

**PSYCHANTHUS (K. SCHUM.) RIDLEY (ZINGIBERACEAE):
ITS ACCEPTANCE AT GENERIC LEVEL**

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Twenty-two species of *Alpinia* hitherto placed in sections *Psychanthus* and *Pleuranthodium* are transferred to the genus *Psychanthus* Ridley. The justification for the acceptance of *Psychanthus*, which is based on the cup-shaped character of the labellum is discussed, and the necessary new combinations made.

Since Ridley (1916) accorded generic rank to *Alpinia* sect. *Psychanthus* K. Schum. (1904), the name has not been used at generic level. Current work towards a new classification has indicated that there are sound reasons for its reinstatement and for *Alpinia* sect. *Pleuranthodium* K. Schum. (1904), while retaining its sectional status, being transferred to *Psychanthus*.

With the exception of the Australian *P. racemiger* (F. Muell.) R. M. Smith, *Psychanthus* is known only from New Guinea and the islands of the Bismarck Archipelago. The most striking feature of the genus lies in the labellum; it is petaloid, held erect and strongly cup-shaped, the side lobes either connate to the base of the filament (sect. *Pleuranthodium*) or curving behind it (sect. *Psychanthus*). In the type section the filament is broadly cymbiform and subapically toothed, in sect. *Pleuranthodium* teeth are usually absent and the filament is narrower. The style, which is not held tightly between the thecae, terminates in a very small, more or less clavate stigma which is geniculate with a rounded orifice at the tip. As Valetton (1914: 45) has pointed out, the character of the fruit is interesting; it is a fleshy capsule, splitting almost to the base with age. Such capsules are not recorded in *Alpinia* but identical ones occur in *Riedelia lanata* R. Scheffer, the type species of that genus, and it seems probable that the true affinity of *Psychanthus* may lie with *Riedelia* subgen. *Riedelia* rather than with *Alpinia*.

Ridley's concept of *Psychanthus* was erroneous, and rested on the subapically dentate filament. Although he listed Schumann's species and one of Valetton's, the single taxon described by Ridley himself, *Psychanthus inaequalis*, has a linear labellum and tubular bracteoles; it belongs to *Alpinia* sect. *Pycnanthus* subsect. *Pycnanthus*.

While *Psychanthus* is readily recognizable at generic level from description alone, assigning specific names to the mass of recently collected material from New Guinea is less easy. Valetton (1914) constructed keys to both subsections, but these do not work well and one must conclude that too many species have been described. Valetton himself was well aware that many of his taxa might duplicate those of Schumann, whose type material he did not see.

Unfortunately, many types of both Schumann and Valetton's species (almost half of them based on Schlechter collections) are no longer extant. Nonetheless, since the species concerned are correctly placed within the genus, all are herewith given names in *Psychanthus*.

