

## Notes on the genus *Malaxis* Sol. ex Sw., including a new record for Australia

by K.D. Hill & D.F. Blaxell

*Malaxis* Sol. ex Sw., Prodr. Veg. Ind. Occ., 119 (1778).

Type species: *Malaxis spicata* Sw.

(Lectotype designated by Britton & Brown, 1913.)

The genus *Malaxis* Sol. ex Sw. currently includes approximately 300 species, and has an almost cosmopolitan distribution (excluding New Zealand). Greatly different plant forms are presently included in the genus, together with large numbers of endemic species in adjacent floristically similar areas, suggesting that the genus urgently requires critical study.

Ridley (1888) divided the genus (as *Microstylis*) into 9 sections, 6 endemic to the Americas, one African and two Asian; and retained *Malaxis* as a genus for the solitary European species. Schlechter (1911) then divided the New Guinea species (again as *Microstylis*) into 7 sections, based largely on labellum characters.

Seidenfaden (1978) accepted 5 of Schlechter's sections (with minor nomenclatural adjustment) for the Thai species and created one additional section. He included Schlechter's section *Hololobus* (which includes *M. acuminata*) in section *Malaxis*, which is now lectotypified on the New World species *M. spicata* Sw. However, the New World sections of *Malaxis* achieve the 'labellum uppermost' floral orientation by hyper-resupination (twisting of the ovary through 360°, i.e. 180° beyond normal resupination), whereas the Asian *Malaxis* achieve the same floral orientation through non-resupination. This difference has significant evolutionary implications, and is in fact sufficient basis for segregating at least the two groups as genera.

Section *Hololobus* Schltr. is hence here reinstated for the appropriate Asiatic species, leaving American species only in section *Malaxis*. The Asiatic species will probably be placed in a separate genus when a full study can be made.

**Section *Hololobus* (Schltr.) K. Hill & D. Blaxell, comb. nov.** Plants erect. Flowers hyper-resupinate. Lip 3-lobed, with auricles stretching behind column, midlobe entire or bifid.

**Basionym:** *Microstylis* Sect. *Hololobus* Schltr., Feddes Repert. Beih. 1, 124 (1911).

**Type species:** *Microstylis nitida* Schltr.

*Malaxis acuminata* D. Don, Prodr. Fl. Nepal., 29 (1825).

Syn *Microstylis wallichii* Lindl., Gen. & Sp. Orch., 20 (1830).

*Microstylis biloba* Lindl., Gen. & Sp. Orch., 20 (1830).

*Dienia carinata* Reichb. f., Bonplandia 3, 223 (1855).

*Microstylis pierrei* Finet, Bull. Soc. Bot. Fr. 54, 535 (1912).

