

## A SYNOPSIS OF THE GENUS *CYRTOPODIUM* (CATASETINAE: ORCHIDACEAE)

GUSTAVO A. ROMERO-GONZÁLEZ,<sup>1</sup> JOÃO A. N. BATISTA,<sup>2</sup>  
AND LUCIANO DE BEM BIANCHETTI<sup>3</sup>

**Abstract.** A synopsis is presented for the Neotropical genus *Cyrtopodium*. Type data, taxonomic status, geographical distribution, and nomenclatural and taxonomic notes are presented for each species. A total of 116 names have been proposed in the genus, of which 50 are accepted here (47 species and three subspecific taxa). The identity of five species in the list is unclear. Forty names are synonyms in the genus, five are *nomina nuda*, and 21 belong in other genera including *Eulophia*, *Koellensteinia*, *Otostylis*, *Eriopsis*, *Tetramicra*, and *Oncidium*. Brazil, with 39 species, is the country with the highest number of species, followed by Bolivia and Venezuela, with nine species each. The main center of diversity of the genus is the cerrado vegetation of central Brazil, where 29 taxa are found. Field and taxonomic research on the genus in the last 15 years has led to the description of 19 new and accepted species, most from central Brazil. Eight lectotypifications and one new synonym are proposed. *Cyrtopodium flavum* is recognized as the accepted name for *C. polyphyllum*.

**Resumo.** É apresentada uma sinopse para o gênero Neotropical *Cyrtopodium*. São apresentados dados do tipo, status taxonômico, distribuição geográfica e notas nomenclaturais e taxonômicas para cada espécie. Um total de 116 nomes foram propostos no gênero, dos quais 50 são aceitos aqui (47 espécies e três táxons subespecíficos). A identidade de cinco espécies na lista ainda é incerta. Quarenta nomes são sinônimos no gênero, cinco são *nomina nuda* e 21 pertencem a outros gêneros, incluindo *Eulophia*, *Koellensteinia*, *Otostylis*, *Eriopsis*, *Tetramicra* e *Oncidium*. O Brasil, com 39 espécies, é o país com o maior número de espécies, seguido da Bolívia e Venezuela, com nove espécies cada. O principal centro de diversidade do gênero é o cerrado do Brasil central, onde são encontrados 29 táxons. Estudos de campo e taxonômicos sobre o gênero nos últimos 15 anos resultaram na descrição de 19 espécies novas e aceitas, a maioria delas do Brasil central. Oito lectotipificações e um sinônimo novo são propostos. *Cyrtopodium flavum* é reconhecido como o nome aceito para *C. polyphyllum*.

**Resumen.** Se presenta una sinopsis del género neotropical *Cyrtopodium*. Cada especie va acompañada de datos sobre tipo, status taxonómico, distribución geográfica, así como de notas nomenclaturales y taxonómicas. Se han propuesto un total de 116 nombres en el género, de los cuales aceptamos 50 (47 especies y tres taxones a nivel infraespecífico). La identidad de cinco especies todavía permanece incierta. Cuarenta nombres son sinónimos en el género, cinco son *nomina nuda* y 21 nombres pertenecen en otros géneros incluyendo *Eulophia*, *Koellensteinia*, *Otostylis*, *Eriopsis*, *Tetramicra* y *Oncidium*. Brasil, con 39 especies, es el país con la mayor diversidad del género, seguido por Bolivia y Venezuela, que tienen nueve especies cada uno. El principal centro de diversidad del género es el cerrado del Brasil central, donde se encuentran 29 taxones. Estudios de campo y taxonómicos sobre el género en los últimos 15 años han resultado en la descripción de 19 especies nuevas aceptadas, la mayoría del centro de Brasil. Se proponen ocho lectotipificaciones y un nuevo sinónimo. *Cyrtopodium flavum* se reconoce como el nombre aceptado para lo que se conocía como *C. polyphyllum*.

**Keywords:** *Cyrtopodium*, Orchidaceae, synopsis, Neotropics

*Cyrtopodium* R. Br. has a Neotropical distribution ranging from southern Florida to northern Argentina. Despite the showy flowers of many species, the genus has never received much attention from orchid enthusiasts and cultivators. Recently, with an ever increasing colo-

nization of the cerrado of central Brazil and interest in orchids, many species have become available and interest in the cultivation of *Cyrtopodium* has grown. About 50 species are known in the genus with the greatest concentration found in Brazil.

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<sup>1</sup>Oakes Ames Orchid Herbarium, Harvard University Herbaria, 22 Divinity Avenue, Cambridge, Massachusetts 02138, U.S.A. E-mail: romero@oeb.harvard.edu.

<sup>2</sup>Universidade Federal de Minas Gerais, ICB, Depto. Botânica, Av. Antônio Carlos 6627, Pampulha, C.P. 486, Belo Horizonte, MG, 31270-910, Brazil. E-mail: janb@icb.ufmg.br.

<sup>3</sup>Embrapa Recursos Genéticos e Biotecnologia, Parque Estação Biológica, Final Av. W5 Norte, C.P. 02372, Brasília, DF, 70770-901, Brazil. E-mail: bianchet@cenargen.embrapa.br.

There are few specific works about the genus. The Brazilian species were revised by Cogniaux (1898–1902) in *Flora Brasiliensis* and Hoehne (1942) in *Flora Brasílica*. Warming (1884) and Menezes (2000) provided color illustrations and observations about the habitat and ecological preferences of many of the species. Sánchez (1986) reviewed the species found in Argentina. The authors (see references in Literature Cited) have worked primarily on species from the

Caribbean, Central and northern South America (G.A. Romero-González) and Brazil (J.A.N. Batista and L. de Bem Bianchetti). The species found along the Andes, however, have never been revised.

As a first step towards a complete revision of *Cyrtopodium*, we present here a synopsis of the genus, providing the taxonomic status, type data, geographical distribution, and taxonomic notes for most species. Accepted names are in bold, non-accepted names are in italic.

#### ECOLOGY AND DISTRIBUTION

*Cyrtopodium* is distributed from southern Florida, the West Indies, and Mexico to southern Brazil and Argentina. Brazil, with 39 species, is the country with the highest number of species, followed by Venezuela and Bolivia (9 species each), Paraguay (6), and Argentina, Colombia, Guyana, and Suriname (4 each). In Brazil, the center of diversity of the genus is the cerrado vegetation, where 29 species are found. The cerrado is a species-rich savanna vegetation covering 2 million km<sup>2</sup> of Central Brazil (Ratter et al., 1997). One particularly species-rich area located at the core region of the cerrado vegetation (the Federal District), occupying an area of 5783 km<sup>2</sup> has 18 species (Batista and Bianchetti, 2003). Of the 39 species from Brazil, 25 are restricted to the country; 13 of the 29 occurring in the cerrado are restricted to this particular habitat. Some species are known from just a few or single areas, but narrow endemics are few. Venezuela has two species restricted to the country and El Salvador has one form. One species, *Cyrtopodium cardiochilum*, is of unknown origin and distribution, but it is probably conspecific with *C. glutiniferum*, which is restricted to Brazil.

