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Notulae Goodyerinae (III)

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ABSTRACT: Continuing herbarium and literature studies of orchids belonging to Subtribe Goodyerinae has revealed that the genus *Bathiorchis* should be considered a synonym of *Goodyera* thus requiring the new combination of *G. rosea.* Furthermore six new species of *Goodyera* are described, namely *G. fimbrilabia, G. goudotii, G. myanmarica, G. polyphylla, G. purpusii* and *G. zacuapanensis.*

KEY WORDS: Orchidaceae, Goodyerinae, Goodyera, New species.

INTRODUCTION

The second part of this paper (Ormerod, 2005) dealt with Goodyerinae in five genera mostly from the Asian tropics and one from South America. This third part deals with only the genus *Goodyera* since it is necessary to describe and illustrate six new taxa referrable to that concept. Most of the new taxa come from the northern neotropics but there is also two novelties from the paleotropics of Madagascar and Southeast Asia.

Goodyera is a pantropical and circumboreal genus of about 86 species (including the new entities) with approximately 60 taxa in Southeast Asia (India to Samoa), 2 in Europe (including Madeira), 18 in North and Central America and 8 in East Africa (Mozambique), Madagascar, Reunion and the Seychelles.

TAXONOMIC TREATMENT

Goodyera fimbrilabia Ormd., sp. nov. Fig. 1

Type: Mexico - Chiapas, Municipio de Ocosingo, limestone area, near Laguna Octol Grande, ca. 25-30 km SE of Monte (Cerro) Libano (which is 45 km E of Ocosingo), 950 m, early September 1954, *Dressler 1697* (holotype: AMES!).

Affinis G. erosa (Ames & Schweinf.) Ames et al. *sed marginibus labello glandulifero-fimbriatis differt.*

Rhizome creeping, rooting at nodes, 9 cm long, 0.05-0.25 cm thick; internodes terete, 0.5-1.25 cm long. Stem erect, terete, 5-6-leaved, 6.9 cm long, 0.2-0.4 cm thick; internodes 0.6-1.3 cm long. Leaves lanceolate, acute, with a median white stripe that has indistinct margins, 4.1-5.8 cm long, 1.1-1.5 cm wide; petiole and sheath 1.8-1.9 cm long. Inflorescence erect, pubescent, 21.1 cm long; peduncle 18.1 cm long; sheathing bracts lax, four or five, 1.1-2.8 cm long; rachis immature, sublaxly flowered, 3 cm long; floral bracts ovate-lanceolate, acute, to 10 mm long, 3 mm wide. Pedicellate ovary pubescent, fusiform, 5.5 mm long. Flowers resupinate, colour not known, externally pubescent. Dorsal sepal ovate-lanceolate, obtuse, 3.8 mm long, 1.6 mm wide. Lateral sepals obliquely ovate-lanceolate, subacute, 3.9 mm long, 1.9 mm wide. Petals angulate-subrhombic, upper half with a shallowly irregularly erose lower margin, 3.9-4 mm long, 1.9 mm wide. Labellum broadly ovate-deltate, shallowly saccate in basal half, inside basal half with ca. 9 fleshy subulate to terete appendages, apical two-thirds with an irregularly erose margin adorned with gland-tipped fimbria, 4 mm long, 3.3 mm wide. Column 2.35 mm long.

Distribution: Mexico.

Notes: This species is similar to *G. erosa* (Ames & Schweinf.) Ames et al. but it may be distinguished from that taxon by details of the labellum. In *G. erosa* the labellum is ovate to ovate-lanceolate with minutely to strongly erose margins (excepting the angulate, entire basal margins) and the basal appendages are placed in a distinctly semiglobose concavity. In *G. fimbrilabia* the labellum is broadly ovate-deltate (and lacks angulate basal margins) with erose margins and glanduliferous fimbria. Furthermore the basal half of the labellum lacks a distinct semiglobose concavity and has the internal appendages spread across its basal part.

