

REDEFINITION OF THE GENERA *MALAXIS* SOL. EX SW.  
AND *MICROSTYLIS* (NUTT.) EATON  
(ORCHIDACEAE, EPIDENDROIDEAE)

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ABSTRACT

A new definition of the genera *Malaxis* Sol. ex Sw. and *Microstylis* (Nutt.) Eaton is presented. The genera are briefly described and illustrated. A list of *Microstylis* species is added. Four new nomenclatural combinations are proposed.

KEY WORDS: *Malaxis*, Malaxidinae, *Microstylis*, Orchidaceae, systematic, taxonomy.

The subtribe Malaxidinae includes genera with minute or medium-sized flowers mostly, usually inconspicuously coloured. The representatives of this group occur on all continents, except Antarctica. Peculiarly abundant in species of Malaxidinae are SE Asia, New Guinea and Pacific islands and also New World. Until quite lately most of the species were included in two cosmopolitan and highly polymorphic genera *Malaxis* Sol. ex Sw. and *Liparis* L.C.Rich.

The genus *Malaxis* was described by Solander in Swartz's paper in 1788. At first it embraces 2 species from Jamaica – *M. spicata* and *M. umbelliflora*, both found by Solander and described in the aforementioned work of Swartz. Nuttall (1818) divided the genus *Malaxis* into two subgenera: *Malaxis* and *Microstylis*. The first one included the sole species *M. paludosa* (L.) Sw., the second one – all other, together with tropical species and type species of that genus. Eaton (1822) gave the generic rank to the subgenus *Microstylis*, choosing as the type of the genus *Microstylis ophioglossoides* (Willd.) Eaton. This species is now treated as a synonym of *Malaxis unifolia* Michx. Ridley (1888) accepted Eaton's concept of both genera.

*Malaxis paludosa*, however, cannot be the lectotype of the genus, as it is at variance with the Art. 10.2 of ICBN (Greuter et al. 2000). The original description of the genus *Malaxis* (Swartz 1788) did not include this species. As a valid generitype must be treated *Malaxis spicata* chosen by Britton and Brown (1913).

The latter studies proved that Eaton's (1822) and Ridley's (1888) conception was wrong. In 1891 Kuntze created a new genus *Hammarbya* for *Malaxis paludosa*, whereas *Microstylis* was recognized as a synonym of the earlier

one and also the preferential genus *Malaxis* (ICBN Art. 11.3, Greuter et al. 2000). This concept has been adopted by most of the later researchers (e.g.: Holttum 1957; Comber 1990, 2001; Seidenfaden 1978, 1992a; Seidenfaden and Wood 1992; Wood and Cribb 1994). However, already Seidenfaden (1978) and some other scientists (Hill and Blaxell 1985) clearly suggested the polymorphic character of this genus.

Our studies of the generative structures of Epidendroideae (Szlachetko 1995; Szlachetko and Margońska 2005), especially *Malaxis* proved how strongly the taxon is polymorphic, so we proposed to separate a few genera (*Crepidium* Bl. emend Szlach., *Glossochilopsis* Szlach., *Komasia* Szlach., *Lisowskia* Szlach., *Oberonioides* Szlach., *Siedenia* Szlach., *Tamayorkis* Szlach., Szlachetko 1995; *Pseudoliparis* Finet emend Szlach. & Marg., Szlachetko and Margońska 1999; *Saurolophorkis* Marg. & Szlach., Margońska and Szlachetko 2001; *Siedenforchis* Marg., Margońska in press).

While reviewing the *Malaxis* materials from the New World we noticed distinct differences in the gynostemium structure in local representatives of the genus (Szlachetko and Margońska 2002). Comparing them to the type species of the genera *Malaxis* and *Microstylis* induced us to recognize them as separate taxa, which are different in the structure of gynostemium and pollinia.

Rafinesque proposed *Achroanthes* in 1808 with no description and only sole species *Achroanthes unifolia* (Michx.) Raf. (*Microstylis unifolia* (Michx.) Britton). The description of *Achroanthes* was published by Rafinesque (1819) only ten years later (in J. Phys. 89: 261, 1819).