Most of the species in the genus are terrestrial (33 species), some are epiphytic (7), and others strictly lithophytic (5), while a few can grow as terrestrials as well as lithophytes (3). The lithophytic and epiphytic species have invariably large, fusiform pseudobulbs bearing articulate leaves (that is, leaves with an articulation or abscission layer between the blade and the sheath of the leaf). The terrestrial species usually have smaller pseudobulbs that can be either above- or completely underground, bearing either articulate or non-articulate leaves. The terrestrial species are predominantly from open grasslands and occupy a broad range of habitats,

from dry rocky slopes to wet meadows. Most of the species of the genus begin a new cycle of growth and flower at the end of the dry season and the beginning of the rainy season, usually February to April in the northern hemisphere or September and October in central and south-eastern Brazil. A new vegetative shoot grows from the pseudobulb formed in the previous season. The reproductive shoot emerges from the base of the new vegetative shoot and, in most species of the genus, it develops rapidly so that when the plants are in full bloom the leaves are only partially developed; they become fully developed a few months after flowering. As the dry season approaches, the leaves wither and are eventually lost, and the plants become dormant. This seasonal habit, combined with the buried pseudobulbs of many species, renders locating the terrestrial species in the field during the dormant period a difficult task. Plants are most easily found when in flower, in places recently burned.

Though apparently not strictly necessary, bush fires during the dry season dramatically favor flowering of the terrestrial species from open grasslands (Schomburgk, 1839; Menezes, 1994; pers. observ. of all three authors). In many species, the inflorescence emerges almost immediately after a fire and the plants are in full bloom a few weeks later. Flowering of the species in unburned places is rare or infrequent, and for some species, we have never seen plants flowering at unburned sites. Cultivated plants can flower without fire, although at a lower frequency and only when exposed to hydric stress and full sun. The buried pseudobulbs of many of the terrestrial species from open grasslands are apparently adaptive: their placement below ground provides protection against the possibly high temperatures found in grassland fires.

## TAXONOMY

A total of 116 names have been proposed in the genus, 50 of which are accepted here. Forty names are synonyms in the genus, 21 are referable to other genera, including *Eulophia* R. Br. (14), *Koellensteinia* Rchb.f. (3), *Otostylis* Schltr. (10), *Eriopsis* Lindl. (1), *Tetramicra* Lindl. (1), and *Oncidium* Sw. (1). Presently there are 47 species and three subspecific taxa (one subspecies, one variety, and one form), in the genus. The identity of five accepted species in the list is unclear and it is likely, with the exception of *Cyrtopodium intermedium* Brade, that they are conspecific with other, better known species. Five names are placed in the category of *nomina nuda*. Eight lectotypifications are proposed for the species described by Schlechter, Velloso, and Barbosa Rodrigues, whose types were lost. One new synonym is proposed, *Cyrtopodium flavum* Link & Otto ex Rchb., and is recognized as the accepted name for the widespread species formerly known as *C. paranaensis* Schltr. and *C. polyphyllum* (Vell.) F. Barros.

Nineteen new and accepted species were described in the genus in the last 15 years, 11 of them from central Brazil, five from southern, southeastern, and northern Brazil, and three from northern South America (Venezuela, Ecuador, and Colombia). The systematic botanical exploration of the cerrado started only in the 1960's and among the small terrestrial orchids, many species have been poorly collected and overlooked. Only because of recent field and taxonomic work in the region were these species discovered and described. It is likely that other new species are still to be discovered.

**Cyrtopodium** R. Br., Hort. Kew., ed. 2, 5: 216. 1813. TYPE: *Cymbidium andersonii* Lamb. ex Andrews.

Synonym: *Tylochilus* Nees, Verh. Gartenb. Ges. Berl. 8 194. 1832.

*Cyrtopodium album* Barb. Rodr. = **Koellensteinia eburnea** (Barb. Rodr.) Schltr.

**Cyrtopodium aliciae** L. Linden & Rolfe, Lindenia 8: 73, t. 371. 1893. TYPE: BRAZIL: Pernambuco, ex Hort. L'Horticulture Internationale (Holotype: not located [possibly at BR or K]).

Synonyms: *Cyrtopodium maculatum* Hort., Lindenia 8: 73. 1893. nomen.

*Cyrtopodium edmundoi* Pabst Bradea 1, 8: 54. 1971. TYPE: BRAZIL: Bahia, "inter Palmeiras et Lençóis," 900 m, 14 September 1956, E. Pereira 2211 (Holotype: HB).

**Distribution:** Brazil (PE, BA, MG).

Ferreira (1989) recorded this species for the state of Paraíba, but we haven't seen any material from that state. The record for Pernambuco is apparently restricted to the holotype. Although *Cyrtopodium aliciae* has a very distinct flower morphology and color, the species is apparently related to other terrestrial species with fusiform, exposed pseudobulbs and spotted flowers (such as *C. holstii* L. C. Menezes and *C. paniculatum* (Ruíz & Pavón) Garay).

**Cyrtopodium andersonii** (Lamb. ex Andrews) R. Br. in W. T. Aiton, Hortus Kew., ed. 2, 5: 216. 1813. Fig. 1.

Basionym: *Cymbidium andersonii* Lambert ex Andrews, Bot. Repos. 10: 651. 1811. TYPE: GUYANA. Without any other locality, A. Anderson s.n. (Holotype: BM [tracing of a flower by L.A. Garay at AMES]).

Synonyms: *Cymbidium trinerve* G. Mey., Prim. Fl. Esseq. 258. 1819. TYPE: SURINAME. "In locis altis arenosis regionis rivi Arowabiskreek," G. F. W. Meyer s.n. (Holotype: GOET).

*Cyrtopodium goodseffianum* Hort., Orchid. Rev. 2: 159. 1894.

*Cyrtopodium flavescens* Cogn., J. Orchidées 6: 74. 1895.

*Cyrtopodium andersonii* var. *flavescens* Cogn., Fl. Bras. 3(5): 363. 1901. TYPE: VENEZUELA. T. F. Amazonas: upper Río Orinoco, ex Hort. Linden (Holotype: BR).