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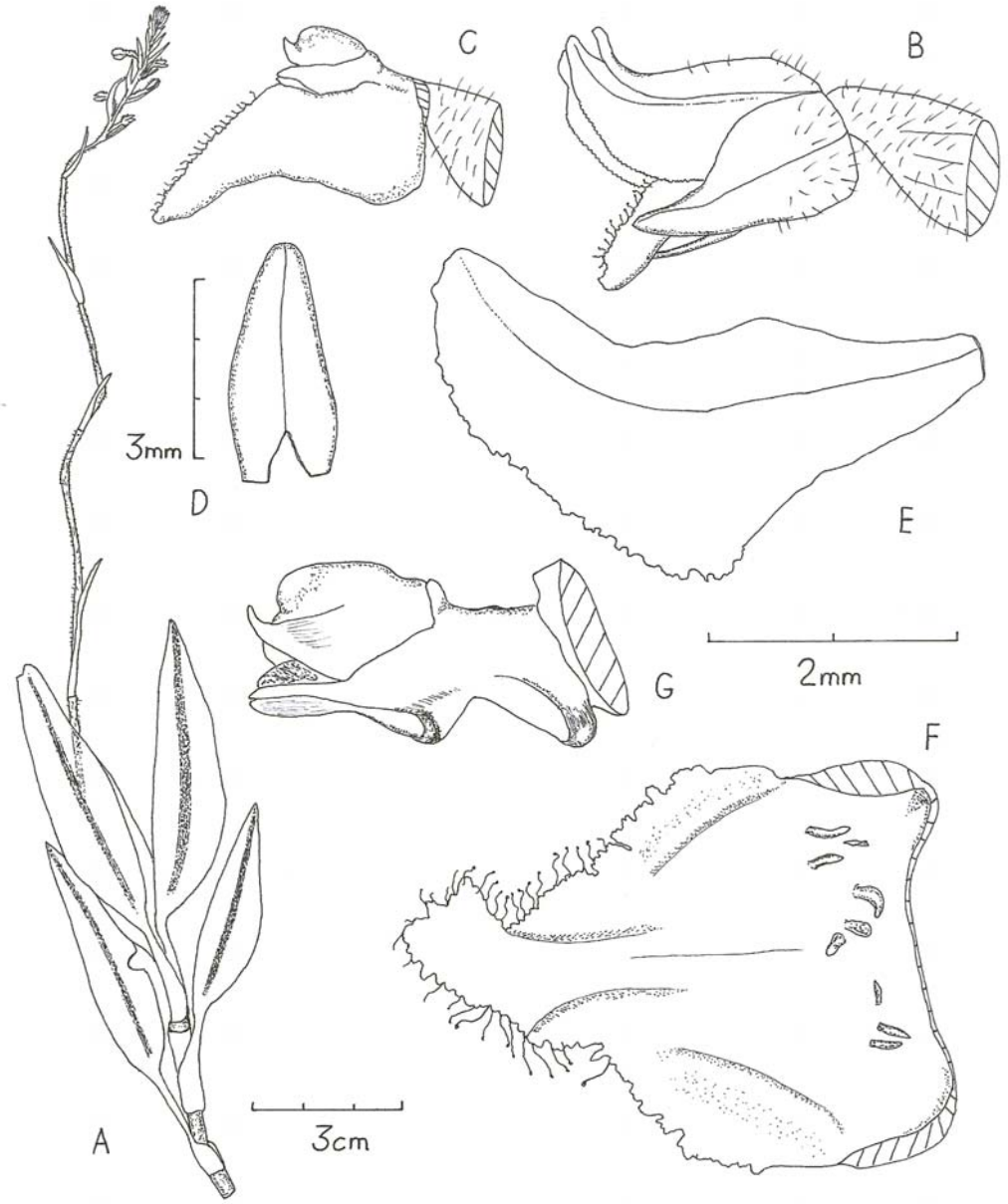


Fig. 1: *Goodyera fimbrilabia*. A: Plant. B: Flower. C: Flower minus tepals. D: Dorsal sepal. E: Petal. F: Labellum. G: Column. A, BCD and EFG to respective scales. Drawn from holotype.

Goodyera goudotii Ormd. & Cavestro, sp. nov. Fig. 2

Type: Madagascar - sine loc., 20 January 1836, *Gaudot s. n.* (holotype: G!).

Affinis G. rosea (Perrier) Ormd. *sed pedunculo inflorescentiis brevioribus* (5.8 vs. 10-12 cm) *et epichilio labello obcuneato-subquadratis (non ovatis) differt.*

Erect terrestrial herb. Stem terete, laxly 9-leaved, rooting at base, 9.5 cm long, 0.15-0.3 cm thick; internodes 0.8-1.65 cm long. Leaves obliquely oblong to ovate, acute, 3.2-5.5 cm long, 1.05-1.7 cm wide; petiole and sheath l.1-1.6 cm long. Infloresence pubescent, 9.8 cm long; peduncle 5.8 cm long; sheathing bracts three, approximate, 1.5-2 cm long; sterile floral bracts 6-7 at apex of peduncle, lanceolate, acute, crowded, to l.l cm long; rachis densely ca. 40-flowered, 4cm long; floral bracts lanceolate, acute, lcm long, 0.2 cm wide. Pedicellate ovary cylindric-fusiform, pubescent, 4-5 mm long. Flowers resupinate, colour not known, externally pubescent in lower half. Dorsal sepal oblong-lanceolate, subacute, 4 mm long, 1.5 mm wide. Lateral sepals obliquely elliptic, acute, subfalcate, 4 mm long, 1.9 mm wide. Petals ligulate-oblanceolate, acute, 4 mm long, l mm wide

