BLUMEA 33 (1988) 351–356

THE IDENTITY OF PRISMATOMERIS SUBSESSILIS KING & GAMBLE (RUBIACEAE, RUBIOIDEAE)

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SUMMARY

The genus *Gentingia* (Rubiaceae, Rubioideae) is described to accommodate the species *G. subsessilis*. It is a small tree or shrub with white, sessile or almost sessile, terminal flowers and glossy blackish, 1- or 2-seeded drupes, and is known only from submontane rain forests in NW. Peninsular Malaysia. It differs from the closely related genera *Rennellia*, *Prismatomeris* and *Motleyia* in the morphology of branches, stipules, inflorescence and calyx.

INTRODUCTION

In a recent revision of the genus *Prismatomeris* Thw. (Rubiaceae, Rubioideae) (Johansson, 1987a), *P. subsessilis* King & Gamble (1904) was excluded due to several reasons, which will be discussed below. Until recently this species was known from only four collections from Perak and Selangor (Peninsular Malaysia). On field trips to the Genting Highlands numerous flowering and fruiting specimens were collected, making possible thorough investigations of the species. Since it cannot be included in any known genus, a new monotypic genus must be described to accommodate it.

GENTINGIA Johansson & Wong, *genus novum*

Generi rubiacearum *Prismatomeris* affinis, a quo differt ramulis teretibus, tubo calycis intus colleteribus numerosis, lobis corollae acutis et pro parte maxima triquetris.

Arbuscula vel frutex glaber et laevis ramulis teretibus cinereis vel stramineis. Rhaphides numerosae. Stipulae caducae, bifidae, connatae. Folia petiolata; nervi secundarii inconspicui; domatia absentia. *Flores* terminales, singuli vel 2 ad 4 in umbellis, sessiles vel subsessiles, pentameri, heterostyli, fragrantes. *Calyx* campanulatus; calycis tubus denticulatus, intus colleteribus numerosis; calycis dentes anguste triangulares, acuti. *Corolla* hypocrateriformis, 5-lobata, carnosa, glabra, alba; aestivatio valvata; lobi anguste triangulares, acuti, pro parte maxima triquetri. *Stamina* 5, infra

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apicem tubi corollae affixa; filamenta linearia; antherae anguste oblongae, erectae, introrsae, infra medium dorsifixae. *Stylus* teres, filiformis; stigma 2-lobatum inclusum vel exsertum lobis erectis. *Ovarium* simplex, inferum, 2-loculare, loculis 1-ovulatis; ovula medio septi affixa, anatropa, apotropa, ascendentia. *Drupa* 1- vel 2-seminalis, globosa vel subglobosa, nitida, atropurpurea vel atrata. — Typus generis: *Gentingia subsessilis* (King & Gamble) Johansson & Wong.

Gentingia subsessilis (King & Gamble) Johansson & Wong, *comb. nov.* — **Fig. 1.**

Prismatomeris subsessilis King & Gamble in J. Asiat. Soc. Bengal, Nat. Hist. 73 (1904) 91; Ridley (1923) 117. — Type: *Wray Jr. 289* (K, lecto, selected here; CAL, SING), Peninsular Malaysia, Perak, Gunong Batu Puteh, 1500 m.

Tree or shrub, up to 5 m; branches terete, smooth, glabrous, light grey; xylem whitish to light brownish white to yellowish grey. Raphides abundant. Stipules interpetiolar, caducous, sheathing, bifid at apex, 2.1–3.8 mm long, glabrous, with numerous finger-like colleters near base of adaxial side. *Leaves* decussate on vertical branches, distichous on horizontal branches, 5.5–13 × 1.5–4 cm, elliptic or obovate or sometimes narrowly elliptic or narrowly obovate, chartaceous to moderately fleshy, glabrous, dark glossy green on adaxial side, paler green on abaxial side; base narrowly cuneate; apex acute or usually acuminate with acumen up to 2 cm long; venation brochidodromous, inconspicuous, pairs of secondary veins 6–9; domatia absent; cuticle of leaf striate; petiole 5–15 mm long. *Flowers* terminal, single or 2–4 together in umbel-like cymes, sessile or almost so, 5-merous, diheterostylous, fragrant; bracts up to 2 mm long, triangular or narrowly triangular, acute, denticulate, glabrous, with numerous finger-like colleters on adaxial side; pedicels 0.5–1 mm long, terete, glabrous, or lacking; calyx tube campanulate, 1.6–2 mm long, 2.5–3.3 mm in diam., erect, denticulate, glabrous, inside with numerous finger-like colleters on lower half; calyx teeth 5 or 6, 0.1–2.2 mm long, narrowly triangular, acute; aestivation valvate; corolla hypocrateriform, carnose, glabrous, slightly greenish to white; corolla tube 17–22 mm long, 1.5–2 mm in diam.; corolla lobes 11–16 mm long, 2–2.2 mm wide at base, narrowly triangular, acute, recurved at anthesis, flattened at base to 3–4 mm from base, with an adaxial median longitudinal ridge 8–12 mm long; stamens 5; filaments 1.1–2.1 mm long, linear, glabrous, white, inserted in corolla tube at 4–5 mm (longistylous flowers) or 2–3 mm (brevistylous flowers) below throat; anthers 3.2–4 mm long, 0.6–0.8 mm wide, narrowly oblong, erect, included in corolla tube (longistylous flowers) or partially exserted (brevistylous flowers), dorsifixed below middle, introrse, dehiscing by longitudinal slits, glabrous, yellow; disc annular, persistent in fruit; style 18–23 mm (longistylous flowers) or 11–12 mm (brevistylous flowers) long, filiform, terete, glabrous, white; stigma 1.8–2.7 mm long, bilobate, included in tube or exserted; stigmatic lobes narrowly ovate, obtuse, erect, minutely papillose on inner surfaces and along margins, white. *Ovary* simple, inferior, 3–4 mm long, bilocular, with uniovular locules; funicle inserted approximately at middle of dissepiment; ovules anatropous, apotropous, ascending. *Fruit* a drupe, 13–17 × 13–18 mm, globose or subglobose, glossy pur-