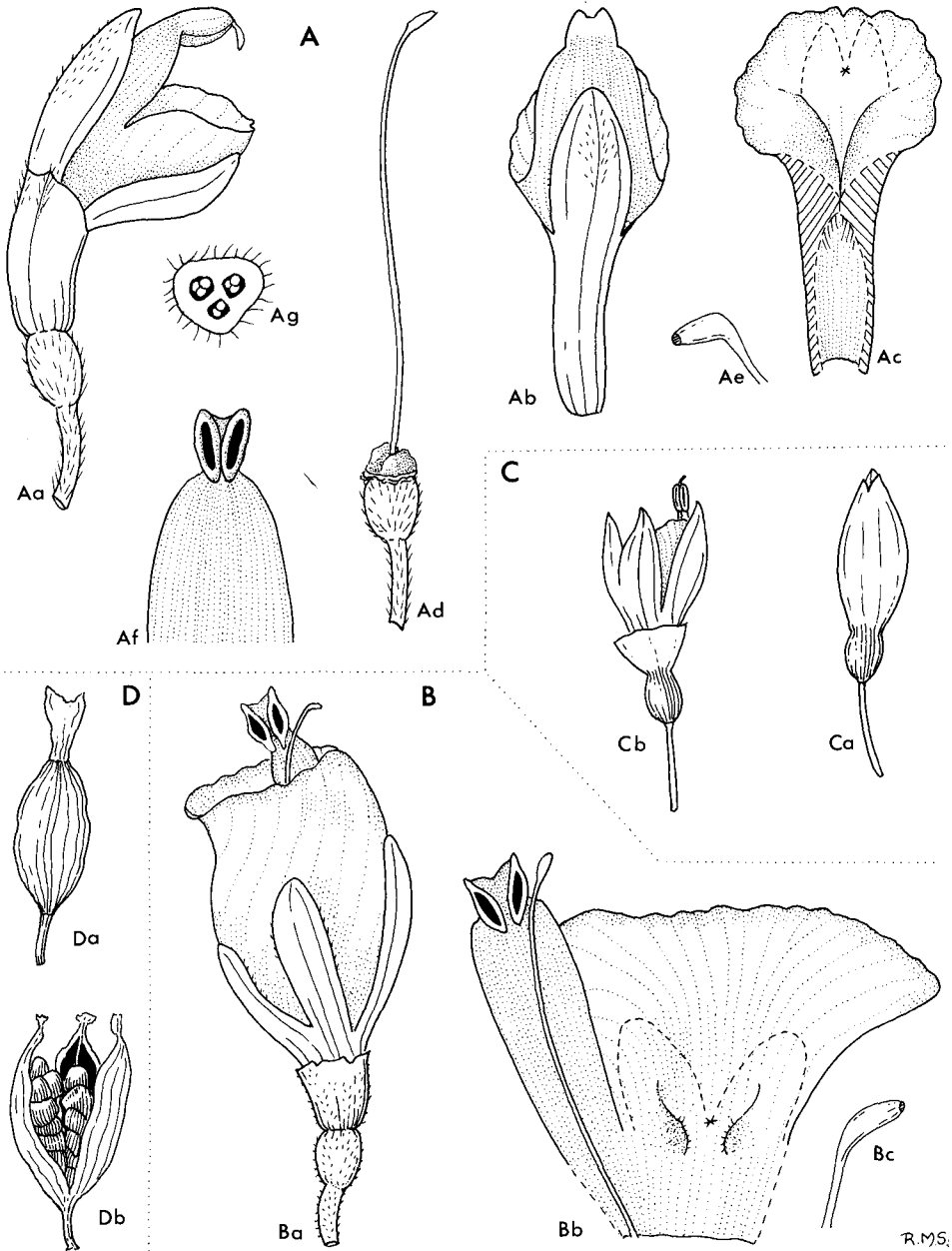


FIG 1. A, *Psychanthus trichocalyx*: Aa, flower $\times 2$; Ab, corolla from back, calyx removed $\times 2$; Ac, labellum and l.s. of corolla tube (* point at which lateral petals become connate) $\times 2$; Ad, gynoecium $\times 3$; Ae, stigma, much enlarged; Af, stamen $\times 2$. B, *P. helwigii* vel aff.: Ba, flower $\times 2$; Bb, corolla, dissected $\times 2$; Bc, stigma, much enlarged. C, *P. peekelii*: Ca, bud with calyx enveloping corolla $\times 3$; Cb, flower fully open showing circumscissile calyx. D, *P. racemiger*: Da, fruit before dehiscence $\times 2$; Db, fruit after dehiscence. A and B from living material, C and D from dried material.

Psychanthus (K. Schum.) Ridley in Trans. Linn. Soc. Bot. 9: 215 (1916).

Syn.: *Alpinia* sect. *Alpinia* (*Autalpinia*) K. Schum. in Bot. Jahrb. 27: 271, 272 (1899)—p.p. excl. type.

Alpinia sect. *Psychanthus* K. Schum., Pflanzenr. Zing. 319 (1904);
Val. in Nova Guinea (Botanique) 8: 938 (1913) & in Bot.
Jahrb. 52: 45, 59 (1914).

Alpinia sect. *Pleuranthodium* K. Schum., Pflanzenr. Zing. 322
(1904); Val. op. cit. 939 (1913) & op. cit. 46, 53 (1914).

Amended description:

Inflorescence unbranched, often at first enclosed by a large sheath, sometimes pendulous, sometimes pushed out laterally from the uppermost leaf sheath. *Bracts* and/or bracteoles, absent or very soon deciduous (rarely seen). *Flowers* borne singly; calyx short, bell-shaped, occasionally circumscissile, the top half falling before anthesis, or sheath-like; labellum cup-shaped, usually broader than long, the side lobes curving behind the filament or adnate (sometimes only partially so) to it, fleshy pads (?staminodes) almost always present at the base; filament cymbiform and subapically dentate or narrower and without teeth; anther thecae often divergent, not embracing the style, ecristate; stigma \pm clavate, geniculate with a small terminal orifice; epigynous glands massive, splitting irregularly. *Capsule* ellipsoid to almost spherical, splitting to the base into three equal valves.