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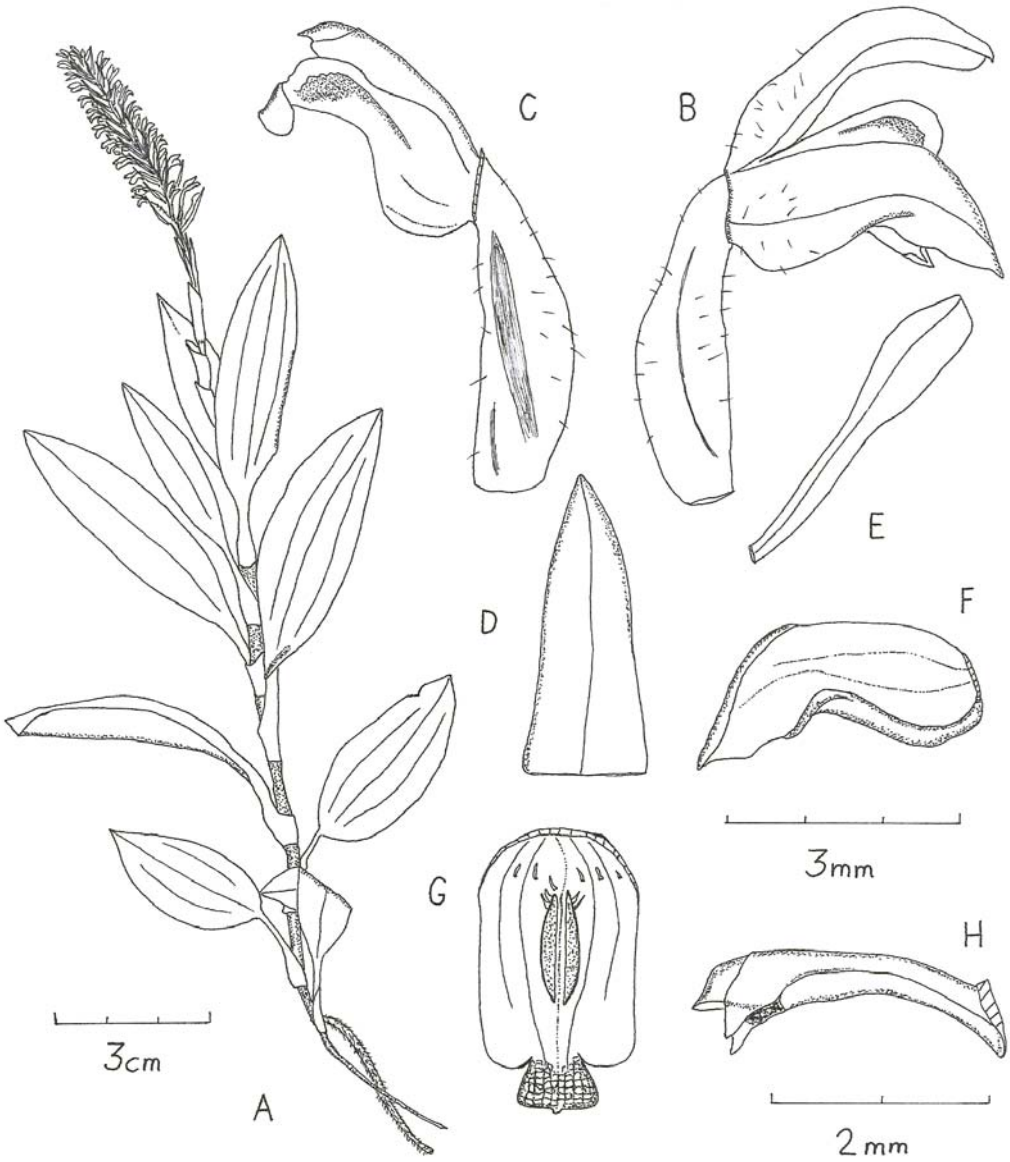


Fig. 2: *Goodyera goudotii*. A: Plant. B: Flower. C: Flower minus tepals. D: Dorsal sepal. E: Petal. F: Lateral sepal. G: Labellum. H: Column with rostellum brachia outfolded. A, B-G and H to respective scales. Drawn from holotype.

Labellum trilobed, saccate in basal third, 5-nerved, 3.8 mm long; hypochile broadly elliptic-subquadrate, in basal third with a transverse line of six fleshy dentiform-subulate appendages, medially with two parallel lamellae which have a pair of dentiform to bifurcate calli each side at the base, externally each side of the hypochile has a subapical thickened area, 3 mm long, 2.2 mm wide basally, 2 mm wide apically; epichile obcuneate-subquadrate, bluntly and shortly apiculate, slightly fleshier than hypochile, cellular reticulate, 0.8 mm long, l mm wide. Column slender, subclavate, slightly arcuate, 2.8 mm long; stigma lobes two, parallel, joined by a transverse band.

Distribution: Madagascar.

Notes: This species is related to *G. rosea* (Perrier) Ormd. with which it shares characters such as a densely flowered inflorescence and flowers with a bicarinate labellum that has a basal transverse row of dentiform calli. From *G. rosea* it differs in its smaller plant size (19.3 vs. 30-40 cm tall), shorter inflorescence peduncle (5.8 vs. 10-12 cm) and labellum with an obcuneate-subquadrate (not ovate) epichile.

Another close relative is *G. perrieri* (Schltr.) Schltr. which also has a bicarinate labellum. However it differs from *G. goudotii* in having a laxly 8-12-flowered inflorescence with flowers in

