

## TWO NEW COSTA RICAN SPECIES OF *MAXILLARIA* (ORCHIDACEAE) RELATED TO *MAXILLARIA FLAVA* AND *MAXILLARIA MICROPHYTON*<sup>1</sup>

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### ABSTRACT

Research on Costa Rican *Maxillaria* reveals two unnamed species related to *Maxillaria flava* and *M. microphyton*. These are described below, and a key to the species within the complex is given.

DURING THE preparation of the genus, *Maxillaria*, for *Flora Costaricensis* and *Manual de las Plantas de Costa Rica* two small, yellow-flowered species of *Maxillaria* without names have surfaced. Neither unnamed species match the types of related species including *M. flava* Ames et al., *M. lankesteri* Ames, *M. microphyton* Schltr., *M. wercklei* (Schltr.) L.O. Williams, nor of their synonyms. The types of *Ornithidium pallidiflorum* Schltr. and *O. parvum* Schltr. have flowers with straight lips with relatively long lateral lobes consistent with *Maxillaria microphyton* of which they are considered as later synonyms. Inconspicuous as they are, the two species here described may be more common than suggested by the few available herbarium specimens. The only South American species encountered in the group is *M. jugata* Garay with clearly larger flowers similar to those of *M. lankesteri*.

The complex is characterized by the somewhat straggly and branched habit (see Fig. 1) with small

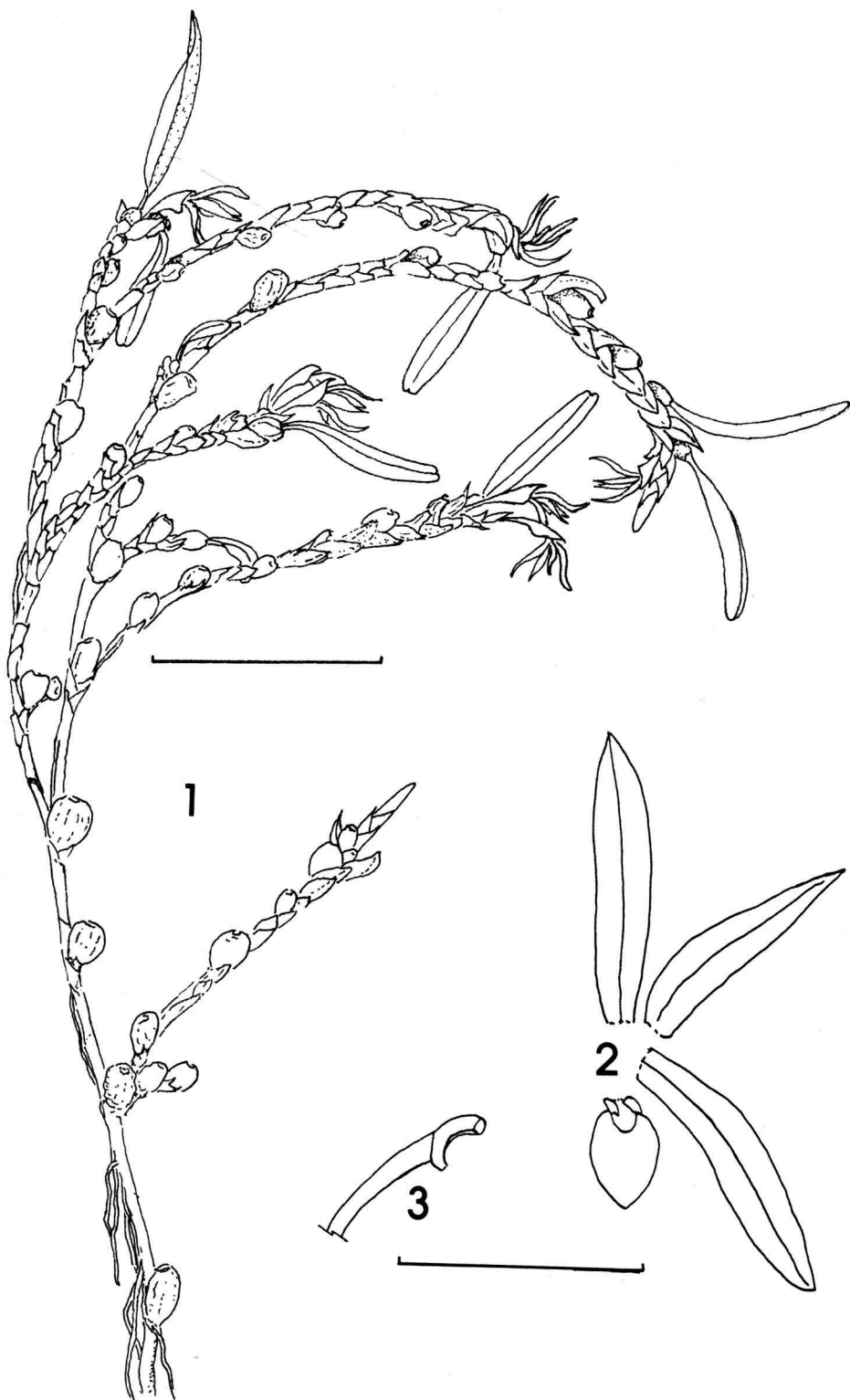
shoots having elongate rhizomes rooted only at the base, with pseudobulbs 1-foliolate at the apex and with 0-3(4) fugaceous, foliaceous sheaths at the base. The yellow (often purple-striped) to dark red flowers appear virtually anywhere along the rhizome of either mature or juvenile shoots. As the species are often confused, a key to the six species in Costa Rica is given following the species descriptions.

