15–30 by 14–16 by 6–9 mm; hilum eccentric, 2–3 mm long.

Distribution — Borneo: Sarawak, Central Kalimantan (Upper Katingan River).

Habitat & Ecology — Logged or disturbed forest along river. *Altitude*: 100–200 m. *Flowering*: December; *fruiting*: February.

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Table 1 Differences between *Callerya katinganensis* Adema, *C. sarawakensis* Adema and *C. vasta* (Kosterm.) Schot.

	<i>C. vasta</i>	<i>C. sarawakensis</i>	<i>C. katinganensis</i>
Colour of indument	grey	grey	brown
Bracteoles	at base of calyx	at base of calyx	± halfway up calyx
Calyx indument	almost glabrous	grey sericeous	brown sericeous
Disc height	0.5 mm	2–2.5 mm	c. 2 mm

Note — *Argent & Wilkie 94363* from Kab. Kotawaringin Timur, Central Kalimantan is in all characters similar to *C. katinganensis*. However, on the label the specimen is described as 'Extensive liana sprawling over verge'.

Callerya sarawakensis Adema, *sp. nov.*

Vegetatively very similar to *C. vasta*. Different in the indumentum of the calyx: in *C. sarawakensis* outside sericeous, inside sericeous in upper part, in *C. vasta* outside with few hairs at the margin, inside with some hairs in the upper part, and in the height of the disc: in *C. sarawakensis* 2–2.5 mm high, in *C. vasta* c. 0.5 mm high. The pods of *C. sarawakensis* (19–24 by 2.5–4 cm) are mostly smaller than those of *C. vasta* (23–24 by 4–4.5 cm). — Type: S (*Paul Chai*) 18911 (holo L0772465; iso K, fide Schot 1994 also A, BO, S, SING), Borneo, Sarawak, 3rd Division, Kapit, Bukit Raya.

Trees, 15–30 m high, dbh 30–60 cm, red exudate present. *Indumentum* grey. *Bark* grey spotted brown or pale brown, smooth, flaky or narrowly fissured, inner bark laminated, pale yellow to reddish. *Sapwood* yellowish white. *Twigs* terete, 6–8 mm diam, greyish sericeous, glabrescent. *Stipules* caducous. *Leaves* with 7 leaflets. *Petioles* 3–9 cm long, striate, glabrous; rachis 5.5–15 cm long, striate, glabrous; pulvinus 6–15 mm long. *Stipellae* absent. *Leaflets*: terminal one elliptic to obovate, 12.5–27 by 6.5–8.5 cm, 1.7–3.2 times as long as wide, base (broadly) cuneate, apex obtuse or shortly broad-acuminate, acumen 4–7 mm long, both surfaces glabrous, midrib and nerves above flat, nerves 6–8 per side, 8–35 mm apart, nervation reticulate-scalariform; lateral leaflets mostly as the terminal one, elliptic to ovate, 9–25.5 by 5–8 cm, 1.2–3.8 times as long as wide, ± equal-sided at base; pulvinus 9–13 mm long. *Inflorescences* terminal, rarely axillary, panicles, 11.5–18 cm long, peduncle 2.5–7 cm long, grey velutinous; branches 4–9.5 cm long. *Bracts* to the flowers (narrowly) ovate, 2.8–5 by 1–2 mm, outside sericeous, inside glabrous or with some hairs to sericeous at the base. *Pedicels* 2.5–3.5 mm long, grey velutinous. *Bracteoles* at base of the calyx, (narrowly) ovate, 1.7–4 by 1–1.4 mm, outside sericeous, inside glabrous. *Calyx* oblique, 6–7 mm long, tube 5–6 mm long, upper lobes inconspicuous; lateral teeth inconspicuous or ± semi-circular, c. 1 by 3–4 mm, median tooth triangular, 2–3 by 4–5 mm; outside sericeous, inside sericeous in upper part. *Corolla* purplish or pink, standard with a lighter pink to yellow spot at the base. *Standard*: claw 2–3 mm long; blade ± orbicular to ± reniform, 12–16 by 15–18 mm, apex emarginate, without auricles or callosities, both sides glabrous. *Wings*: free from the keel petals; claw 4–5 mm long; blade elliptic to hastate, 12–17 by 5–8 mm, apex rounded, upper auricle 2–3 mm long, ± parallel to the blade, lower auricle c. 1 mm long, ± parallel to the blade, lateral pocket inconspicuous, outside sculpted along upper margin, both sides glabrous. *Keel petals*: claw c. 4 mm long; blade ± boat-shaped, 11–17 by 6–7 mm, apex rounded, upper auricle 2.5–3 mm long, lateral pocket inconspicuous, both sides glabrous. *Stamens* diadelphous (9 + 1), 15–17 mm long, glabrous, filaments free for c. 2 mm; free stamen 13–15 mm long, glabrous; anthers c. 0.9 by 0.4–0.5 mm, glabrous. *Disc* tubular, slightly higher at the vexillary side, 2–2.5 mm high, lobed at apex. *Ovary* 5–6 mm long, with some hairs along the sutures, otherwise glabrous, stipe 4–5 mm long, glabrous; ovules