*Cyrtopodium roraimense* L. C. Menezes, Orquidário 12(4): 101. 1998.; Die Orchidee 50(1): 19. 1999. TYPE: BRAZIL: Roraima: Mucajá, planta rupestre, flores amarelas, sépalas e pétalas esverdeadas, December 1997–January 1998, L. C. Menezes UB-77 (Holotype: UB).

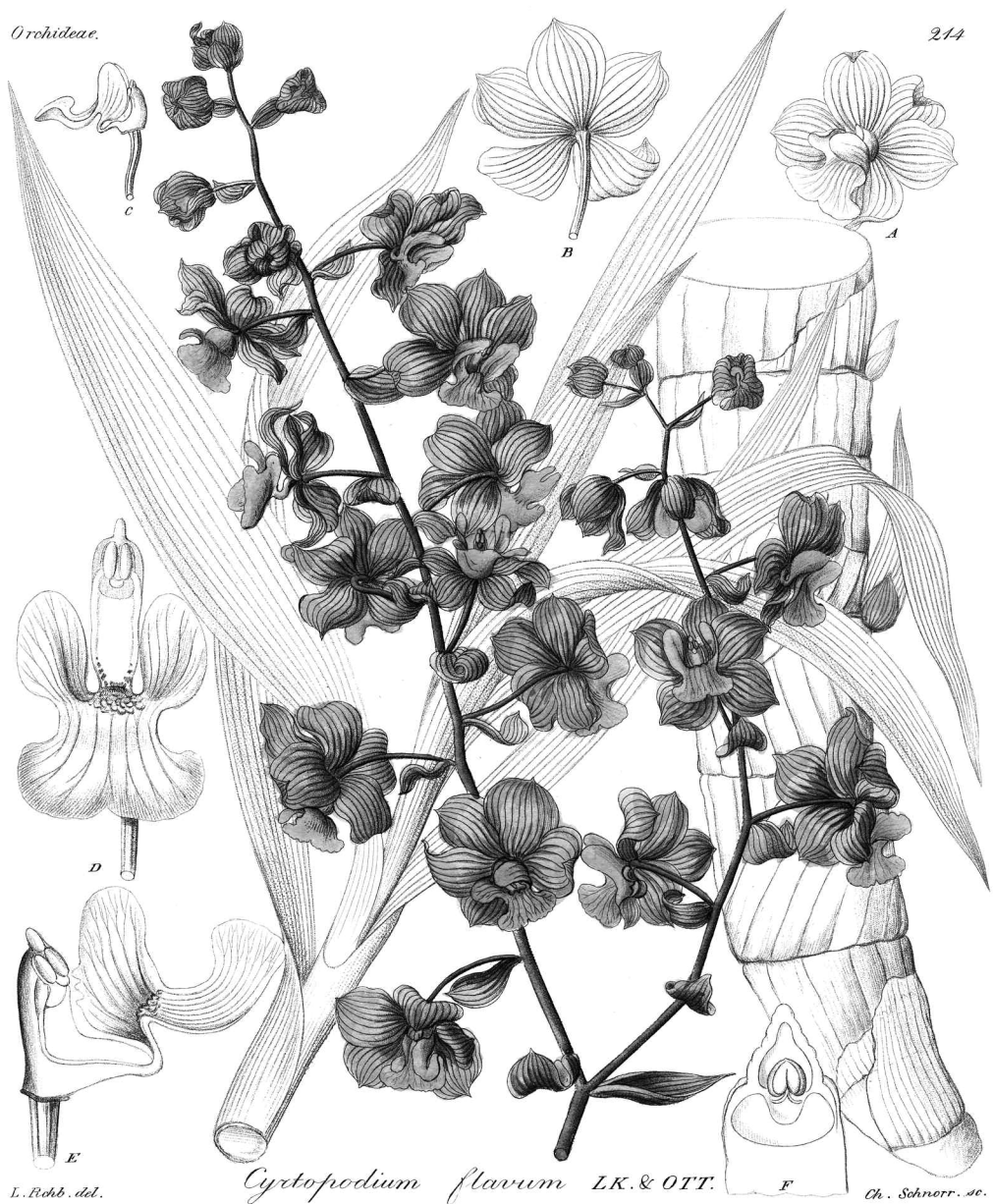


FIGURE 1. Original plate accompanying the protologue of *Cyrtopodium flavum* Link & Otto ex Rehb., first published in *Iconographia Botanica Exotica* 3: t. 214 (1830). Based on drawings by Heinrich Gottlieb Ludwig Reichenbach.

**Distribution:** Colombia, Venezuela, Brazil (AM, AP, PA, RR), Guyana, Suriname, and French Guiana.

This species is similar and closely related to *Cyrtopodium flavum*, and apparently distinct mainly by the larger size of the flowers, narrow sepals (vs. rounded), and geographical distribution (restricted mainly to the Guiana shield

vs. restricted mainly to the Brazilian coast). However, a variety of *C. flavum* with large flowers described as *C. paranaense* Schltr. var. *pickelli* Hoehne, is known from the states of Paraíba and Paraná, but its relationship to *C. andersonii* is still unclear. See Romero-González (1999) for further discussion of this species.

The name *C. andersonii* was used in the past

for terrestrial species with large, fusiform, exposed pseudobulbs and predominantly yellow flowers from central and southeastern Brazil, species that are now referred to *C. glutiniferum* Raddi and *C. withnerii* L. C. Menezes.

Quoting Weathers (1894), "...*Cyrtopodium andersonianum* (sic) [was] also shown...under the erroneous name *C. goodseffianum*..." See also the bibliographic citations and synonymy Cogniaux (1901: 362) referred to *Cyrtopodium andersonii*.

*Cyrtopodium andersonii* var. *cardiochilum* Cogn. = ***Cyrtopodium cardiochilum*** Lindl.

*Cyrtopodium andersonii* var. *flavescens* Cogn. = ***Cyrtopodium andersonii*** (Lamb. ex Andrews) R. Br.

*Cyrtopodium andersonii* f. *holmesii* Hoehne = ***Cyrtopodium glutiniferum*** Raddi

*Cyrtopodium aureum* L. C. Menezes = ***Cyrtopodium vernum*** Rchb.f. & Warm.

*Cyrtopodium bicolor* (Blume) Ridl. = ***Eulophia spectabilis*** (Dennst.) Suresh

***Cyrtopodium blanchetii*** Rchb.f., Linnaea 22: 852. 1849. TYPE: BRAZIL. Bahia, *Blanchet 3447* (Holotype: W; Isotypes: G, P).

**Distribution:** Brazil (BA, CE, DF, GO, MG, MT, SP) and Bolivia.

The record for Bolivia is from Vásquez et al. (2003).