***Maxillaria burgeri*** J. T. Atwood, *sp. nov.*  
TYPE: COSTA RICA. Prov. Heredia: southern slope of Volcán Barba at 2,200 m, *W. C. Burger & Robert G. Stolze 6062* (Holotype: F; Isotype: MO). Figs. 1-3.

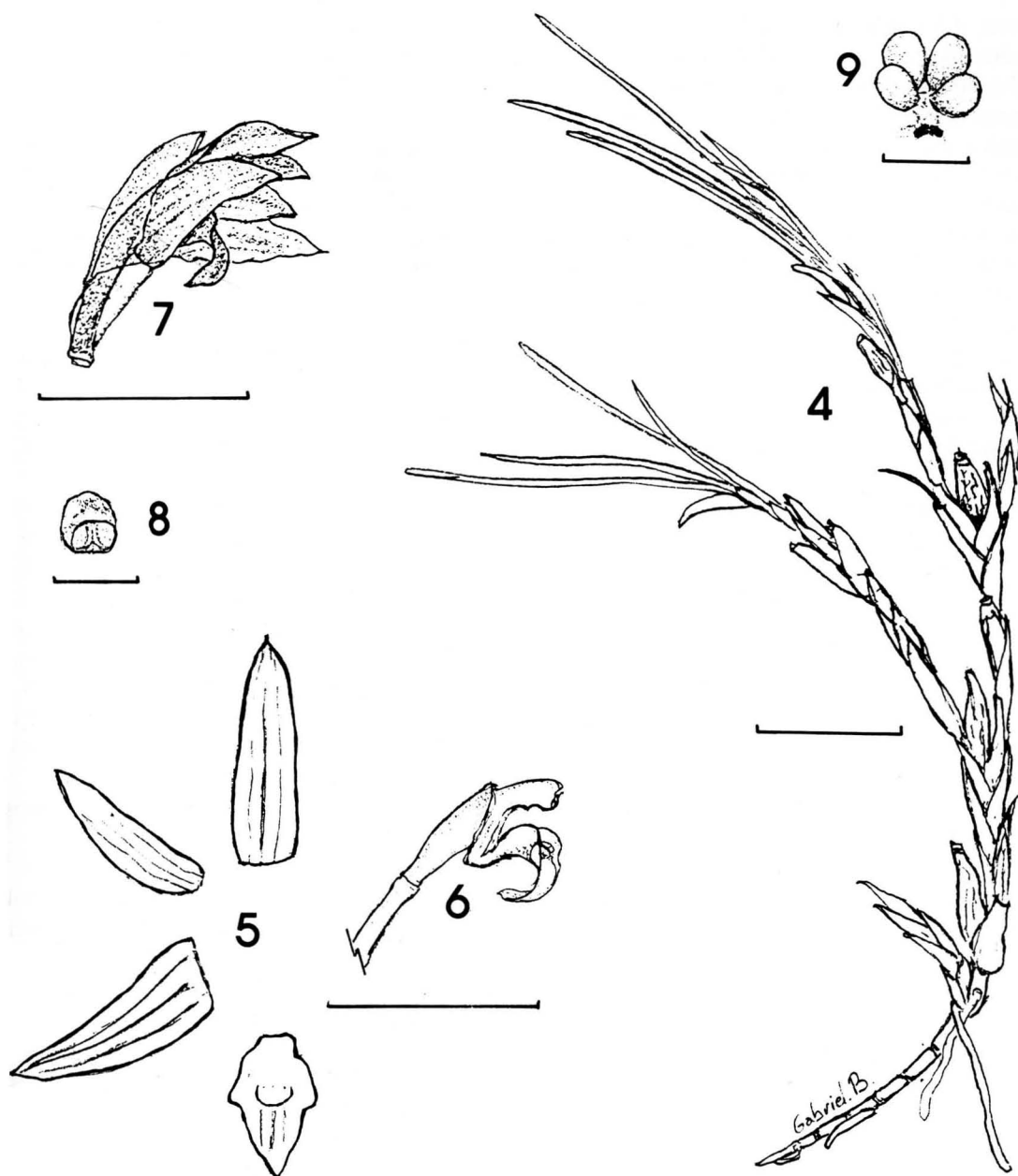
Species affinis *M. flavae* Ames et al., sed sepalis petalisque grandioribus, pseudobulbis suborbicularibus differt.