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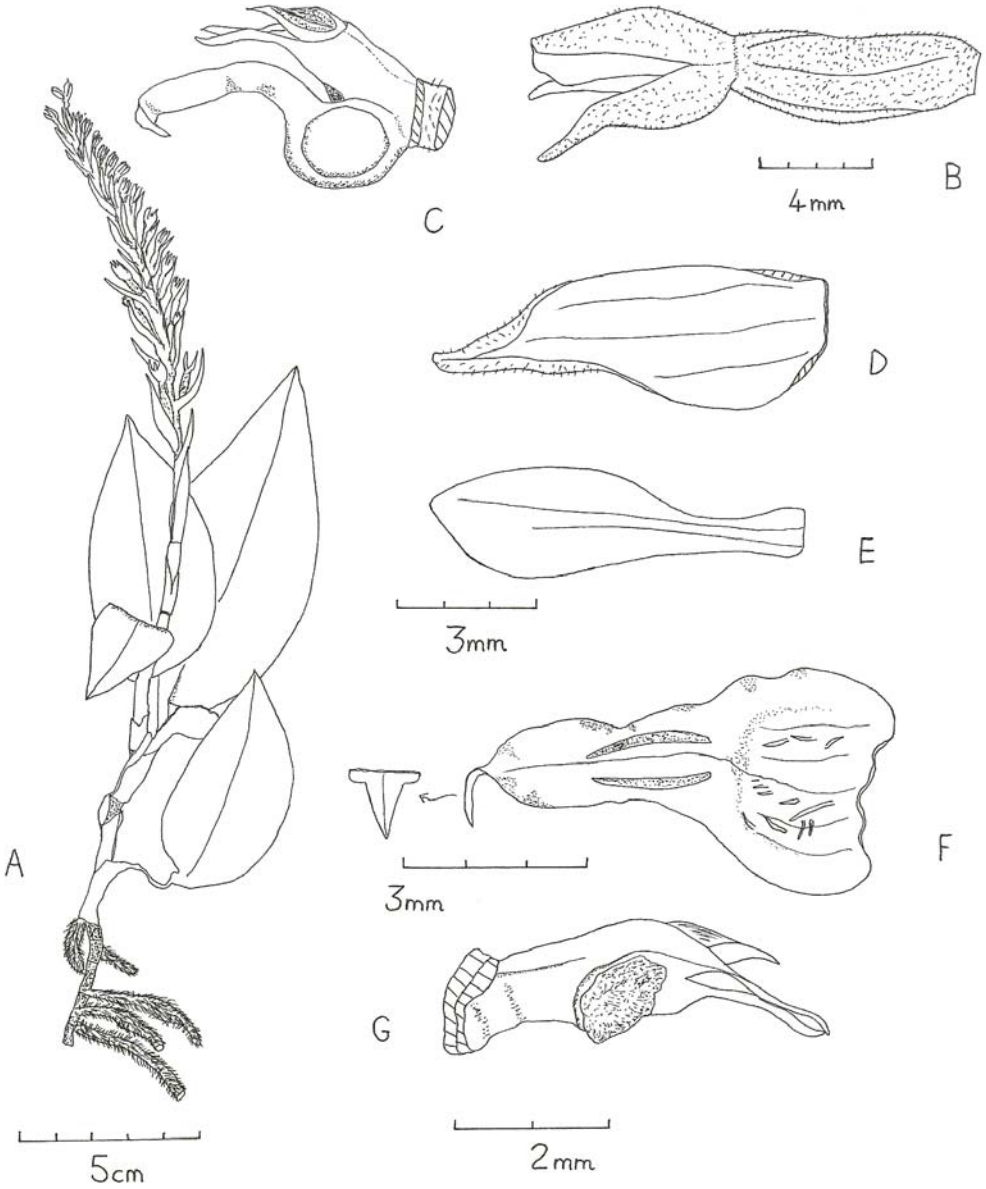


Fig. 3. *Goodyera myanmarica*. A: Plant. B: Flower. C: Flower minus tepals. D: Lateral sepal. E: Petal. F: Labellum. G: Column. A, B, CDE, F and G to respective scales. Drawn from holotype.

which the labellum has two parallel (not transverse) crests of subulate calli and a triangular (not obcuneate-subquadrate) epichile.

Goodyera myanmarica Ormd. & Sathish Kumar, sp. nov. Fig. 3

Type: Myanmar - mountains E of Fort Hertz, 1830m, 5 September 1926, *Kingdon Ward 7368* (holotype: K!).

Affinis G. alveolata U. C. Pradhan *sed foliis ovatis vel ovato-ellipticis (non suborbicularis) et inflorescentiis subdense multifloris (vs. laxe to sublaxe 10-15-floris) differt.*

Terrestrial, occasionally epiphytic herb. Rhizome creeping, rooting at nodes, 5 cm long, 0.2-0.4 cm thick; internodes 0.4-0.8 cm long. Stem erect, terete, 4-leaved, 8.5 cm long, 0.35 cm thick; internodes 1-1.5 cm long. Leaves ovate to ovate-elliptic, acute, "rather fleshy, glistening and somewhat variegated on the upper surface" (fide collector) 6.5-9.3 cm long, 3.1-4.5 cm wide; petiole and sheath to 3.2 cm long. Inflorescence erect, pubescent, 15.3 cm long; peduncle 5.8 cm long; sheathing bracts three, lax, 2.1-3.2 cm long; rachis subdensely 28-flowered, 9.7 cm long; floral bracts ovate-lanceolate, acute, to 2 cm long, 0.8 cm wide. Pedicellate ovary

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subcylindric-fusiform, pubescent, 10-10.5 mm long. Flowers resupinate, white at first, becoming pink later, externally pubescent. Dorsal sepal ovate-lanceolate, apex with subcalceolate-involute margins, obtuse, 8 mm long, 3 mm wide. Lateral sepals obliquely ovate-elliptic, apical margins involute, subacute, lower margins connate for l mm, 8 mm long, 3 mm wide. Petals obliquely oblanceolate-subrhombic, subacute, biveined, 8 mm long, 2.5 mm wide. Labellum 7 mm long; hypochile subglobose, inside with a few complanate to subulate appendages, 3 mm long, 3.1 mm wide; epichile oblong, apex with a narrow conduplicate lobule which is triangular when spread, lower half with two low lamellae, 4 mm long, 1.4-1.5 mm wide. Column 4.5-5 mm long.