2 or 3; style c. 6 mm long, glabrous. *Pods* ± strap-like, 19–24 by 2.5–4 cm, glabrous, stipe c. 1.5 cm long. *Seeds* ± discoid, c. 17 by 17 by 5 mm, hilum eccentric, 2–3 mm long.

Distribution — Borneo: Sabah, Sarawak.

Habitat & Ecology — Primary or secondary forest, usually along rivers. Soil: (yellow) sandy clay or clay. Altitude: up to 300 m. Flowering: May, July, August, October, November; fruiting: January, May.

Uses — Edible oil is extracted from fruits.

Callerya vasta (Kosterm.) Schot

Callerya vasta (Kosterm.) Schot (1994) 36. — *Milletia vasta* Kosterm. (1960) 349. — Type: *Kostermans 12516A* (holo BO; iso K, L), Borneo, Belajan River, near Muara Lempong.

Trees, 20–35 m high, dbh 15–80 cm. *Indumentum* grey. *Twigs* ± terete, 6–8 mm diam, strigose when young, soon glabrous. *Stipules* caducous. *Leaves* with 5–9 leaflets. *Petiole* c. 8 cm long, glabrous; rachis c. 10 cm long, glabrous; pulvinus c. 9 mm long. *Stipellae* absent. *Leaflets*: terminal one ± obovate, c. 14.5 by 8 cm, c. 1.8 times as long as wide, base cuneate to rounded, apex acuminate, both surfaces glabrous, midrib above flat, nerves above slightly raised, 4–6 per side, 8–23 mm apart, nervation reticulate-scalariform; lateral leaflets mostly as the terminal one, ± elliptic, 11.5–15 by 5–6 cm, 2.3–2.6 times as long as wide, ± equal-sided at base; pulvinus 6–8 mm long. *Inflorescences* terminal, panicles, c. 15 cm long, peduncle c. 2 cm long, greyish strigose; branches 5–8.5 cm long. *Bracts* to the flowers triangular, c. 1.2 by 0.8 mm, both sides glabrous, margin ciliate. *Pedicels* c. 4 mm long, glabrous. *Bracteoles* at base of calyx, broadly ovate, 1–1.2 by 0.7–0.8 mm, both sides glabrous, margin ciliate. *Calyx* c. 7 mm high, ± oblique, all teeth inconspicuous, outside only few hairs at the rim, inside some hairs in upper part. *Corolla* dark purple. *Standard*: claw c. 3 mm long; blade broadly obovate, c. 14 by 13 mm, apex emarginate, without auricles or callosities, both sides glabrous. *Wings*: free from the keel petals; claw c. 4 mm long; blade ± elliptic, c. 15 by 6 mm, apex rounded, upper auricle c. 1.5 mm long, lower auricle c. 0.5 mm long, lateral pocket inconspicuous, both sides glabrous, outside sculpted at upper side just above the auricle. *Keel petals*: claw c. 5.5 mm long; blade boat-shaped, c. 14 by 6 mm, apex rounded, auricle c. 1.2 mm long, lateral pocket inconspicuous, both sides glabrous. *Stamens* diadelphous (9 + 1), c. 14 mm long, glabrous, filaments free for 4–6 mm; free stamens c. 12 mm long, glabrous; anthers 2–2.2 by 0.9–1.3 mm, glabrous. *Disc* short-cylindric, c. 0.5 mm high, 10-lobed, glabrous. *Ovary* c. 8 mm long, glabrous (incompletely known). *Pods* ± falcate, flattened, 23–24 by 4–4.5 cm, glabrous, stipe 10–12 mm long. *Seeds*: young, rather flat; hilum eccentric.