However the older name for the group of the orchids is *Achroanthes* Rafin., but the name *Microstylis* has priority over *Achroanthes* because it is *nom. & orth. consere.* (ICBN Art. 14, Greuter et al. 2000).

*Malaxis* Sol. ex Sw.

Prod. Veg. Ind. Occ. 119. 1778.

– Generitype: *Malaxis spicata* Sol. ex Sw.

Inflorescence very often subumbellate. Gynostemium usually very short and massive, erect. Column part vestigial, occasionally longer (*M. salazarii* (Catling) Szlach. & Marg.), with 2 apical, obscure, wing-like staminodia on both anther sides. Anther base much below the stigma base. Anther erect, firmly and widely joined with the gynostemium, transversely ellipsoid, 2-chambered, chambers opening apically, widely spread apically, connate basally. Filament incorporated into the column part. Connective wide and short, relatively thick. Pollinia 4, in two pairs, unequal in size and form, clavate, hard, the inner pair usually much smaller, lamellar, strongly laterally compressed. Dorsal clinandrium obscure. Stigma ventral, transversely elliptic to oblong, flat or slightly concave at the base. Rostellum erect, obscurely 3-lobed, truncate or with a shallow sinus between both lateral lobes, each of the lateral lobe terminated with viscidium. Viscidia two, small, delicate, membranous (Fig. 1).

*Microstylis* (Nutt.) Eaton

Man. Bot., ed. 3: 353. 1822.

– Generitype: *Microstylis unifolia* Michx.

Inflorescence elongate, cylindrical. Gynostemium rather short to elongate, slender, erect. Column part nearly as long as the anther or longer. Anther base below the stigma base, erect, hardly motile, dorsiventrally flattened, subquadrate to elliptic-ovate, 2-chambered, chambers opening ventrally, parallel. Filament incorporated into the dorsal clinandrium. Connective covering both locules, rather thick. Pollinia 4, in two pairs, joined together apically, unequal in size, more or less clavate, elliptic to slightly laterally compressed in cross-section, formed from tightly packed

pollen grains. Caudiculae absent. Dorsal clinandrium narrow, sometimes with free wing-like projections. Stigma ventral, oblong to elliptic, basally deeply concave. Rostellum erect, triangular to ligulate, acute to subblunt, usually exceeding the anther apex, built of few cell layers. The apex of the rostellum, which is covered by a cuticula, forms a single, minute, semifluid viscidium (Fig. 2).

#### LIST OF MICROSTYLIS SPECIES

1. *Microstylis cylindrostachya* Rchb.f., Walp. Ann. Bot. Syst. 6: 207. 1861.
2. *Microstylis macrostaychya* (Lex. in Llave & Lex.) Lindl., Gen. et Sp. Orchid. 21. 1830.
3. *Microstylis monophyllos* (L.) Lindl., Gen. et Sp. Orchid. Pl.: 19. 1830.
- 3a. *Microstylis monophyllos* (L.) Sw. subsp. *brachypoda* (A. Gray.) Szlach. & Marg. *comb. & stat. nov.*  
Basionym: *Microstylis brachypoda* A. Gray, Ann. Lyc. N. York 3: 228. 1835.
4. *Microstylis montana* Rothr., Rept. Bot. Wheeler, Surv. 6: 264. 1878.
5. *Microstylis muscifera* (Lindl.) Ridl., J. Linn. Soc. Bot. 24: 333. 1888.
6. *Microstylis pringlei* S. Watson, Proc. Am. Acad. Arts 23: 282. 1888.
7. *Microstylis salazarii* (Catling) Szlach. & Marg. *comb. nov.*  
Basionym: *Malaxis salazarii* Catling, Orquidea (Mexico) 12 (1): 98. 1990.
8. *Microstylis simillima* Rchb.f., Beitr. Orch. Centr. Am. 101. 1866.
9. *Microstylis streptopetala* B.L.Rob. & Greenm., Proc. Am. Acad. Arts 32: 36. 1896.
10. *Microstylis tamayoana* (Garay & Kittr.) Szlach. & Marg. *comb. nov.*  
Basionym: *Malaxis tamayoana* Garay & Kittr., McVaugh, Fl. Novo-Galiciana 16: 200-202; figs. 57-58. 1985.