Distribution: Myanmar.

Notes: This species is closely related to *G. alveolata* U.C. Pradhan from Bhutan from which it differs in having four or more ovate to ovate-elliptic (not two, broadly ovate to suborbicular) leaves which are indistinctly variegated (not visible in the dried holotype) unlike the strongly variegated leaves of *G. alveolata*. Furthermore *G. myanmarica* has a straight, subdensely 28-flowered rachis whilst *G. alveolata* has a subflexuous, lax to sublaxly 10-15-flowered rachis.

Another possible distinguishing feature of *G. myanmarica* is the presence of two lamellae on the labellum epichile. It is however possible that this feature was overlooked in the description of *G. alveolata.*

Goodyera polyphylla Ormd., sp. nov. Fig. 4

Type: E1 Salvador - Cerro El Pilon, near Santa Ana, 1740 m, 15 September 1969, *Hamer 178*, right hand plant (holotype: AMES!).

Affinis G. brachyceras (A. Rich. & Gal.) Garay & Romero *sed caulibus 10-12 foliatis (non 3-7 foliatis) et ovario floribus glabris (non pubescentibus) differt.*

Rhizome creeping, rooting at nodes, 6.2-12.5 cm long, 0.18-0.2 cm thick; internodes terete, 1.1-2.1 cm long. Stem sometimes with decumbent basal half, erect, terete, 10-12-leaved, 14-15.8 cm long, 0.2-0.35 cm thick; internodes 0.8-2.65 cm long. Leaves obliquely ovate-oblong, acute, 1.7-6.1 cm long, 1-2.4 cm wide; petiole and sheath 1.4-3.9 cm long. Inflorescence erect, glabrous, 14.2-27.6 cm long; peduncle 9.2-21.1 cm long; sheathing bracts six, lax, 1-3.2 cm long; rachis subdensely 25-36-flowered, 5-6.5 cm long; floral bracts ovate-lanceolate, acute, to 7 mm long, 2 mm wide. Pedicellate ovary cylindric-fusiform, glabrous, 4-6 mm long. Flowers resupinate, colour not known, glabrous. Dorsal sepal ovate-oblong, acute, 4.2 mm long, 1.2 mm wide. Lateral sepals obliquely ovate-elliptic, acute, 3.5-3.7 mm long, 1.7mm wide. Petals obliquely dolabriform, subacute, upper half with an irregular suberose lower margin, 4 mm long, 1.3 mm wide. Labellum ovate-elliptic, subacute, triveined, basal half shallowly saccate, inside basal half with a weakly defined semiglobose concavity which contains 14 terete to subulate appendages, 3.8 mm long, 2.75 mm wide. Column 2.2 mm long.

Distribution: El Salvador.

Additional specimen examined: EL SALVADOR-Cerro El Pilon, near Santa Ana, 1740 m, 1 May 1970, *Hamer 178*, right hand plant (AMES).

Notes: Both collections of this species are mixed gatherings, the other species being *G. brachyceras* (A. Rich. & Gal.) Garay & Romero. *Goodyera polyphylla* is distinguished from *G. brachyceras* by its 10-12-leaved stems and glabrous flowers. In *G. brachyceras* the stems are 3-7-leaved and the flowers are pubescent.

Goodyera purpusii Ormd., sp. nov. Fig. 5

Type: Mexico - Vera Cruz, Boca del Monte, August 1908, *Purpus 3627* (holotype: AMES!).

Affinis G. brachyceras (A. Rich. & Gal.) Garay & Romero *sed floribus glabris (non pubescentibus), petalis latioribus (1.6-1.8 mm vs. 1.4 mm) et labello orbicularis (non ovato-ellipticis) differt.*

Rhizome creeping, rooting at nodes, 5 cm long, 0.3-0.4 cm thick; internodes terete, 0.8-1.3 cm long. Stem erect, terete, 6-7-leaved, 6.5 cm long, 0.4-0.45 cm thick; internodes 0.8-1.1 cm long. Leaves obliquely ovate, acute, possibly with a narrow median white stripe, 2.5-4.2 cm long, 1-2.25 cm wide; petiole and sheath 1.9-2.1 cm long. Inflorescence erect, pubescent, 20 cm long; peduncle 13 cm long; sheathing bracts three, scattered, 0.9-2 cm long; rachis densely 40-flowered, 7 cm long; floral bracts ovate-lanceolate, acute, to 6mm long, 2-3 mm wide. Pedicellate ovary fusiform, usually glabrous, rarely with some scattered pubescence, to 6 mm long. Flowers resupinate, colour not known, glabrous. Dorsal sepal oblong-elliptic, subacute, 3.5 mm long, 1.5 mm wide. Lateral sepals obliquely ovate-elliptic, subacute, semirecurved-patent, 3.2 mm long, 1.8 mm wide. Petals subdolabriform to obliquely rhombic, upper half with an irregular lower margin, obtuse, 3.5-3.6 mm long, 1.6-1.8 mm wide. Labellum orbicular, subacute, shallowly saccate in basal half, inside basal half with ca. 16 fleshy terete-subclavate appendages, at middle with two fleshy convexities, 3mm long and wide. Column 2 mm long.

