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THE GENUS FAGERLINDIA (RUBIACEAE) IN THE PHILIPPINES

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SUMMARY

Fagerlindia emanuelssoniana (Rubiaceae, Gardenieae) is described from Palawan; together with notes on the architecture. A new combination, *F. microcarpa* (*Gardenia microcarpa* Bartl. ex DC.) is made and the synonymy of the type species *F. fasciculata* is reviewed.

INTRODUCTION

The genus *Fagerlindia* was segregated from *Randia s.l.* by Tirvengadum (1983) and 6 species from mainland Asia were attributed to the genus.

During the recent Palawan Botanical Expedition, sponsored by Hilleshög AB, Sweden, I was able to collect abundant material of an unusual Rubiacea which proved to be a new species of the genus *Fagerlindia*. The collection also included a juvenile stage of the plant, which throws some more light on the branching system in the genus.

It has recently become apparent that Valeton had a considerable interest in the genus *Randia s.l.* and had prepared plates for Icones Bogoriensis. These were never published and that of '*Randia fasciculata*' is reproduced here as figure 1.

ARCHITECTURE OF FAGERLINDIA

At inception the main vertical orthotropic axis is monopodial and bears horizontal plagiotropic shoots. The plagiotropic shoots of the juvenile (fig. 2a) and mature plants (fig. 2b) show an initial rapid growth extension of 3–6 nodes. In *Fagerlindia emanuelssoniana* there are two nodes between each plagiotropic shoot; these nodes (fig. 2b) consistently do not produce branches. There are no spines on the orthotropic shoot and flowering appears to be confined to the plagiotropic axis. Supra-axillary spines are found on the nodes of the plagiotropic shoot, sometimes (*F. emanuelssoniana*) confined to the nodes produced during the phase of rapid monopodial extension. This growth phase is terminated by the production of a terminal inflores-

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cence. The terminal node bears no spines, the supra-axillary buds here develop into lateral branches and further growth is sympodial. Clearly the spines represent reduced shoots. In *F. fasciculata* the branches produced during sympodial branching may bear spines (fig. 1: 1). In all species most of the older branches are without spines and these are frequently not represented in herbarium material. Indeed, Vidal, Elmer, and Merrill overlooked their presence in *F. microcarpa*, even though they are present on *Cuming 1366*, one of the types.

There is a second serial bud situated below the spines. This may develop into a short shoot bearing an inflorescence and then be abscissed, e.g. *F. fasciculata* (fig. 1: 1), or it may develop into a vegetative shoot. Sometimes both serial buds at a node develop into a vegetative shoot; this has been observed in *F. microcarpa (BS 22997)*. Gradually the irregular development of shoots from the lower serial buds leads to the breakdown of the initial sympodial branching pattern.

So far as I can ascertain the mode of branching described also applies to the Southeast Asian species. Unfortunately the orthotropic branch portion is only represented in 3 specimens in the Rijksherbarium (*van Beusekom & Geesink 4160; Pierre 3205, 3207*). Furthermore, only a small portion of the orthotropic shoot is present, the terminal portion is not represented.

The architecture is basically very similar to that found in *Oxyceros*, where spine production is limited to the early produced nodes of the plagiotropic shoot. However, serial buds do not seem to be present at the nodes of the plagiotropic branches of *Oxyceros*. It is unfortunate that I have not been able to compare the architecture of *Fagerlindia* with that of the species of *Oxyceros* from mainland Asia that have erect spines: *O. rectispinus, O. hoaensis* and *Randia* (sect. *Oxyceros*) *hainanensis*.

FLOWER BIOLOGY

It seems highly probable that the stigma plays a role in pollen presentation, a feature first observed by Scott Elliot (1891) in *Kraussia*, and illustrated in the genus *Canthium* by Skottsberg (1945). The anthers surround the stigma in the bud (fig. 2g) and pollen is released precociously before the corolla lobes open. The stigma is ridged and pollen masses have been observed on the stigma. When the flowers open the anthers are found to be more or less devoid of pollen. I suspect that the ridged stigma first elongates and functions in pollen presentation. Unfortunately there are too few collections to confirm this. The fully elongated stigma bears no pollen on the ridges, it opens to expose the receptive surface (fig. 2e).

REFERENCES

SCOTT ELLIOT, G. F. 1891. Notes on the fertilization of some South African and Madagascan flowering plants. Ann. Bot. 5: 333–394 (Rubiaceae on p. 355).

SKOTTSBERG, C. 1945. The flower of Canthium. Arkiv Bot. 32A, no 5: 1–12.

TIRVENGADUM, D. D. 1983. New taxa and name changes in tropical Asiatic Rubiaceae. Nordic J. Bot. 3: 455–469.