**Plant** an erect (young shoots), pendent, or decumbent, much branched, cane-forming epiphyte to about 30 cm tall, rooted only on the lower shoots. Stems elongate, to about 5 cm long between pseudobulbs in the lower shoots, diminishing in successive shoots; roots less than 1 mm in diameter. **Pseudobulbs** suborbicular to obovoid, 7-12 mm long, 4-9 mm wide often subtended when young by a foliaceous sheath, the apex 1-foliolate. **Leaves** and foliaceous sheaths similar; the apical leaf with short petiole; the blades thin, elliptic-oblong, rounded to emarginate, 1.5-9 cm long, 3-8 mm wide, abaxially keeled. **Inflorescence** single per rhizome bract of both mature and immature shoots, less than 1 cm long; ovary with pedicel 5-

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Figs. 1-3. *Maxillaria burgeri* Atwood. 1. Plant habit. Scale = 5 cm. G. Barboza. 2. Analysis of sepals and petals showing essentials. Scale = 1 cm. G. Barboza. 3. Ovary, column (without operculum) and foot. Scales = 1 cm. J. T. Atwood.



Figs. 4-9. *Maxillaria muscoides* Atwood. 4. Plant habit. Scale=1 cm. 5,6. Analysis of sepals and petals; lateral view of ovary, lip, and column. Scale = 5 mm. 7. Flower in natural position. Scale = 5 mm. 8. operculum. Scale = 1 mm. 9. Pollinarium with viscidium, stipe, and 4 pollinia. Scale = 0.5 mm. Figures by G. Barboza.

7 mm long, exceeded by the subtending, acute, floral bract. **Flowers** not opening widely, with lateral sepals and petals recurved, yellow; the lip yellow or with purple-red callus; column white. **Sepals** subequal, elliptic-lanceolate, acute, 10-13

mm long, 2-2.5 mm wide; the dorsal somewhat concave; the lateral sepals subfalcate. **Petals** elliptic-lanceolate, falcate, acute, 9-12 mm long, 2.25-2.75 mm wide. **Lip** convex, recurved in natural position, hinged with the column foot, ovate when

spread, 4-5 mm long, about 3 mm wide, 3-lobate on the lower 1/4; the lateral lobes shorter than the callus; the midlobe ovate, reflexed at the base, obtuse or rounded to emarginate; callus fleshy, rounded and somewhat elevated in front, terminating below the middle. **Column** stout, arcuate, somewhat tapering, 2-3 mm long excluding the operculum; with foot about 1 mm long; pollinia 4.

**PARATYPES:** COSTA RICA. Prov. Alajuela: Cordillera Central, 7 miles N of Carrizal, between Volcán Poas and Volcán Barba, 1,850 m, *T. B. Croat* 35482 (MO, SEL). Prov. Heredia: Parque Nacional Braulio Carrillo, Estación Barva, 1,100(?) m, *B. Apú* 80 (MO); Santa María de Dota, *S. Jiménez* 6 (F); near Porrosati, above San Jose de la Montaña, 2,000 m, *C. Todzia* 280 (F, SEL).

**ETYMOLOGY:** *Maxillaria burgeri* is named in honor of William C. Burger, Curator at the Field Museum of Natural History and one of the collectors of the type.