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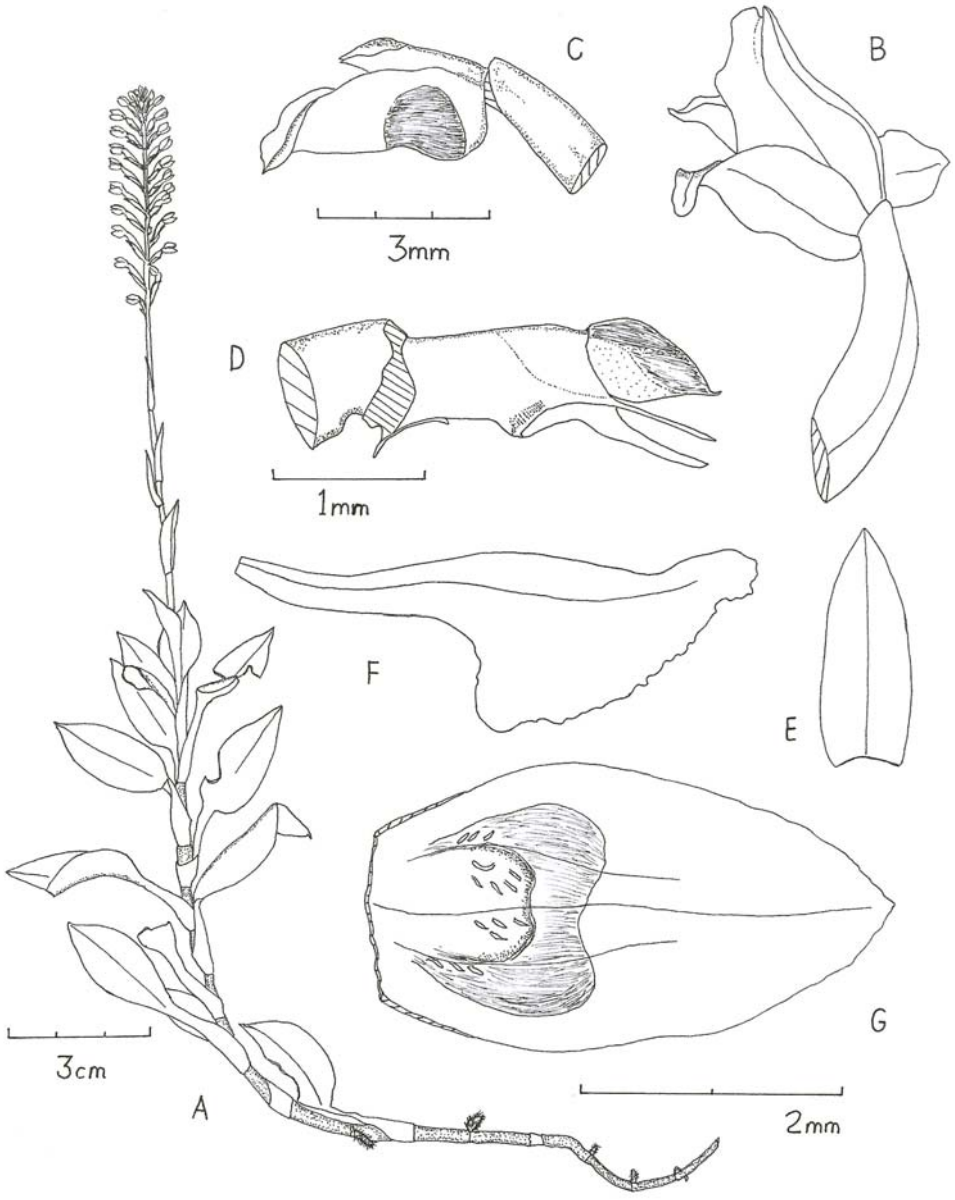


Fig. 4. *Goodyera polyphylla*. A: Plant. B: Flower. C: Flower minus tepals. D: Column. E: Dorsal sepal. F: Petal. G: Labellum. A, BCE, D and FG to respective scales. Drawn from holotype.

Distribution: Mexico.

Notes: This species is related to *G. brachyceras* but it can be distinguished from that taxon in having glabrous (not pubescent) flowers, slightly broader petals (1.6-1.8 vs. 1.4 mm) and an orbicular (not ovate-elliptic) labellum.

Goodyera rosea (Perrier) Ormd., comb. nov.

Basionym: *Gymnochilus roseum* Perrier, Bull. Soc. Bot. Fr. 83: 24, 1936.
Bathiorchis rosea (Perrier) Bosser & Cribb, Adansonia s. 3, 25 (2): 229, 2003.

Type: Madagascar - Maromizaha, near d'Analamazoatra, 1000m, February 1924, *Perrier de la Bathie 15964* (holotype: P).

Distribution: Madagascar.

Notes: Bosser & Cribb (2003) based their genus *Bathiorchis* on this species which has flowers in which the column has a reduced rostellum and a seemingly terminal (rather than ventral) stigmatic area. They compared *Bathiorchis* to *Platylepis* A. Rich. but in my opinion their type species *Gymnochilus roseum* is more closely related to the