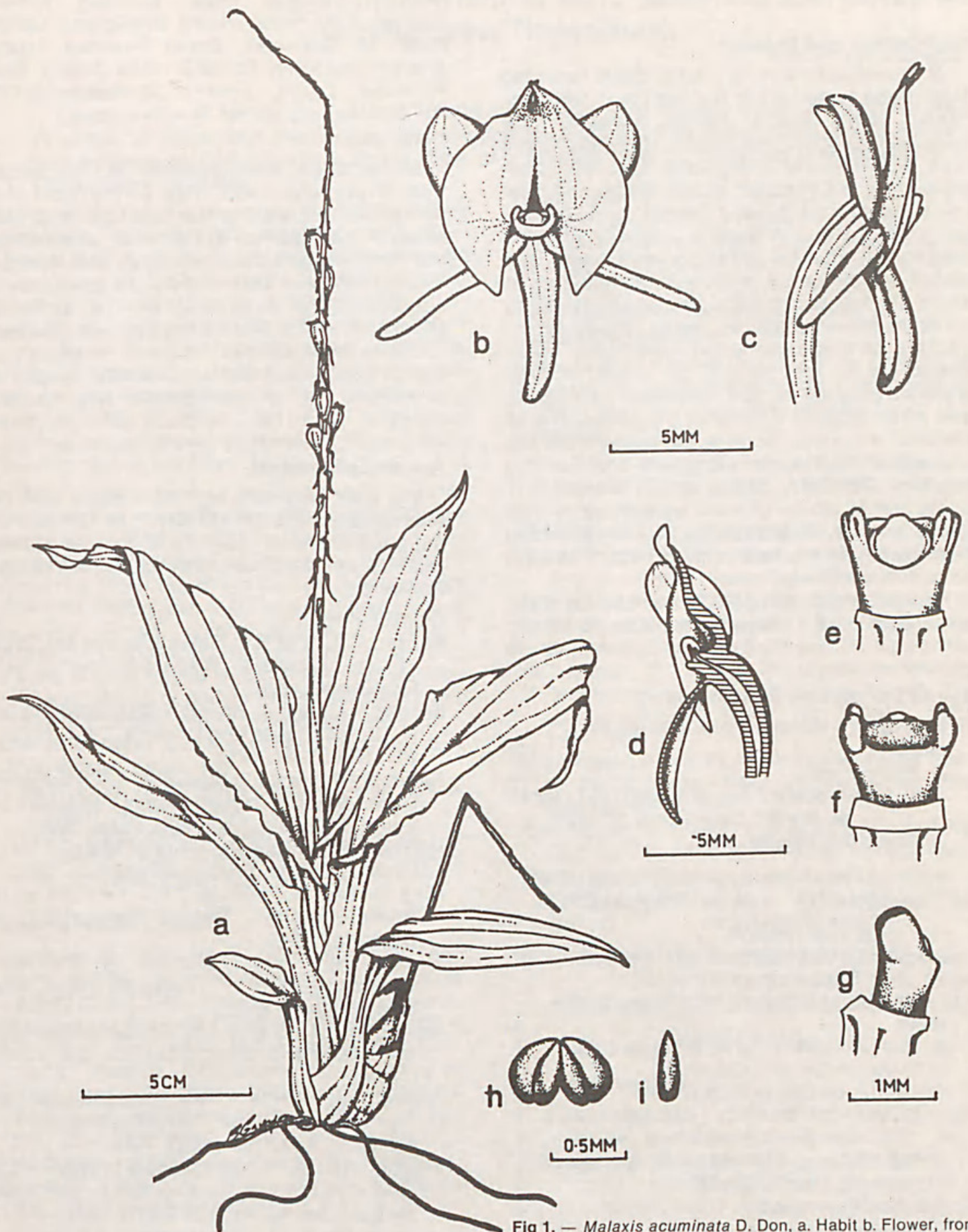
*Microstylis trigonocardia* Schltr., Feddes Repert. Beih. 4, 62 (1919).

*Microstylis siamensis* Rolfe ex Downie, Kew Bull., 368 (1929).

Terrestrial herb, 10-15cm high. Rhizome short; stems (pseudobulbs) closely packed, conical, 4-7cm high, 1.0-2.3cm in diameter. Leaves oblique, ovate-acuminate, 5-7-nerved; lamina 7-15cm long, 3-5cm wide; petiole 2-3cm long, continuous with lamina. Inflorescence 12-20cm high; peduncle winged, about ½ length of inflorescence; 10-c. 50 flowers loosely arranged on rachis. Floral bracts narrowly triangular, deflexed, 3-5mm long. Flowers non-resupinate, opening green, ageing yellow-green, segments arranged flat in plane of labellum. Dorsal sepal oblong, 5-6mm long, c. 2mm wide, edges recurved. Lateral sepals ovate, obtuse or rounded, oblique 5-6mm long, 3mm wide. Petals linear, 5-6mm long, 1.0-1.5mm wide, edges strongly recurved. Labellum 3-lobed, elliptical, sagittate, c. 8-10mm long, 7-8mm wide; side lobes broadly triangular, entire, c. 3mm long, 3mm wide; mid-lobe broadly triangular, c. 3mm long, 3mm wide, apically bifid to a depth of c. 1.5mm, laterally shallowly notched on either margin; nectary c. 1.5mm long, 0.5mm wide, deeply sunken, surrounded by an arched, papillose thickening which is ± continuous with labellum. Labellum partly adnate to column. Column c. 1.5mm long, 1.5mm wide apically, green, straight; broad obtuse column-wings projecting slightly beyond anther; anther broad, shallow. Pollinia oval, yellow, 4 in 2 pairs, joined directly to small retinaculum. Stigma shallow, oval. Ovary winged, c. 3mm long.