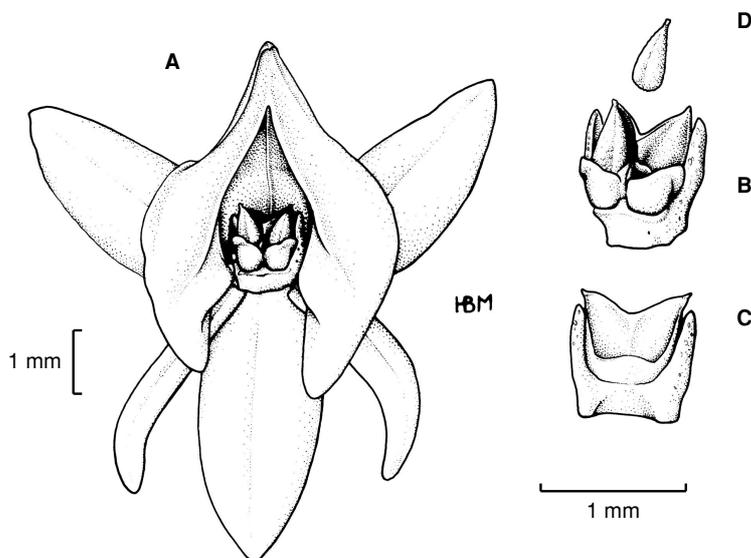


Fig. 1. *Malaxis spicata* Sol. ex Sw.: A – flower; B – gynostemium, front view; C – gynostemium, back view; D – pollinia (drawing from: holotype – Sollander sn – BM).

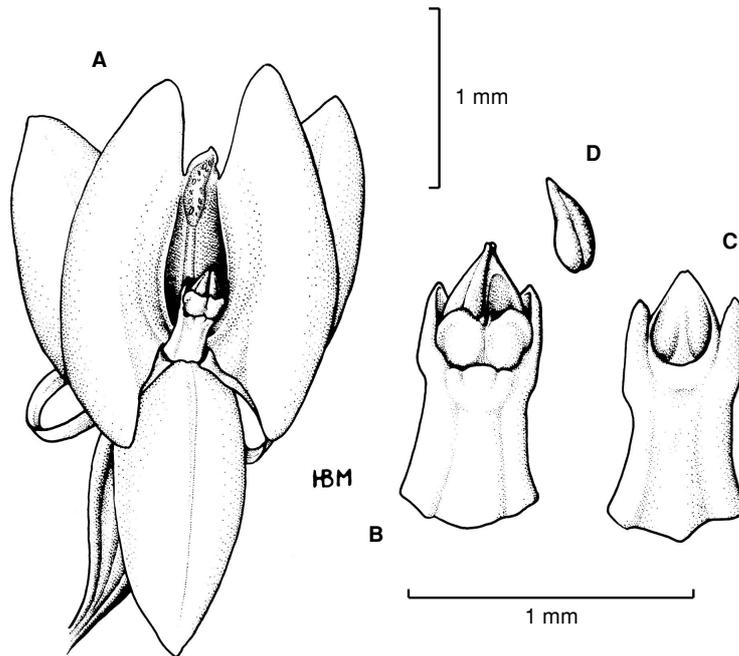


Fig. 2. *Microstylis unifolia* (Michx.) Britton: A – flower; B – gynostemium, front view; C – gynostemium, back view; D – pollinia (drawing from: lectotype – Michaux sn – P).

11. *Microstylis tepicana* (Ames) Szlach. & Marg. *comb. nov.*  
Basionym: *Malaxis tepicana* Ames, Proc. Biol. Soc. Wash. 35: 83. 1922.
12. *Microstylis unifolia* (Michx.) Britton, Stern. & Pogg., Prelim. Cat. Anthoph. & Pterid. N. York 51.1888. **GENERITYPE.**
13. *Microstylis yunnanensis* Schltr., Notes Bot. Gard. Edin. 5: 109. 1912.

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