*Cyrtopodium bracteatum* Linden ex Lindl. = ***Cyrtopodium paniculatum*** (Ruiz & Pav.) Garay

*Cyrtopodium bradei* Schltr. ex Hoehne = ***Cyrtopodium hatschbachii*** Pabst

***Cyrtopodium braemii*** L. C. Menezes. *Schlechteriana* 4(4): 148. 1993; *Boletim CAOB* 5(3): 26. 1993. TYPE: BRAZIL. Goiás: Chapada dos Veadeiros, planta terrestre com pseudobulbos enterrados, flores amarelo-amarronzadas com labelo amarelo vivo, October 1993, *L. C. Menezes UB-50* (Holotype: UB, [vegetative]). EPITYPE (designated by Barros et al., 2003): BRAZIL. Goiás: Colinas do Sul, right margin of Tocantins river, near the mouth of Tocantinzinho river, fl. cult. Brasília, 21 September to 5 October 2001 (fl.), *S. P. Cordovil-Silva et al. 558A* (Epitype: CEN;

Isoepitypes: AMES, HB, HUEFS, MBM, SP).

Synonym: *Cyrtopodium sarneyanum* L. C. Menezes. *Orquidário* 13(3-4): 85. 1999. TYPE: BRAZIL. Rondônia: Pimenta Bueno, terrestre no interior de mata arbustiva, flores amarelas maculadas de marrom, October–November 1999, *L. C. Menezes UB-78* (Holotype: UB [vegetative]). EPITYPE (designated by Barros et al., 2003): BRAZIL. Goiás: Niquelândia, "Serra da Mesa" hydroelectric power plant reservoir, end region of the lake, after the bridge "Uruaçu-Niquelândia," upper "Maranhão" river, 450 m, fl. cult. Brasília, 12 October 2001 (fl.), *A. A. Santos et al. 108A* (Epitype: CEN; Isoepitype: SP).

**Distribution:** Brazil (GO, MT, RO, SP).

The externally reddish purple pseudobulbs and the broad leaves apparently place this species close to *Cyrtopodium latifolium* Bianch. & J. A. N. Bat. and *C. poecilum* Rchb.f. & Warm.

***Cyrtopodium brandonianum*** Barb. Rodr., *Gen. Sp. Orchid.* 1: 132. 1877. TYPE: BRAZIL. Minas Gerais: Capivary, *Barbosa Rodrigues s.n.* (Holotype: unknown, probably lost; Lectotype, designated here: *Barbosa Rodrigues's Iconographie des Orchidées du Brésil t. 207: RB; copy, K*).

Synonyms: *Cyrtopodium purpureum* Rchb.f. & Warm., *Otia Bot. Hamb.* 2: 90. 1881. TYPE: BRAZIL. Minas Gerais: Lagoa Santa, *E. Warming 61* (Holotype: W [Reichenbach Herb. 30427]; Isotype: P).

*Cyrtopodium gonzalezii* L. C. Menezes, *Boletim CAOB* 5(1): 9. 1995, *pro parte*. TYPE: BRAZIL: Distrito Federal, península do Lago Norte, 9 November 1994, *L.C. Menezes UB-54* (Holotype: UB [vegetative]).

**Distribution:** Brazil (BA, DF, GO, MG, MT, PR, SP), Bolivia, Paraguay, and Argentina.

The citations of specimens collected by Barbosa Rodrigues as "holotypes" by Sprunger (1996) do not constitute *de facto* lectotypifications (K. Gandhi, pers. comm.), and therefore a lectotype is proposed above.

A facsimile of the lectotype was published in Barbosa-Rodrigues (1996: 332). Examination of the type material of *C. gonzalezii* has shown that it is referable to a specimen of *C. brandonianum* (Batista and Bianchetti, 2004).

The record for Bolivia is from Vásquez et al. (2003).

**Cyrtopodium brandonianum** Barb. Rodr. ssp. **lagueanum** J. A. N. Bat. & Bianch., Darwiniana 43(1–4): 80. 2005. TYPE: BRAZIL. Santa Catarina: Municipality of Lages, 4 November 2003 (fl.), *J. A. N. Batista 1444* (Holotype: CEN; Isotypes: AMES, K, RB, SP).

**Distribution:** Brazil (SC).

*Cyrtopodium brasiliensis* Almeida, Dicc. Bot. Bras. 401. 1873, *Nomen*.

Almeida Pinto cited this binomial under his entry for “Sumaré,” at that time apparently the vernacular name for *Cyrtopodium* plants in Brazil. The author cited “Fig. 30,” but such an illustration shows only a fully grown, vegetative plant with three old pseudobulbs (as “*Cyripedium*”), and it is therefore impossible to know what species, if any particular, he referred to. For common uses Almeida Pinto claimed that “The gluey-gelatinous juice is used by shoemakers” (*O succo gommo-gelatinoso é empregado pelos sapateiros*) and “When [the pseudobulbs] are beaten into a pulp they are a good suppurative; cooked they are expectorant, given internally” (*Quando contuso, é um bom suppurativo; en cosimento é peitoral, e dase internamente*).

*Cyrtopodium broadwayi* Ames = **Cyrtopodium parviflorum** Lindl.

**Cyrtopodium brunneum** J. A. N. Bat. & Bianch., Brittonia 56(3): 260. 2004. TYPE: BRAZIL. Distrito Federal: Brasília, Plano Piloto, final da Asa Norte, área entre o Parque Ecológico Norte e o Parque Nacional de Brasília, local do futuro Setor Noroeste, 8 September 2001 (fl.), *J. A. N. Batista 1242* (Holotype: CEN; Isotypes: AMES, BHCB, CEPEC, HB, HUEFS, K, MBM, MO, NY, R, RB, SP, UB, UEC).

Synonym: *Cyrtopodium gonzalezii* L. C. Menezes, Boletim CAOB 5(1): 9. 1995, *pro parte*, excluding type.

**Distribution:** Brazil (DF, GO, MG, MT).

*Cyrtopodium buchtienii* Schltr. = **Cyrtopodium virescens** Rchb.f. & Warm.

**Cyrtopodium cachimboense** L. C. Menezes. Boletim CAOB 26: 22. 1996. TYPE: BRAZIL. Pará: Serra do Cachimbo, planta rupícola do interior das matas, flores amarelas com as

sépalas acastanhadas e labelo amarelo vivo, July–August 1996, *L. C. Menezes UB-60* (Holotype: UB [vegetative]).

**Distribution:** Brazil (PA, RO).

There is a strong overlap in morphology and geographical distribution between this species and *C. andersonii*. Further field work and a more detailed analysis is still necessary to clarify the exact identity and geographical distribution of *C. cachimboense*.