*Maxillaria burgeri* is at once distinguished from *M. flava* and *M. microphyton* by the suborbicular to ovoid pseudobulbs, which usually lack a subtending foliaceous bract. Specimens have been identified as *Maxillaria microphyton*, but the lip with large midlobe is more similar to that of *M. flava*. It is apparently endemic in Costa Rica at 1,100-2,200 m elev., and flowers in May and June.

**Maxillaria muscoides** J. T. Atwood, *sp. nov.*  
**TYPE.** COSTA RICA: "From Cerros el Humo de Pejivalle in the zone of Turrialba," *Dodson* 2526 (Holotype: SEL). Figs. 4-9.

Species affinis *M. flavae* Ames et al. et *M. microphyto* Schltr. similis sed plantis parvioribus, foliis angustioribus teretibusque, et labello differente distinguitur.

**Plant** small, somewhat moss- or brush-like, to about 10 cm tall, often a tuft of small, few-branched canes appearing somewhat caespitose. Rhizome elongate, to 2 cm between pseudobulbs, rooted only at the base, concealed by scale bracts; roots less than 0.5 mm in diameter. **Pseudobulbs** conic, somewhat grooved, to about 1.2 cm long and 5 mm wide, subtended by 3-4 foliaceous bracts; the apex 1-foliate. **Leaves** acicular, terete, articulate, 1-3.5 cm long, about 1.5 mm in diameter, the apex obtuse and apiculate. **Inflorescence** single per foliaceous or non-foliaceous rhizome bract appearing on the nearly mature shoot; scapes to about 1 cm long; ovary with pedicel 2-2.5 mm long, exceeded

by the subulate floral bract. **Flowers** pale yellow, apparently not opening broadly. **Sepals** dissimilar; the dorsal ligulate, somewhat concave, 5-5.5 mm long, 1.2-1.8 mm wide, acute, dorsally keeled at the apex; the lateral sepals triangular-falcate, attached to the column foot, acute, 5 mm long, less than 2 mm wide. **Petals** elliptic-lanceolate, slightly falcate, acute, 4-4.5 mm long, about 1.2 mm wide. **Lip** hinged to the column foot, recurved in natural position when spread (difficult) 3-3.5 mm long and 2-2.2 mm wide, shallowly 3-lobate at about the middle, the lateral lobes rounded and somewhat embracing the column, the midlobe ovate, acute, dorsally keeled; callus lamellate connecting the lateral lobes, ending at or below the sinuses. **Column** short, less than 2 mm long excluding the operculum; foot about 1.8 mm long; operculum 1.5 mm in diameter; pollinia 4, supported on a short, squarrose stipe with dark viscidium (dried material).

**PARATYPES:** COSTA RICA. Prov. Cartago: Tapantí, Vicinity of Quebrada Casa Blanca, *Grayum* 3967 (MO); pasture and forested slope N of Quebrada Casa Blanca, epiphytic on stem of old coffee tree in pasture, ca. 1,350 m, *Grayum* 4575 (MO).

**ETYMOLOGY:** Named in allusion to the moss-like habit of the plant.

*Maxillaria muscoides* is an epiphyte of premontane rainforests at 1,350 m elev. In habit *Maxillaria muscoides* is unlike any other species known from Central America particularly in the needle-like leaves reminiscent of certain Brazilian taxa that have two leaves at the pseudobulb apex. However, flower morphology indicates a distinct relationship with *M. microphyton*. Flowering season is August to November.

#### KEY TO SPECIES IN COSTA RICA

1. Leaves terete, less than 2 mm in diameter .....*M. muscoides*
- 1a. Leaves not terete, broader than 2 mm.....2
2. Midlobe of lip more than 2/3 length of lip.....3
3. Pseudobulbs elongate, at least 2X longer than wide.....4
4. Pseudobulbs distinctly grooved or fluted, flowers yellow to green.....*M. flava*
4. Pseudobulbs not grooved, flowers red

- or lined with purple.....5
- 5. Sepals more than 1.2 cm  
long.....*M. lankesteri*
- 5. Sepals less than 1 cm  
long.....*M. wercklei*
- 3. Pseudobulbs suborbicular to  
obovoid.....*M. burgeri*
- 2. Midlobe of lip less than 2/3 length of lip,  
nearly 1/2.....*M. microphyton*