Lectotype species (selected here): *P. papilionaceus* (K. Schum.) R. M. Smith.

Distribution: New Guinea, the Bismarck Archipelago and Australia.

KEY TO THE SECTIONS

1. Calyx short, bell-shaped, occasionally circumscissile; side lobes of the labellum curving behind the filament; filament cymbiform with subapical teeth _____ **Psychanthus**
- Calyx sheath-like; side lobes of labellum connate to the base of the filament above the petals; filament not cymbiform, not toothed _____ **Pleuranthodium**

Psychanthus (K. Schum.) Ridley sect. **Psychanthus**

Syn.: *Alpinia* sect. *Psychanthus* K. Schum., Pflanzenr. Zing. 319 (1904).

Type species: *P. papilionaceus* (K. Schum.) R. M. Smith.

Distribution: as for genus, including Australia.

Psychanthus comptus (K. Schum.) R. M. Smith, **comb. nov.**

Syn.: *Alpinia compta* K. Schum. in Bot. Jahrb. 27: 277 (1899) & Pflanzenr. Zing. 319 (1904).

Type: *Hollrung* 195a.

Psychanthus floribundus (K. Schum.) R. M. Smith, **comb. nov.**

Syn.: *Alpinia floribunda* K. Schum., Pflanzenr. Zing. 439 (1904).

Type: *Schlechter* 14291.

Psychanthus gjellerupii (Val.) R. M. Smith, **comb. nov.**

Syn.: *Alpinia gjellerupii* Val. in Nova Guinea (Botanique) 8: 115 (1913).

Type: *Gjellerup* 115.

Psychanthus hellwigii (K. Schum.) R. M. Smith, **comb. nov.** Fig. 1B.

Syn.: *Alpinia hellwigii* K. Schum., Pflanzenr. Zing. 320 (1904).

Type: *Hellwig* 416.

Psychanthus iboensis (Val.) R. M. Smith, **comb. nov.**

Syn.: *Alpinia iboensis* Val. in Bot. Jahrb. 52: 60 (1914).

Type: *Schlechter* 17081.

Psychanthus papilionaceus (K. Schum.) R. M. Smith, **comb. nov.**

Syn.: *Alpinia papilionacea* K. Schum. in Fl. Kais. Wilh. Land 29 (1899)
& Bot. Jahrb. 27: 29, t.2 H (1899) & in Pflanzenr. Zing. 319,
t.39R (1904).

Type: *Hollrung* 195.

Psychanthus pedicellatus (Val.) R. M. Smith, **comb. nov.**

Syn.: *Alpinia pedicellata* Val. in Bot. Jahrb. 52: 60 (1914).

Type: *Schlechter* 16057.

Psychanthus peekelii (Val.) R. M. Smith, **comb. nov.** Fig. 1C.

Syn.: *Alpinia peekelii* Val. in Bot. Jahrb. 52: 62 (1914).

Type: *Peekel* 765.

Psychanthus schlechteri (K. Schum.) R. M. Smith, **comb. nov.**

Syn.: *Alpinia schlechteri* K. Schum. in Pflanzenr. Zing. 438 (1904).

Type: *Schlechter* 14519.

Psychanthus scyphonemus (K. Schum.) R. M. Smith, **comb. nov.**

Syn.: *Alpinia scyphonema* K. Schum. in Pflanzenr. Zing. 438 (1904).

Type: *Schlechter* 14352.

Psychanthus (K. Schum.) Ridley sect. **Pleuranthodium** (K. Schum.) R. M. Smith, **comb. nov.**

Syn.: *Alpinia* sect. *Pleuranthodium* K. Schum., Pflanzenr. Zing. 322
(1904).

Lectotype species (selected here): *P. tephrochlamys* (Lauterb. & K. Schum.) R. M. Smith.

Distribution: as for the genus.

Psychanthus biligulatus (Val.) R. M. Smith, **comb. nov.**

Syn.: *Alpinia biligulata* Val. in Nova Guinea (Botanique) 8: 939 (1913).

Syntypes: *Versteeg* 1411; *von Römer* 643.

Psychanthus branderhorstii (Val.) R. M. Smith, **comb. nov.**

Syn.: *Alpinia branderhorstii* Val. in Nova Guinea (Botanique) 8: 941 (1913).

Type: *Branderhorst* 412.

Psychanthus floccosus (Val.) R. M. Smith, **comb. nov.**

Syn.: *Alpinia floccosa* Val. in Nova Guinea (Botanique) 8: 940 (1913).