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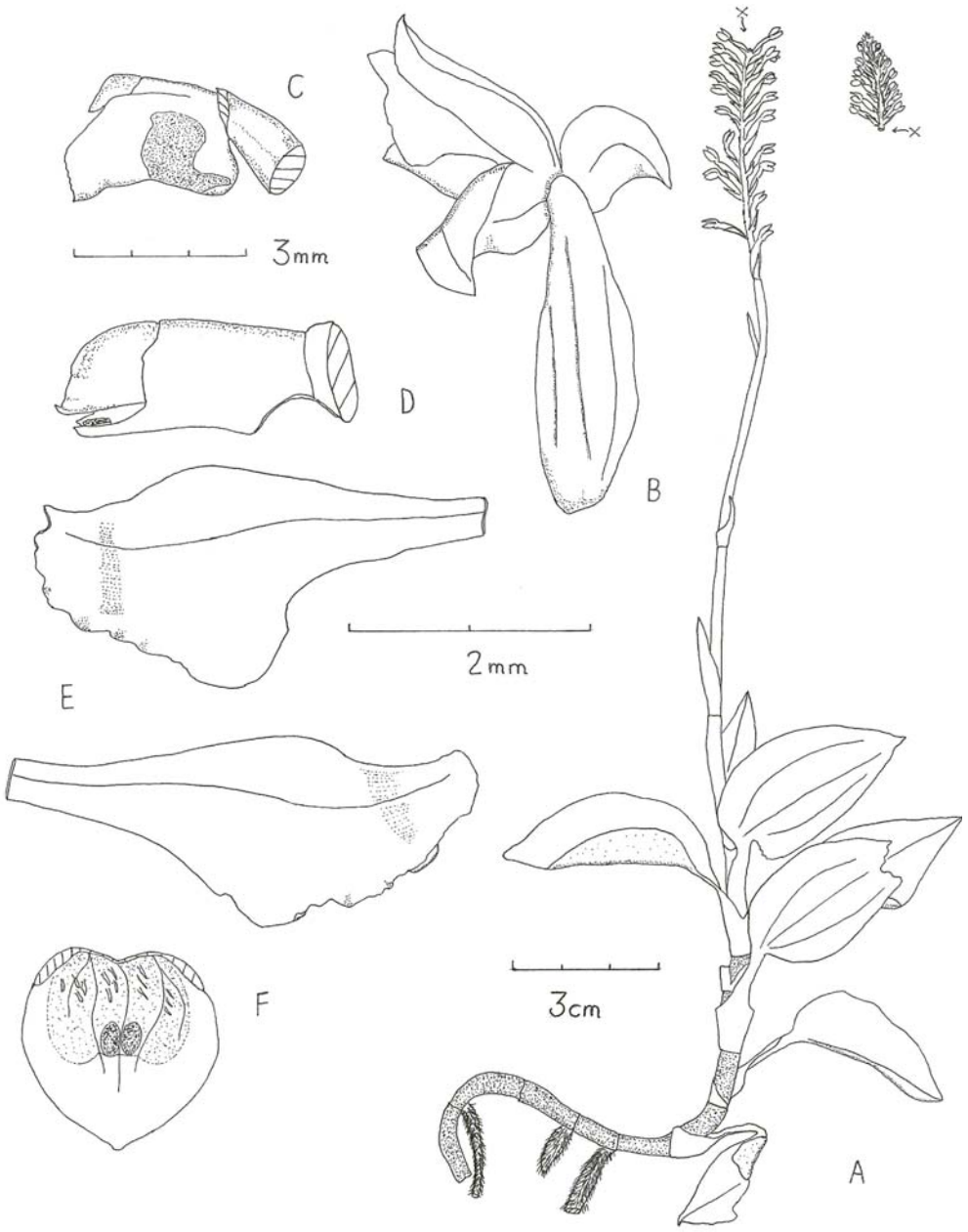


Fig. 5. *Goodyera purpusii*. A: Plant. B: Flower. C: Flower minus tepals. D: Column. E: Petal. F: Labellum. A, BCDF and E to respective scales. Drawn from holotype.

Madagascan species of *Goodyera*. *Goodyera rosea* is a larger plant than *G. goudotii* (described above) but has lanceolate floral bracts and similar adornments on the labellum. *Goodyera perrieri* (Schltr.) Schltr. is another similar species to *G. rosea* and the former also has a reduced rostellum and similarly shaped labellum although the plant differs in having a stem with subrosulate leaves and a laxly flowered inflorescence.

Goodyera zacuapanensis Ormd., sp. nov. Fig. 6

Type: Mexico - Vera Cruz, near Zacuapan, 900-1000 m, 13 October 1935, coll. *Purpus s. n.*, fl. in cult. at Cuernavaca, Estado Moreles, 21 August 1936, *Oestlund 5039* (holotype: AMES!).

Affinis G. purpusii Ormd. *sed ovario floribus valde pubescentibus (non glabris), petalis oblique obovatis (non subrhombicis-dolabriformis) et labello intus quadripapillosis (vs. 16 appendicibus) differt.*