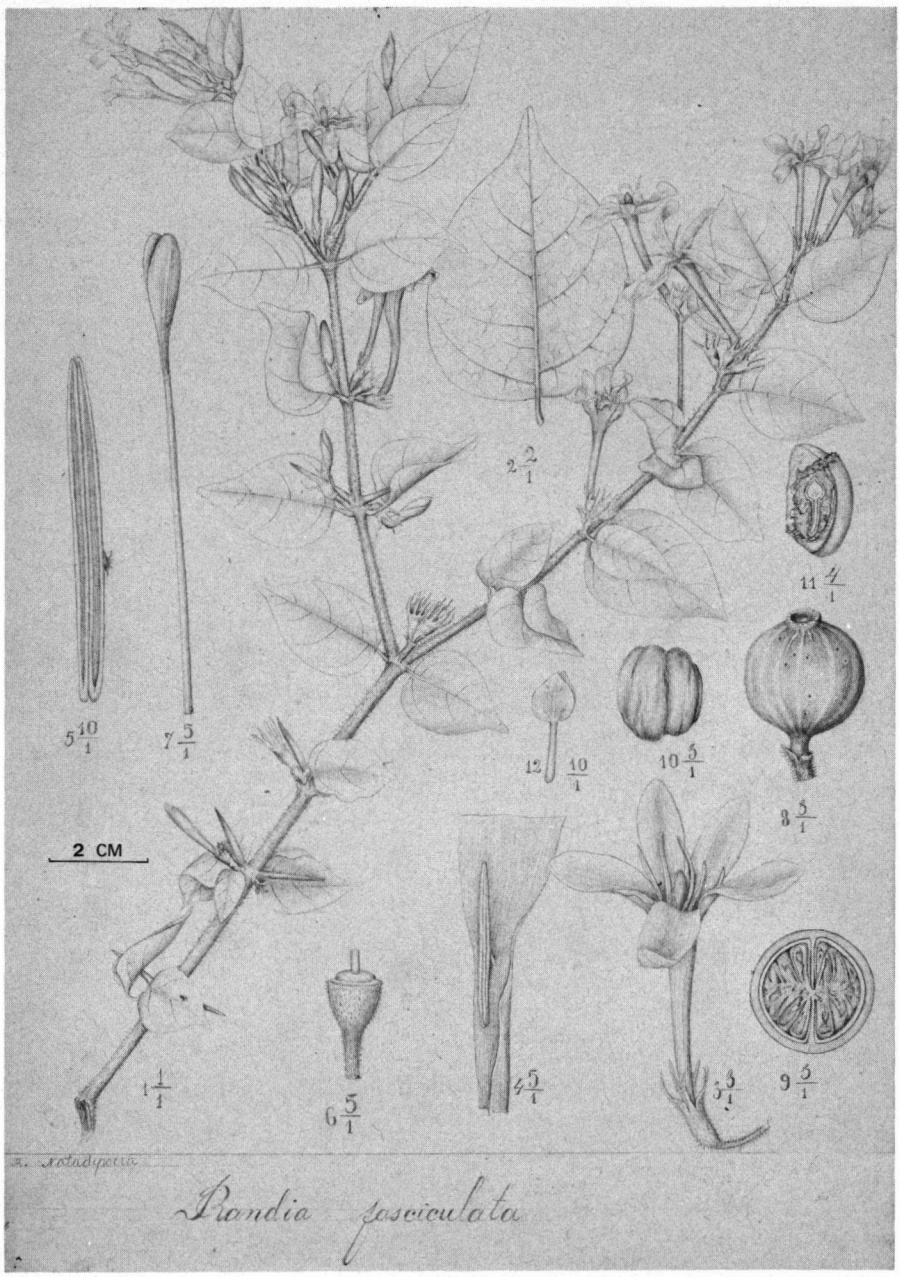

Fig. 1. *Fagerlindia fasciculata* (Roxb.) Tirvengadum. – 1. Plagiotropic branch; 2. leaf; 3. flower; 4. insertion of stamen; 5. anther; 6. disc; 7. style; 8. fruit; 9. fruit, TS; 10. placental mass; 11 & 12. embryo. – Scale slightly reduced, compare scale line. (Based on collection Tea Plantation, Assam, HLB 908 223 855, s.n., s.l., and fruit of *C. B. Clarke 42419B*).

Fig. 2. *Fagerlindia emanuelssoniana* Ridsd. – a. Juvenile plant; b. mature plant apex and plagiotropic shoots; c. old sympodially branched plagiotropic shoot; d. range of leaf forms from juvenile to old branches (c); e. inflorescence, flower with receptive stigma; f. non-receptive stigma; g. non-receptive ridged stigma with pollen masses; h. fruit (a, c, h *SMHI 1759*, b, e–g *SMHI 1238*).

FAGERLINDIA

Fagerlindia Tirvengadum, Nordic J. Bot. 3 (1983) 458. – Type species: *F. fasciculata* (Roxb.) Tirvengadum.

Fagerlindia fasciculata (Roxb.) Tirvengadum – Fig. 1.