**Cyrtopodium caiapoense** L. C. Menezes. Boletim CAOB 34: 104. 1998. TYPE: BRAZIL. Goiás: Caiapônia, fl. esverdeadas maculadas de marrom-avermelhado, October 1998, *L. C. Menezes UB-76* (Holotype: UB [vegetative]). EPITYPE (designated by Barros et al., 2003): BRAZIL. Distrito Federal: Brasília, Plano Piloto, Asa Norte, 713–714 N, area of University of Brasília, between “Parque Olhos D’água” and the CAESB’s sewage treatment plant, 10 October 2001 (fl.), *J. A. N. Batista et al. 1256* (Epitype: CEN; Isoepitypes: AMES, MBM, SP).

**Distribution:** Brazil (DF, GO, MG, MT).

**Cyrtopodium cardiochilum** Lindl., J. Hort. Soc. London 4: 266. 1849. TYPE: Origin unknown. Ex Hort. R. Hanbury (K-Lindl.).

Synonym: *Cyrtopodium andersonii* var. *cardiochilum* Cogn., Fl. Bras. 3, 5: 363. 1901.

**Distribution:** Unknown.

The species is markedly similar to *Cyrtopodium glutiniferum* Raddi and the two taxa may prove to be conspecific.

**Cyrtopodium cipoense** L. C. Menezes. Boletim CAOB 8(3): 71. 1998. TYPE: BRAZIL. Minas Gerais: Serra do Cipó, planta terrestre, flores coloridas de róseo, May 1997, *L. C. Menezes UB-75* (Holotype: UB [vegetative]). EPITYPE (designated by Barros et al., 2003): BRAZIL. Bahia: Chapada Diamantina, on the trail between “Capão” village and “Lençóis,” 14 September 1996, *J. A. N. Batista & R. S. Oliveira 628* (Epitype: CEN).

**Distribution:** Brazil (BA, MG).

The species was originally compared with *Cyrtopodium eugenii* Rchb.f. & Warm., but it is much more similar and closely related to *C. aliciae*; further research is still necessary to clarify their exact relationship.

**Cyrtopodium cristatum** Lindl., Edwards's Bot. Reg. 27: sub t. 8. 1841. TYPE: GUYANA. Without any other locality, "On rocks and trees," 1839, *R. H. Schomburgk 628* (Holotype: K-Lindl.; Isotypes: AMES [fragment], BM, G, K [ex Benth. and ex Hook.], P, W [Reichenbach Herbarium 25144]).

**Distribution:** Brazil (DF, GO, MG, MT, PA), Colombia, Guyana, Suriname, and Venezuela.

**Cyrtopodium dusenii** Schltr., Repert. Spec. Nov. Regni Veg. 16: 334. 1920. TYPE: BRAZIL. Paraná: Villa Velha, "locis arenosis," October 1914, *P. Dusén 15691* (Holotype: B [destroyed]; Lectotype, designated here: S; Isolectotype: AMES).

**Distribution:** Brazil (MG, PR, SP).

This is a rare species, threatened by the substitution of native grassland in southern Brazil to pasture and agricultural fields. The flowers of this species are probably the smallest in the genus. The original illustration of the species was published by Mansfeld (1930, t. 48, fig. 189).

*Cyrtopodium eburneum* Barb. Rodr. = **Koellensteinia eburnea** (Barb. Rodr.) Schltr.

*Cyrtopodium ecristatum* Fern. = **Eulophia ecristata** (Fernald) Ames

*Cyrtopodium edmundoi* Pabst = **Cyrtopodium aliciae** L. Linden & Rolfe

*Cyrtopodium elegans* Ham. = **Tetramicra elegans** (Aubl.) Fedde

*Cyrtopodium engelii* Karsten = **Cyrtopodium paniculatum** (Ruiz & Pav.) Garay

*Cyrtopodium ensiforme* (Lindl.) Vidal = **Eulophia stricta** (Presl.) Ames

**Cyrtopodium eugenii** Rchb.f. & Warm., Otia Bot. Hamb. 2: 89. 8 August 1881. TYPE: BRAZIL. Minas Gerais: Lagoa Santa, *E. Warming* (Holotype: W [Reichenbach Herb. 27677]).

**Distribution:** Brazil (BA, DF, GO, MG, MT) and Bolivia.

Warming's original watercolors and notes on many of the *Cyrtopodium* species he collected and later described with Reichenbach f. are at C. Possible isotypes should be in the same herbarium.

The record for Bolivia is from Vásquez et al. (2003).

*Cyrtopodium falcilobum* Hoehne & Schltr. = **Cyrtopodium parviflorum** Lindl.

*Cyrtopodium flavescens* Cogn. = **Cyrtopodium andersonii** (Lamb. ex Andrews) R. Br.

*Cyrtopodium flavescens* Lindl. ex Steudel, Nomencl. Bot., ed. 2, 1: 474. 1840, *nomen*.

**Cyrtopodium flavum** Link & Otto ex Rchb., Iconogr. Bot. Exot. 3: 7, t. 214. 1830. TYPE: BRAZIL. Without any other locality, "*Hort. Berol.*" (Holotype: not located). Fig. 1.

Synonyms: *Tylochilus flavus* Nees, Verh. Gartenb. Gesellschaft Berlin 8: 195, tab. 3. 1832. TYPE: BRAZIL [BRASILIA]. Without any other locality, "*Floruit in Horto Vratislaviensimense*," May 1830 (Holotype: not located).

*Epidendrum polyphyllum* Vell., Fl. Flumin. 9: t. 17. 1881. TYPE: BRAZIL. Rio de Janeiro (Holotype: not located, probably lost; Lectotype, designated here: t. 17 cited above).

*Cyrtopodium polyphyllum* (Vell.) Pabst ex F. Barros, Acta Bot. Bras. 8, fasc. 1: 12. 1994.

*Cyrtopodium polyphyllum* (Vell.) L. C. Menezes, Orquidário 12(4): 103. 1999. *comb. superfl.*

*Cyrtopodium paranaense* Schltr., Repert. Spec. Nov. Regni Veg. 16: 333. 1920. TYPE: BRAZIL. Parana, Jacarehy, "locis arenosis ad margines silvarum," September 1908, *P. Dusén 6644* (Syntype: B [destroyed]); February 1914, *Dusén 14546* (Syntype: B [destroyed]), *Dusén 14613* (Syntype: B [destroyed]; Lectotype, designated here: AMES); October 1914, *Dusén 15603* (Syntype: B [destroyed]); 19 December 1914, *Dusén 16155* (Syntype: B [destroyed]; Isosyntype: P [vegetative]); November 1915, *Dusén 17308* (Syntype: B [destroyed]); Pontal, "in arenosis fruticosis," December 1911, *Dusén 13750* (Syntype: B [destroyed]); Guaratuba, "in rupibus litoreis," January 1912, *Dusén 13546* (Syntype: B [destroyed]).