Type: *Schlechter* 17326.

Psychanthus macropycnanthus (Val.) R. M. Smith, **comb. nov.**

Syn.: *Alpinia macropycnantha* Val. in Bot. Jahrb. 52: 64 (1914).

Syntypes: *Schlechter* 17839; *von Römer* 538.

Psychanthus neragaimae (Gilli) R. M. Smith in Edinb. J. Bot. 47: 51 (1990).

Syn.: *Alpinia neragaimae* Gilli in Ann. Naturh. Mus. Wien 84: 43 (1983).

Type: *Gilli* 285 (W).

Psychanthus pelecystyla (K. Schum.) R. M. Smith, **comb. nov.**

Syn.: *Alpinia pelecystyla* K. Schum. in Bot. Jahrb. 27: 277, f. 2F (1899).

Type: *Beccari* 784.

Psychanthus piundaundensis (van Royen) R. M. Smith, **comb. nov.**

Syn.: *Riedelia piundaundensis* van Royen, Alp. Fl. New Guin. 2: 875 (1979).

Type: Papua New Guinea, Piundaunde valley, above Kombugomambuno, *van Balgooy* 584 (L).

Other material seen:

PAPUA NEW GUINEA: NE slope of Mt Kaindi, sub-distr. Wau, c.2250m, 1 vi 1967, *Szent-Ivany* BMF17 (LAE); track up Mt Hagen from Tomba, Hagen sub-distr., 18 vii 1970, *Stevens* LAE50250 (LAE, E); Mt Kerigomna, Goroka sub-distr., 22 vi 1971, *Stevens & Grubb* LAE54646 (LAE, E); N slopes of Mt Piora, Kainantu sub-distr, 3000m, 31 viii, *Croft & Akakavara* LAE 68131 (LAE, E); Pengagal creek, Chimbu sub-distr., 10000ft, 25 viii 1964, *Millar & Sayers* NGF23778 (LAE); 1.5 miles from field station, Kundiawa sub-distr., 11000ft, 13 vi 1968, *Vandenberg* NGF39516 (LAE); Kalage Sunggwa, subprov. Gembogl, 3150m, *Serly* 80-648 (E).

P. piundaundensis displays all the characteristics of *Psychanthus* sect. *Pleuranthodium*. The calyx is persistent upon the bright red capsule, a condition not found in *Riedelia*.

Psychanthus platynemus (K. Schum.) R. M. Smith, **comb. nov.**

Syn.: *Alpinia platynema* K. Schum., Pflanzenr. Zing. 438 (1904).

Type: *Schlechter* 14327.

Psychanthus pterocarpus (K. Schum.) R. M. Smith, **comb. nov.**

Syn.: *Alpinia pterocarpa* K. Schum., Pflanzenr. Zing. 322 (1904).

Type: *Zippelius* s.n.

Psychanthus racemiger (F. Muell.) R. M. Smith, **comb. nov. Fig. 1D.**

Syn.: *Alpinia racemigera* F. Muell., Fragm. 8: 27 (1827).

Type: *Dallachy* s.n. (MEL).

Psychanthus roemeri (Val.) R. M. Smith, **comb. nov.**

Syn.: *Alpinia roemeri* Val. in Nova Guinea (Botanique) 8: 941 (1913).

Type: *von Römer* 696.

Psychanthus tephrochlamys (Lauterb. & K. Schum.) R. M. Smith, **comb. nov.**

Syn.: *Alpinia tephrochlamys* Lauterb. & K. Schum. [in Bot. Jahrb. 27: 277 (1899)—nom. nud.] & Fl. Schutzgeb. Südsee 226 (1900).

Type: *Lauterbach* 2540 (K).

Psychanthus trichocalyx (Val.) R. M. Smith, **comb. nov. Fig. 1A.**

Syn.: *Alpinia trichocalyx* Val. in Bot. Jahrb. 52: 63 (1914).

Syntypes: *Schlechter* 16219, 16084.

EXCLUDED SPECIES

Psychanthus inaequalis Ridley in Trans. Linn. Soc. Bot. 9: 25 (1916) = *Alpinia inaequalis* (Ridley) Loesener Pflanzenfam. ed. 2, 15A: 614 (1980).

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- VALETON, T. (1914). Die Zingiberaceen Deutsch-Neu-Guinea. *Botanische Jahrbücher für Systematik Pflanzengeschichte und Pflanzengeographie* 52: 40–100.