F. fasciculata (Roxb.) Tirvengadum, Nordic J. Bot. 3 (1983) 458, f. 4: 7–11. – [*Gardenia fasciculata* Roxb., Hort. Beng. (1814) 15, nom. nud.] – *Posoqueria fasciculata* (Roxb.) Roxb., Fl. Ind. ed. 1, 2 (1824) 549, comb. illeg. in text sub *Gardenia*; 568. – *Gardenia fasciculata* Roxb. ex Spreng., Syst. Veg. 4 (1827) Cur. Post. 84. – *Randia fasciculata* DC., Prod. 4 (1830) 386. – *Webera fasciculata* Kurz, For. Fl. Br. Burma 2 (1877) 49. – *Randia fasciculata* DC. var. *indica* Pitard, Fl. Gén. Indo-Chine 3 (1923) 227, nom. illeg. – *Oxyceros fasciculata* Yamazaki, J. Jap. Bot. 45 (1970) 340. – Type: from a plant received from M.R. Smith, Silhet, 1812 (not traced), Roxburgh Icones no. 2456.

Posoqueria rigida Wall. in Roxb., Fl. Ind. ed. 1, 2 (1824) 570. – *Randia rigida* DC., Prod. 4 (1830) 386. – Type: Wallich, Cat. no. 8257 (K).

Randia triflora Buch.-Ham. ex D. Don, Prod. Fl. Nep. (1825) 138. – Type: *Buchanan-Hamilton s.n.* (BM, n.v.).

[*Gardenia myrtifolia* Wall., Cat. (1847) 281, nom. nud.] – *Webera myrtifolia* Kurz, For. Fl. Br. Burma 2 (1877) 49. – Type: Wallich, Cat. no. 8255D (K).

Note. Wallich, Cat. no. 8283, collected by De Silva at Silhet anno 1824, possibly represents shoots from older plagiotropic branches. De Silva worked within a few kilometres from Padua, from which area M.R. Smith must have received the material he sent to Roxburgh.

Fagerlindia microcarpa (Bartl. ex DC.) Ridsd., *comb. nov.*

Gardenia microcarpa Bartl. ex DC., Prod. 4 (1830) 384. – *Randia microcarpa* Merr., En. Philip. Flow. Pl. 3 (1923) 527, comb. illeg., non *R. microcarpa* Sessé & Mociño, 1888. – Type: *Haenke s.n.* (G-DC).

Randia cumingiana Vidal, Phan. Cuming. Philip. (1885) 179. – Lectotype: *Cuming 1366* (L); syntypes: *Vidal 388* (L), *Herb. propr. 39* (n.v.).

Distribution. Philippines.

Fagerlindia emanuelssoniana Ridsd., *spec. nov.* – Fig. 2.

A *F. fasciculata* (Roxb.) Tirveng. partibus novellis glabris floribusque distincte pedicellatis, *F. microcarpa* (Bartl. ex DC.) Ridsd. foliis subsessilibus corollaeque tubo 15–18 mm longo diversa. – Typus: *SMHI 1238* (L, holo), Philippines, Palawan, Mt Victoria.

Scrambling shrub with differentiated orthotropic and plagiotropic axes. Orthotropic axis usually with two leaf-bearing nodes between each plagiotropic shoot. Plagiotropic shoot with serial buds at the nodes, the upper often developing into erect spines. Branching basically sympodial. Young branches slightly pubescent becoming glabrous. Stipules obvolute, narrowly triangular to subulate, 3–4 × 1–1.5

mm, outside sparsely pubescent. *Leaves* very variable; those on the younger shoots ovate (0.7–)1–5 × (0.5–)1–3 cm, base subcordate to rounded, those on older shoots elliptic, 2–7 × (0.7–)1–2 cm, base rounded; above and below glabrous, apex slightly acute; lateral nerves 3–5 pairs. Petiole 0–3 mm. *Inflorescence* terminal on plagiotropic shoot branches bearing (1–)2–9 flowers, branches basally with up to 3 nodes bearing connate 'bracteoles', modified stipules, pedicels 5–10 mm long. Hypanthium 1 mm. *Calyx* 4 mm, outside sparsely pubescent, lobes narrowly triangular-subulate, 1.5 mm long. Disc present. *Corolla* hypocrateriform, tube 15–18 mm long, outside glabrous, inside slightly pubescent, lobes narrowly elliptic, 8–10 × 2 mm, glabrous; anthers 4–5 mm long, exserted. *Stigma* grooved, up to 8 mm exserted, bilobed. *Fruit* 4–6 mm diam., crowned by calyx remnants.

Distribution. Philippines, Palawan, Mt Victoria, *SMHI 1238* (type), *SMHI 1759* (fruiting specimen).

Ecology. Apparently restricted to ultrabasic rocks.

Notes. This species is named in honour of Mr. A. Emanuelsson, whose floristic hobby on Swedish plants eventually extended into his work sphere and from which emerged the concept of a gene conservation area in Palawan, Philippines.

The present species differs from *F. fasciculata* in the glabrous leaves, from *F. microcarpa* in the larger flowers and subsessile leaves.