**Distribution:** Brazil (AL, BA, ES, MG, PE, PB, PR, RJ, RS, SC, SP).

Cogniaux (1898–1902) considered *Cyrtopodium flavum* a synonym of *C. andersonii* and was followed by all subsequent authors. However, examination of the former's original illustration and a colored plate of the type material at the Reichenbach herbarium has shown that *C. flavum* is identical to *C. polyphyllum*. According to Carauta (1973) the valid date of publication of *C. polyphyllum* is 1831, and so *C. flavum* has nomenclatural priority. *Cyrtopodium flavum* is similar and closely related to *C. andersonii*: the flowers of both species have a strong scent of soap, but *C. flavum* has consistently smaller flowers and the sepals are relatively wide (vs. narrow in *C. andersonii*). This species has become naturalized in the state of Florida, United States (Romero-González, 2002: as *C. polyphyllum*).

*Cyrtopodium flavum* (Lindl.) Benth., non Link & Otto ex Rchb. = **Eulophia flava** (Lindl.) Hook.

**Cyrtopodium fowliei** L. C. Menezes, Orch. Dig. 59: 17. 1995. TYPE: BRAZIL. Distrito Federal: Reserva Ecologica do Guar, planta terrestre de reas midas periodicamente alagadas no perodo chuvoso, pseudobulbos completamente enterrados, flores pequenas amarelo-alaranjado ou ainda esverdeado e pintalgadas, 14 October 1994, *L. C. Menezes UB-53* (Holotype: UB [vegetative]). EPITYPE (designated by Barros et al., 2003): BRAZIL. Distrito Federal: Guar, Guar Ecological Preservation, 10 November 2001 (fl.), *J. A. N. Batista 1269* (Epitype: CEN; Isoepitypes: AMES, HB, MBM, SP).

Synonyms: *Cyrtopodium poecilum* Rchb.f. & Warm. var. *crispa* Hoehne, Comm. Linhas Teleg. Estrateg. Matto Grosso, Anexo 5, 9: 35. 1916. *Cyrtopodium poecilum* Rchb.f. & Warm. var. *crispum* Hoehne, Indice Bibliogrfico e Numrico das Plantas Colhidas pela Comisso Rondon, 170. 1951. TYPE: BRAZIL. Mato Grosso: Cuiab do Bonito, lugares pantanosos, flor salpicada de amarelo e castanho-prpura, labelo castanho-prpura, crista amarela, October 1914, *J. G. Kuhlmann 147* (Syntype: R); *J. G. Kuhlmann 148* (Syntype: SP).

*Cyrtopodium poecilum* Rchb.f. & Warm. f. *minor* Hoehne, Flora Brasilica 12(6): 33, t. 14, fig. 2. 1942. *Nomen nudum*.

TYPE: BRAZIL. Mato Grosso: Cuiab do Bonito, lugares pantanosos, flor salpicada de amarelo e castanho-prpura, labelo castanho-prpura, crista amarela, October 1914, *J. G. Kuhlmann 148* (Holotype: SP).

**Distribution:** Brazil (BA, DF, GO, MG, MT, RR, SP), Bolivia, Guyana, Suriname, and Venezuela. The record for Bolivia is from Vsquez et al. (2003).

*Cyrtopodium francanum* Edwall ex Hoehne = **Cyrtopodium paludicolum** Hoehne

*Cyrtopodium fuscum* Trimen = **Eulophia spectabilis** (Dennst.) Suresh

*Cyrtopodium galeandroides* Cogn. = **Eulophia ruwenzoriensis** Rendle

**Cyrtopodium gigas** (Vell.) Hoehne, Fl. Brasilica 12, 6: 13, t. 4, fig. 1. 1942. *Epidendrum gigas* Vell., Fl. Flumin. 9: t. 20. 1881. TYPE: BRAZIL. Rio de Janeiro: without any other locality, *Velloso s.n.* (Holotype: not located, probably lost; Lectotype, designated here: Velloso's t. 20, cited above).

**Distribution:** Brazil (AL, BA, ES, MG, PE, PB, PR, RJ, RS, SC, SP).

This species belongs to the *Cyrtopodium punctatum* complex.

**Cyrtopodium glutiniferum** Raddi, Mem. Mat. Fis. Soc. Ital. Sci. Modena, Pt. Mem. Fis. 19: 220. 1823. TYPE: BRAZIL. Rio de Janeiro: without any other locality, *G. Raddi s.n.* (Holotype: PI).

Synonym: *Cyrtopodium andersonii* f. *holmesii* Hoehne, Arq. Bot. Estado So Paulo 1: 17, t. 5, fig. 2. 1938. TYPE: BRAZIL. Rio de Janeiro: Rezende, 12 October 1937, *C. M. Holmes s.n.* (Holotype: SP [38743]).

**Distribution:** Brazil (ES, RJ, MG).

See Romero-Gonzlez (1999) for a drawing based on the holotype. This species belongs to the *Cyrtopodium andersonii* complex. *Cyrtopodium andersonii* form *holmesii* is simply a peloric form of *C. glutiniferum*.

*Cyrtopodium glutinosum* Meyer ex Steudel, Nomencl. Bot., ed. 2, 1: 476. 1840, *nomen*.

*Cyrtopodium goodseffianum* Hort. = **Cyrtopodium andersonii** (Lamb. ex Andrews) R. Br.



*Cyrtopodium gonzalezii* L. C. Menezes, in part = ***Cyrtopodium brandonianum*** Barb. Rodr.

*Cyrtopodium gonzalezii* L. C. Menezes, in part = ***Cyrtopodium brunneum*** J. A. N. Bat. & Bianch.

***Cyrtopodium graniticum*** G. Romero & Carnevali, Harvard Pap. Bot. 4(2): 512, figs. 6–8. 1999. TYPE: VENEZUELA. Amazonas: Departamento Atures, Carretera Puerto Ayacucho-Samariapo, bloque granítico en la margen sur de la entrada a Garzitas, 5°29'N 67°34'W, 60 m, “litófito en la cumbre de la masa granítica, floreciendo sin hojas con el retoño nuevo, inflorescencias 1.5–1.7 m, paniculadas, sépalos y pétalos verde-marrón manchados de rojo caoba, labelo amarillo con los lóbulos laterales rojo caoba, margen verrugoso,” 1 February 1992, G. A. Romero, F. Guánchez & M. Melnyk 2300 (Holotype: VEN; Isotypes: AMES, TFAV).