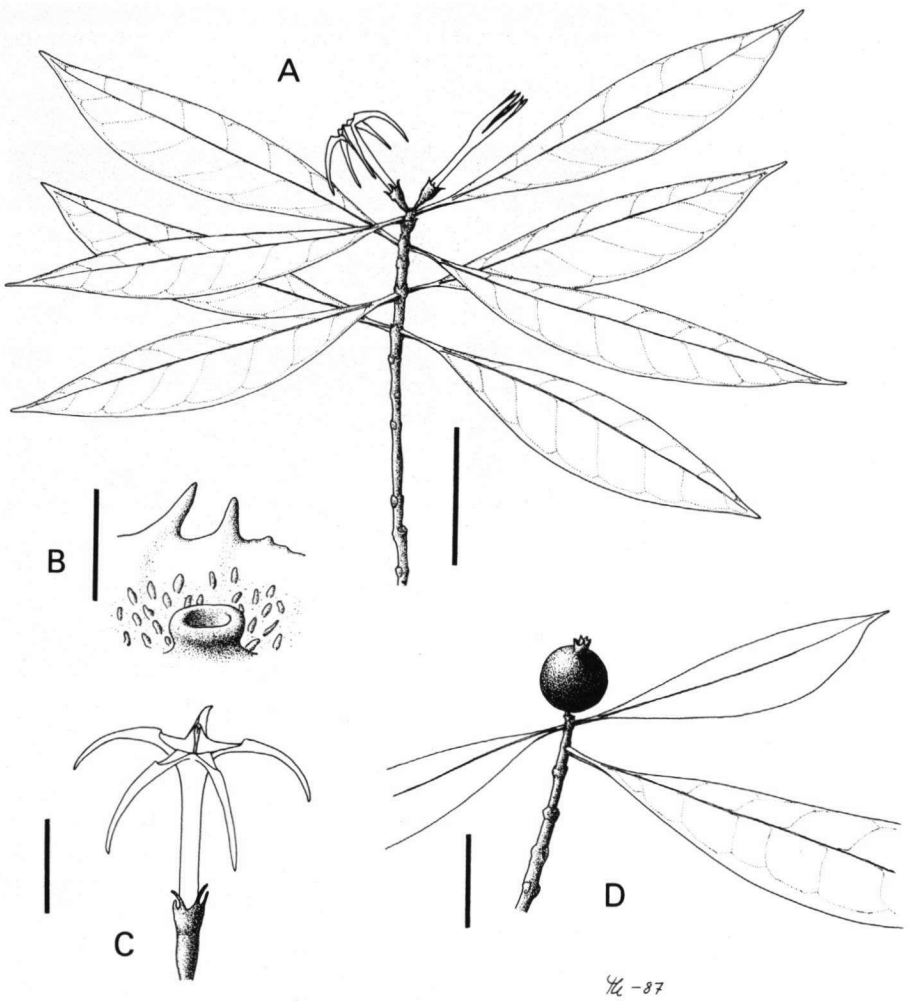

Fig. 1. *Gentingia subsessilis* (King & Gamble) Johansson & Wong. – A. Flowering branch; scale bar 30 mm; B. part of calyx tube showing inner side with colleters; scale bar 2 mm; C. flower; scale bar 10 mm; D. fruiting branch; scale bar 20 mm (A–C *Wong FRI 35288*, D *Wong FRI 32457*).

plish black, 1- or 2-seeded; mesocarp carnose; endocarp thin. *Seed* 8–9 × 7–8 × 5–6 mm, plano-convex or almost globose, with a hollow on funicular side; testa membranous, dark reddish-brown with dark spots, endosperm corneous, white; embryo basal-lateral.