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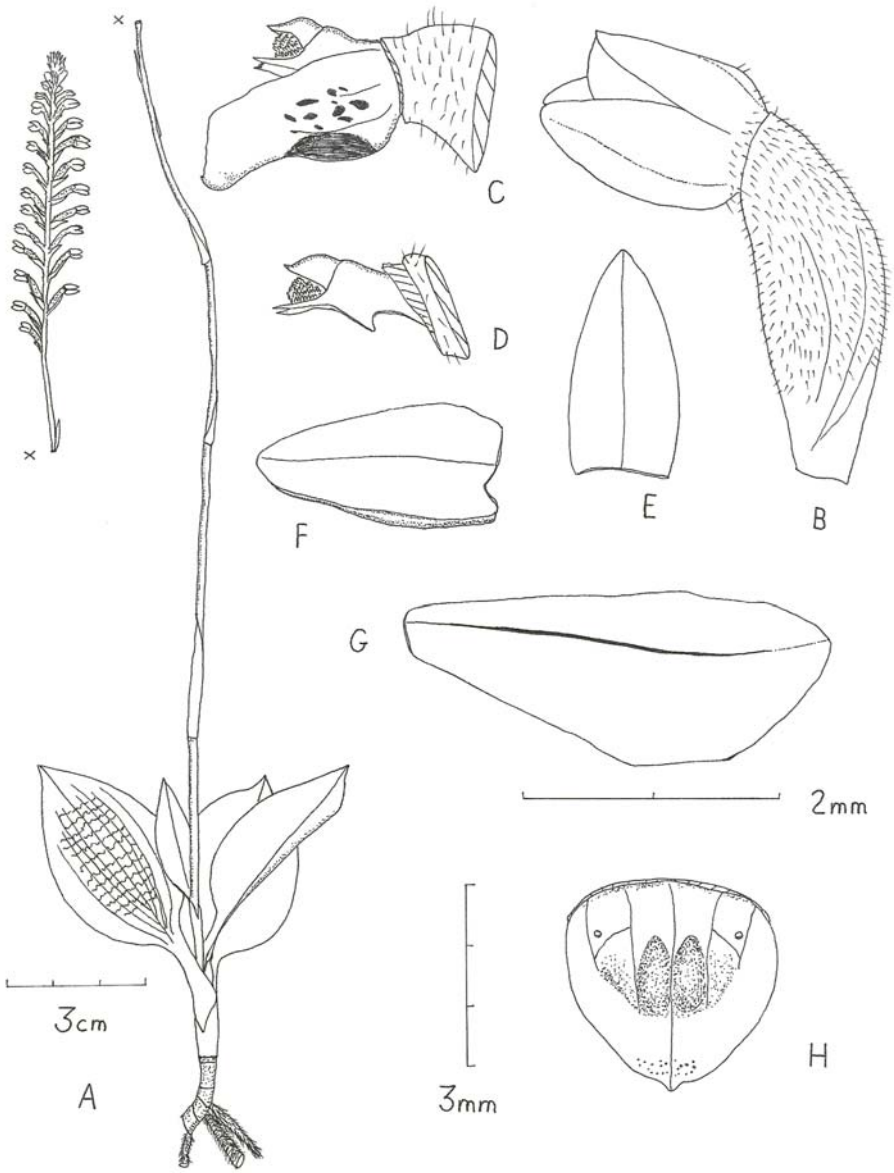


Fig. 6. *Goodyera zacuapanensis*. A: Plant. B: Flower. C: Flower minus tepals. D: Column. E: Dorsal sepal. F: Lateral sepal. G: Petal. H: Labellum. A, B-FH and G to respective scales. Drawn from holotype.

Stem erect, terete, rooting from lower nodes, 3-4-leaved, 2.7 cm long, 0.3-0.4 cm thick; internodes 0.25-0.5 cm long. Leaves broadly ovate to subcordate-ovate, acute, 3.9-4.8 cm long, 2.7 cm wide; petiole and sheath 2-2.7 cm long. Inflorescence erect, pubescent, 29.8 cm long; peduncle 23.3 cm long; sheathing bracts lax, six, lower three amplectant, upper three slightly spreading, 0.7-2.35 cm long; rachis subdensely ca. 30-flowered, 6.5 cm long; floral bracts ovate-lanceolate, acute, to 5 mm long, 2 mm wide. Pedicellate ovary thickly fusiform, densely pubescent, 5-6 mm long. Flowers resupinate, white, with a few scattered hairs at the bases of the sepals. Dorsal sepal ovate, acute, 3.3 mm long, 1.9 mm wide. Lateral sepals obliquely ovate, obtuse, lower margin semitubular-involute, 3.75 mm long, 2.1 mm wide. Petals obliquely obovate, subacute, 3.3 mm long, 1.3-1.5 mm wide. Labellum orbicular, 5-veined, basal half shallowly saccate, inside basal half with four small papillae, outside with low scattered verrucae, 3.1 mm long and wide. Column 1.9 mm long.

Distribution: Mexico. Habitat: Damp forest in leafmould.

Notes: This species is similar to *G. purpusii* Ormd. (described above) in that it has flowers with an orbicular labellum. However, *G. zacuapanensis*

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differs in having a densely pubescent ovary, obliquely obovate (not subrhombic-dolabriform) petals and a five-veined (not triveined) labellum with only four (not sixteen) small papillae inside.

From *G. brachyceras* (A. Rich. & Gal.) Garay & Romero the new taxon differs in having an orbicular (not ovate-elliptic) labellum with five (not three) veins. Also *G. zacuapanensis* has scattered external verrucae on the labellum whilst this feature is lacking in *G. brachyceras.*

ACKNOWLEDGEMENTS

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摘　　要

接續之前關於斑葉蘭亞族之標本館與文獻考察發現 *Bathiorchis* 屬應該視同 *Goodyera* 屬之同義名，因此需要進行對 *G. rosea* 之合併。此外本文亦描述斑葉蘭屬六個新種，分別為 *G. fimbrilabia*、*G. goudotii*、*G. myanmarica*、*G. polyphylla*、*G. purpusii* 以及 *G. zacuapanensis*。

關鍵詞：蘭科、斑葉蘭亞族、斑葉蘭屬、新種。

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