**Distribution:** Venezuela.

*Cyrtopodium grisebachii* Rolfe ex Patt. = ***Otostylis***

***Cyrtopodium hatschbachii*** Pabst, Bradea 2, 40: 273. 1978. TYPE: BRAZIL. Goiás: Mun. Jataí, Rod. Jataí-Caiapônia, “Do brejo, sépalos e pétalos lilas rosado, mais forte para o ápice. Labelo igual, centro amarelo,” 24 July 1977, G. Hatschbach 40066 (Holotype: MBM; Isotype: HBG).

Synonym: *Cyrtopodium bradei* Schltr. ex Hoehne, Fl. Brasílica 12, 6: 34, t. 23. 1942, *nomen nudum*. [TYPE CITED]: BRAZIL. São Paulo: Heitor Legru ?, September 1921, A.C. Brade 8138 (Holotype: SP).

**Distribution:** Brazil (GO, MG, MS, SP), Paraguay, and Argentina.

This species was first described as *Cyrtopodium bradei*, the original description of which did not include a Latin diagnosis, required by the International Code for Botanical Nomenclature starting in 1935.

***Cyrtopodium holstii*** L. C. Menezes. Schlechteriana 4(4): 149. 1993; Boletim CAOB 5(4): 15. 1993. TYPE: BRAZIL. Espírito Santo: Reserva Biológica de Sooretama, plantas terrestre com pseudobulbos grandes, flores esverdeadas e pintalgadas de marrom-avermelhado, labelo predominantemente amarelo, 1 November 1993,

L. C. Menezes UB-47 (Holotype: UB [vegetative]). EPITYPE (designated by Barros et al., 2003): BRAZIL. Espírito Santo: Guarapari, Setiba, “Paulo César Vinha” State Park, seashore sandbank near D’Úle dunes, 12 October 1994, C. N. Fraga 50 (Epitype: MBML).

Synonym: *Cyrtopodium inaldianum* L. C. Menezes, Boletim CAOB 23: 11. 1996. TYPE: BRAZIL. Paraíba: litoral Sul, planta de solo arenoso, flores amarelo-amarronzadas com máculas marrom-avermelhadas e labelo amarelo vivo, February 1996, L. C. Menezes UB-59 (Holotype: UB).

**Distribution:** Brazil (AL, BA, CE, ES, MA, PE, PB).

*Cyrtopodium holstii* is similar to other terrestrial species with long fusiform pseudobulbs and spotted flowers from central America and northern South America such as *C. graniticum*, *C. macrobulbon* (La Llave & Lex.) G. Romero & Carnevali, and *C. paniculatum* (Ruiz & Pav.) Garay. Further research is still necessary to clarify the species within this complex.

*Cyrtopodium inaldianum* L. C. Menezes = ***Cyrtopodium holstii*** L. C. Menezes

***Cyrtopodium intermedium*** Brade, Arq. Serv. Florest. 1(1): 44, t. 4, figs. 1–11. 1939. TYPE: BRAZIL. Minas Gerais: Juiz de Fora, Fazenda Boa Esperança, 30 September 1937, A. Brade 15943 (Holotype: RB; Isotype: SP).

**Distribution:** Brazil (MG).

This is an obscure species known only from the type material. According to Brade, it is probably a hybrid between *Cyrtopodium gigas* and *C. glutiniferum* (as *C. andersonii*).

*Cyrtopodium jauaperiense* Barb. Rodr. = ***Eriopsis sceptrum*** Rchb.f. & Warsc.

***Cyrtopodium josephense*** Barb. Rodr., Gen. Sp. Orchid. 3: 127. 1891. TYPE: BRAZIL. Minas Gerais: Serra de São José d’El-Rey, “campos arenosos do cume,” July 1881, Barbosa Rodrigues s.n. (type not located).

**Distribution:** Brazil (MG).

An obscure species known only from the original description and apparently never illustrated by the author. The yellowish green flowers apparently place it close to *Cyrtopodium glutiniferum*, but in Barbosa-Rodrigues’s (1891) sectional treatment of the genus, the species was included in sect. *Microbulbosae*, characterized

by the small pseudobulbs. Based on the racemose inflorescence, time of flowering, and size of the pseudobulbs, it is similar and possibly conspecific with *C. eugenii*. Sprunger (1996: 467) placed it in the synonymy of *C. andersonii*, albeit without justification.

***Cyrtopodium kleinii*** J. A. N. Bat. & Bianch., Darwiniana 43(1–4): 75. 2005. TYPE: BRAZIL. Santa Catarina: Municipality of Lages, 3 November 2003 (fl.), *J. A. N. Batista 1443* (Holotype: CEN; Isotypes: AMES, K, RB, SP).

**Distribution:** Brazil (PR, SC).

***Cyrtopodium lamellatocallosum*** J. A. N. Bat. & Bianch., Brittonia 56(3): 269. 2004. TYPE: BRAZIL. Minas Gerais: Moeda, Serra da Moeda, ca. 1400 m, 24 October 2001, *J. A. N. Batista, L. B. Bianchetti, A. Salino, R. C. Mota & P. L. Viana 1262* (Holotype: CEN; Isotypes: AMES, K, RB, SP).

**Distribution:** Brazil (MG).

***Cyrtopodium latifolium*** Bianch. & J. A. N. Bat., Lindleyana 15(4): 222, fig. 1–2. 2000. TYPE: BRAZIL. Distrito Federal: Santuário Ecológico do Riacho Fundo, 15 October 1994, *L. B. Bianchetti et al. 1515* (Holotype: CEN; Isotypes: AMES, K, SP).

**Distribution:** Brazil (DF, MT).

This rare species was first collected by F. C. Hoehne at the beginning of the last century, but never collected again until the 1990s. It is only known from the Distrito Federal and Mato Grosso. The broad leaves and externally reddish-purple pseudobulbs, apparently place this species close to *Cyrtopodium braemii* and *C. poecilum*.

***Cyrtopodium linearifolium*** J. A. N. Bat. & Bianch., Lindleyana 16(4): 226, fig. 1–2. 2001. TYPE: BRAZIL. Goiás: Mun. Alto Paraíso, Parque Nacional da Chapada dos Veadeiros, 20 km N de Alto Paraíso, GO-118, 11 October 1999, *J. A. N. Batista 947* (Holotype: CEN; Isotypes: AMES, BHCB, HB, K, MBM, NY, RB, SP).

**Distribution:** Brazil (GO).

This is a very distinct species, characterized by the small pseudobulbs (3–4 cm long) and non-articulate leaves.