Distribution. Known only from NW. Peninsular Malaysia.

Ecology. Submontane rain forest at 1000–1700 m.

Collections other than the type:

PENINSULAR MALAYSIA. Perak, Gunong Batu Puteh, 1000–1300 m, Aug. 1885, *King's collector 8071* (BM, K, SING, U, Z); Perak, *Scortechini 355 b* (CAL). — Selangor, Genting Highlands,

1300 m, 10 Feb. 1983, *Vethevelu FRI 32905* (KEP); ibid., ridge beside side road to waterpump station, 1700 m, 15 March 1986, *Wong FRI 32457* (K, KEP, S) (= *Johansson 147*, KEP, S); ibid., 1400 m, 23 May 1987, *Wong FRI 35288* (K, KEP).

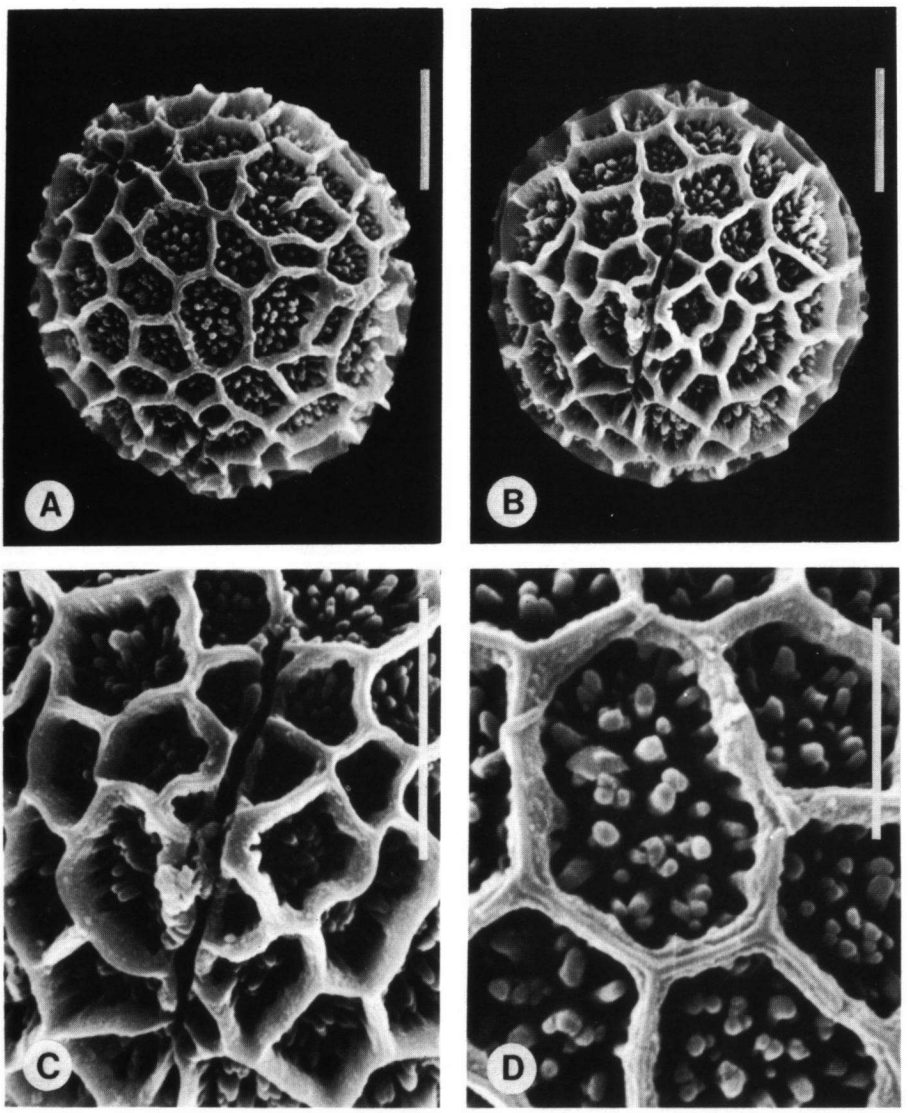

Fig. 2. Pollen grains of *Gentingia subsessilis* (King & Gamble) Johansson & Wong (*King's collector 8071*). – A. Polar view showing three narrow colpi and apocolpium; B. equatorial view showing a narrow colpus and mesocolpia; C. part of sexine showing colpus, muri and lumina with processes; D. part of sexine showing muri, lumina and luminal processes. – Scale bars: A–C 10 μm, D 5 μm.