Distribution — Borneo: Sarawak, Central, East Kalimantan.

Habitat & Ecology — Primary or secondary forest along rivers, sometimes periodically inundated. Soil: alluvial, yellowish, sandy loam. Altitude: up to 100 m. Flowering: June; fruiting: August.

Note — *SAN (Fidilis & Sumbing) 96387* resembles in several aspects *C. vasta*. However, the flowers are said to be yellowish white. The only yellow-flowered *Callerya* species is *C. strobilifera*, which is a liana, not a small tree.

KEY TO THE SPECIES

In the key to the species of *Callerya* of Schot (1994: 9) the new species should be inserted in lead 3 that leads to *C. atropurpurea* (Wall.) Schot and *C. vasta*.

3. Leaves with 5–9 leaflets. Lateral leaflets ± equal-sided at base. Bracts to the flowers 1.2–5 by 0.8–2 mm. Seeds 3–9 mm thick (unknown for *C. vasta*). — Borneo 3a
3. Leaves with 7–11 leaflets. Lateral leaflets oblique at base. Bracts to the flowers 1.4–2.4 by 0.7–1.3 mm. Seeds 20–26 mm thick. — Peninsular Malaysia, very rare in Borneo (Wanariset) *C. atropurpurea*
- 3a. Indumentum grey. Bracteoles at the base of the calyx. Seeds ± discoid, up to 5 mm thick (unknown for *C. vasta*) 3b
- 3a. Indumentum brown. Bracteoles halfway up the calyx. Seeds obliquely transverse-ovoid, 6–9 mm thick. — Sarawak, Central Kalimantan (Upper Katingan River) *C. katinganensis*
- 3b. Bracts to the flowers 2.8–5 by 1–2 mm. Bracteoles 1.7–4 by 1–1.4 mm. Calyx sericeous outside, sericeous inside in upper part. Disc c. 2 mm high. — Sabah, Sarawak *C. sarawakensis*
- 3b. Bracts to the flowers c. 1.2 by 0.8 mm. Bracteoles 1–1.2 by 0.7–0.8 mm. Calyx almost totally glabrous outside, inside with some hairs in upper part. Disc c. 0.5 mm high. — Sarawak, Central and East Kalimantan *C. vasta*

Acknowledgements The loan of specimens from K and L is gratefully acknowledged. Thanks to Neduvoto Mollel for the information on the leaf anatomy.

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- Schot AM. 1994. A revision of *Callerya* Endl. (including *Padbruggea* and *Whitfordiodendron*) (Papilionaceae: Millettieae). Blumea 39: 1–40.

IDENTIFICATION LIST

- 1 = *Callerya katinganensis*; 2 = *C. sarawakensis*; 3 = *C. vasta*; 4 = *C. sp.*
- A series 353: 2; 418: 2.
- Bateson 32: 2 – bb series 10482: 3; 10988: 3; 11730: 3; 15607: 3; 16066: 3; 16113: 3; 16118: 3; 29600: 3; 29650: 3 – Beccari PB 4022: 2.
- Fuchs 21213: 2; 21362: 2.
- Hansen 884: 1 – Haviland 1776: 2.
- Kostermans 10244: 3; 10299: 3; 11101: 3; 12516A: 3; 12608: 3; 12668: 3.
- Mogea 4276: 1.
- Nicholson 41069: 2.
- Perumal & LaFrankie 255: 3.
- S series 18911: 2; 23048: 2; 23085: 2; 29675: 2; 32563: 2; 43373: 2; 53951: 2 – SAN series 15162: 2; 19103: 2; 20329: 2; 23048: 2; 33899: 2; 50987: 2; 65977: 2; 77577: 2; 96387: 4.
- Wiradinata 3534: 1; 3621: 1.