Distinguished in the Section *Hololobus* by the broadly elliptical labellum with short, broadly triangular sidelobes, the deeply bifid





Drawing by Bruce Gray

Fig 1. — *Malaxis acuminata* D. Don, a. Habit b. Flower, front c. Flower, side d. Flower, cross-section e. column, dorsal view f. column, ventral view g. column, side h. Pollinia, front i. Pollinium, side.



midlobe with small lateral notches and the small, triangular, deeply sunken nectary; and the relatively large, green flower.

### Distribution and Ecology

*M. acuminata* has, to date, been recorded from three localities in the Northern Territory, these being Black Jungle Swamp near Lambells Lagoon, the upper Hayward Creek area, and Bathurst Island (see specimen citations). It is not common in any place, and may be extinct at the Hayward Creek locality following a severe fire through a normally unburnt area shortly after the collection was made. This orchid usually grows in litter accumulations in areas slightly above semi-permanent standing water in heavy shade in dense closed forest pockets on humus-enriched sandy soil. These forest areas are usually in small, spring-watered pockets in low savannah woodland, and often include a number of rainforest and *Melaleuca* species. Such forest pockets are not uncommon in the more northern parts of the Northern Territory, and it is considered probable that *M. acuminata* will be located in other areas in time. This species is also recorded from Nepal, India, Indochina, China, Sumatra, Java and the Philippines.

Flowering time appears to coincide with the tropical monsoon season, December to March, although flowers examined were from cultivated plants.

### Key to the species in Australia

- 1) Mid-lobe of labellum with 4 teeth or more ..... 2.
- 2) Plant erect ..... 3.
- 3) Inflorescence few-flowered (10 or less).  
— *M. lawleri* Lavarack & B. Gray  
(Sect. *Crepidium*)
- 3a) Inflorescence many-flowered (more than 10). — *M. xanthochila* Schltr.  
(Sect. *Crepidium*).
- 2a) Plant procumbent, — *M. fimbriata* Lavarack (Sect. *Commelinoides*).
- 1a) Mid-lobe of labellum with fewer than 4 teeth ..... 4.
- 4) Mid-lobe entire — *M. marsupichila* W.T. Upton (Sect. *Hololobus*).
- 4a) Mid-lobe two or three-lobed
- 5) Mid-lobe bilobed. — *M. acuminata* D. Don (Sect. *Hololobus*)
- 5a) Mid-lobe trilobed — *M. latifolia* Sm. (Sect. *Gastroglottis*).

### Specimens Examined:

**Australia:** Black Jungle Swamp, near Lambells Lagoon, N.T., D.F. Blaxell 1827 (NSW); loc. cit., G. Wightman 1157 (BRI, CANB, DNA, K, MEL, NSW); Upper Hayward Creek area, N.T., K. Hill

81 (K, NSW); Aspley Straight, Bathurst Island, N.T., G. Wightman 934 & C. Dunlop (DNA) (without flowers). **India:** Berenag, Almora District, R.N. Parker (NSW). **Philippines:** Lamao River, Mt Mariveles, Batan Province, Luzon, Ahern's collector, For.-Bur. 1468 (NSW); Rizal Province, Luzon, Ahern's Collector, 8.1905 (NSW).

### Discussion

Seidenfaden distinguishes *M. acuminata* from *M. purpurea* (Lindl.) Kze. on the basis of indentations separating the mid-lobe and side-lobes of the labellum in the latter, absent from the former. The specimens from the Northern Territory display both conditions (presence or absence of indentations) on the same inflorescence. The Australian species, however, matches *M. acuminata* in other respects (colour of flower and overall labellum shape). *M. acuminata* is a widespread and variable species, and may include *M. purpurea*, although further study is required here.

### Acknowledgements

We wish to thank Mr Peter Hind, who has maintained the plant (KH81) in cultivation and supplied material for study and permanent records; and Mr Bruce Gray for the excellent illustration.

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Hill, K D and Blaxell, Donald Frederick. 1985. "Notes on the genus *Malaxis* Sol. ex Sw., including a new record for Australia." *The Orchadian* 8(4), 80–82.

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