Table 1. Morphological comparison between the genera *Prismatomeris, Motleyia, Gentingia* and *Rennellia.*

Prismatomeris	*Motleyia*	*Gentingia*	*Rennellia*
Branchlets with longitudinal ridges	Branchlets with longitudinal ridges	Branchlets terete	Branchlets terete
Epidermis of branchlets shed in flakes	Epidermis of branchlets shed in flakes	Epidermis of branchlets not shed in flakes	Epidermis of branchlets not shed in flakes
Stipules 2-lobed, not sheathing	Stipules 2-lobed, not sheathing	Stipules apically bifid, sheathing	Stipules ± truncate or bilobed to bifid, sheathing
Inflorescence umbel-like cyme, terminal or axillary	Inflorescence umbel-like cyme, terminal	Flowers single or inflorescence few-flowered umbel-like cyme, terminal	Inflorescence umbel-like, panicle-like or spike-like, terminal, multiflorous
Pedicels and calyces glabrous or puberulous	Pedicels and calyces puberulous	Pedicels lacking; calyces glabrous	Pedicels lacking; calyces glabrous or puberulous
Inflorescence components free or partially connate	Inflorescence components free or partially connate	Inflorescence components free	Inflorescence components partially connate
Calyx lacking colleters on inner side	Calyx tube with colleters on upper part of inner side	Calyx tube with colleters on lower part of inner side	Calyx tube with colleters on lower part of inner side
Corolla white	Corolla white	Corolla white	Corolla violet to pale violet
Adaxial ridge of corolla lobes distal	Adaxial ridge of corolla lobes distal	Adaxial ridge of corolla lobes long	Adaxial ridge of corolla lobes long
Pollen grains medium-sized	Pollen grains small	Pollen grains medium-sized	Pollen grains medium-sized
Lumina of sexine numerous, fairly small	Lumina of sexine fairly few, large	Lumina of sexine numerous, fairly small	Lumina of sexine numerous, fairly small
Ovaries free or connate; fruit a drupe or syncarp	Ovaries free or connate; fruit a drupe or syncarp	Ovaries free; fruit a drupe	Ovaries connate; fruit a syncarp

POLLEN MORPHOLOGY (Fig. 2)

Pollen grains 3-colporate, isopolar, radially symmetrical, spheroidal, 32–45 µm in diam., circular in equatorial view, rounded to rounded-triangular in polar view. Apocolpia 20–25 µm in diam. Colpi 12–19 × 1–2 µm, straight, with tapering ends. Ora extremely lalongate, 6–7 × 19–23 µm. Exine 4–5 µm thick; sexine thicker than nexine, reticulate; reticulum heterobrochate; muri 0.5–1 µm wide, straight or more or less sinuate, smooth on upper parts, wrinkled on lower parts; lumina of varying size and shape, 2–8 µm in diam., diminishing in size towards colpi; luminal processes numerous, of varying length and thickness.

TAXONOMIC AFFINITIES

Gentingia subsessilis is closely related to *Rennellia, Prismatomeris* and *Motleyia* (Johansson, 1987b). Characters which are common to the four genera are: leaves lacking domatia; corolla white, salver-shaped, glabrous inside; corolla lobes with a prominent median longitudinal adaxial ridge; stamens inserted in upper part of corolla tube; anthers erect, narrowly oblong or narrowly elliptic; pollen grains spheroidal; colpi narrow; reticulate sexine with luminal processes; stigma bilobed; stigmatic lobes more or less erect; ovary bilocular; locules uniovular; seed planoconvex to globose, with a hollow on funicular side; embryo basal-lateral.

A comparison between the genera is presented in Table 1. *Gentingia* appears to be most closely related to *Rennellia,* but they strongly differ in the type of inflorescence. The inflorescence components, which are partially connate in *Rennellia,* are free in *Gentingia. Prismatomeris,* in which genus *G. subsessilis* was formerly included, differs for instance in the ridged branchlets, the free deeply bilobed stipules, and the inner side of the calyx tube lacking colleters.

In *Motleyia* and *Prismatomeris* the morphology of the inflorescence presents important characters at the genus level and, in *Rennellia,* at the species level. The cymes in *Prismatomeris, Motleyia* and *Gentingia* are umbel-like. In *Rennellia* they vary between the species and are umbels, panicles or spikes.

ACKNOWLEDGEMENTS

We are indebted to Mr. P. Lassen, Botanical Museum, University of Lund, for checking the Latin description, and to Dr. B. Raj, Palynological Laboratory, Stockholm, for reading the manuscript and correcting the English language. We also wish to thank the Directors and Curators of the herbaria for sending material on loan.

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