*Cyrtopodium lineatum* Barb. Rodr. = ***Koellensteinia lineata*** (Barb. Rodr.) Garay

***Cyrtopodium lissochiloides*** Hoehne & Schltr., Anexos Mem. Inst. Butantan, Secç. Bot., 1, 2: 40, t. 9, fig. 2. 1921. TYPE: BRAZIL. São Paulo: Butantan, 30 October 1917, *A. Gehrt s.n.* (Holotype: B [destroyed]; Lectotype, designated here: SP [819]).

**Distribution:** Brazil (GO, SP).

This is a very rare species known only from the type collection and two recent additional collections from the state of Goiás. In the protologue the collector is indicated as *F. C. Hoehne 819*. However, in the isotype located at SP and in that herbarium's accession book, the collector is indicated as A. Gehrt, without number, one of Hoehne's field assistants. The number "819" is a herbarium accession number.

***Cyrtopodium longibulbosum*** Dodson & G. Romero, Lindleyana 8(4): 193, fig. 1. 1993. TYPE: ECUADOR. Provincia Sucumbios: Laguna de Imuya, October 1991, *C. H. Dodson & G. A. Romero 18944* (Holotype: RPSC; Isotypes: AMES, K, QCNE, SEL).

**Distribution:** Ecuador and Peru.

A very distinct species characterized by an epiphytic habit and long pseudobulbs 1.0–3.5 m long.

***Cyrtopodium macedoi*** J. A. N. Bat. & Bianch., Novon 16: 17. 2006. TYPE: BRAZIL. Minas Gerais: on the road between Ituiutaba and Capinópolis, flowered in cultivation in Brasília from late September to early October 2003, *J. A. N. Batista & L. B. Bianchetti 1306* (Holotype: CEN; Isotypes: K, MO, RB, SP).

**Distribution:** Brazil (MG).

***Cyrtopodium macrobulbon*** (La Llave & Lex.) G. Romero & Carnevali, Harvard Pap. Bot. 4(1): 331. 1999.

Basionym: *Epidendrum* (Mayzifolium) *macrobulbon* La Llave & Lex., Nov. Veg. Descr., Orchid. Opusc. 42. 1825. TYPE: MEXICO. Michoacán: "prope Turicato in regione calida," *J. M. Lexarza s.n.* (Holotype: not located, presumably lost). NEOTYPE, designated by Romero-González and Fernández-Concha, 1999: MEXICO. Michoacán: Coalcomán, Aguillilla, 800 m, 14 April 1941, *G. B. Hinton 15928* (Neotype: AMES).

**Distribution:** Mexico, Guatemala, El Salvador, Panama.

This species was repeatedly misidentified by several authors as *Cyrtopodium punctatum*, but it is distinct by the predominantly terrestrial habit, the narrower midlobe of the labellum and the strongly verrucose labellum, with the verrucae present in the apical part of the midlobe, around the callus and along the anterior margin of the lateral lobes.

**Cyrtopodium macrobulbon** (La Llave & Lex.) G. Romero & Carnevali f. **salvadorensis** (Hamer & Garay) G. Romero & Carnevali, Harvard Pap. Bot. 4(1): 336. 1999.

Basionym: *Cyrtopodium punctatum* (L.) Lindl. var. *salvadorensis* Hamer & Garay, Orch. El Salvador 3: 84. 1981. TYPE: EL SALVADOR. Departamento Santa Ana: Pedregal San Isidro, al pié del Volcán Izalco, 900 m, 4 May 1976, "terrestrial, only greenish and yellow, no spots on bracts, sepals, petals, or lip, probably 'albino'". *O. Pank ex F. Hamer 568* (Holotype: AMES).

**Distribution:** El Salvador.

*Cyrtopodium maculatum* Hort. = **Cyrtopodium aliciae** L. Linden & Rolfe

**Cyrtopodium minutum** L. C. Menezes, Boletim CAOB 56: 100. 2004. TYPE: BRAZIL. Distrito Federal: 1000 m, October 2004, *L. C. Menezes UB 94* (Holotype: UB).

**Distribution:** Brazil (DF).

A rare species, known only from the type collection.

**Cyrtopodium naiguatae** Schltr., Repert. Spec. Nov. Regni Veg. Beih. 6: 43. 1919. TYPE: VENEZUELA. Miranda: southern slope, middle belt of Pico Naiguata, 1900–2400 m, May 1913, *H. Pittier 6223* (Holotype: B [destroyed]; Lectotype, designated by Romero-González and Fernández-Concha, 1999: US; Isolectotype: VEN [fragment]).

**Distribution:** Venezuela.

*Cyrtopodium naiguatae* is similar to other terrestrial species with exposed pseudobulbs and spotted flowers such as *C. paniculatum* and *C. macrobulbon*, but distinct by the smaller pseudobulbs and non-articulate leaves. The original illustration of the species was published by Mansfeld (1929, t. 8, fig. 27).

*Cyrtopodium orophilum* Hoehne = **Cyrtopodium virescens** Rchb.f. & Warm.

**Cyrtopodium pallidum** Rchb.f. & Warm., Otia Bot. Hamburg 2: 89. 1881. TYPE: BRAZIL. Minas Gerais: Lagoa Santa, *E. Warming 58* (Holotype: W [Reichenbach Herb. 30429, drawings on 27681]; Isotype: P).

Synonym: *Cyrtopodium pallidum* Rchb.f. & Warm. f. *major* Hoehne, Fl. Brasilica 12(6), t. 21A. 1942, *nomen*.

**Distribution:** Brazil (BA, DF, GO, MG, PR, SP) and Paraguay.

See notes under *Cyrtopodium eugenii*.

*Cyrtopodium pallidum* Rchb.f. & Warm. f. *major* Hoehne = **Cyrtopodium pallidum** Rchb.f. & Warm.

**Cyrtopodium palmifrons** Rchb.f. & Warm., Otia Bot. Hamburg 2: 88. 1881. TYPE: BRAZIL. Minas Gerais: Lagoa Santa, *E. Warming 54* (type not located, but most likely at W [Reichenbach Herbarium]).

**Distribution:** Brazil (MG, PR, RS, SC, SP) and Argentina.

See notes under *Cyrtopodium eugenii*.

The species is similar to *C. saintlegerianum* and *C. gigas*, but distinct by the morphology and smaller size of the flowers.

**Cyrtopodium paludicolum** Hoehne, Comm. Linhas Teleg. Estrateg. Matto-Grosso, Anexo 5, 4: 24, t. 75. 1912. TYPE: BRAZIL. Mato Grosso do Sul: Itiquira, entre São Lourenço e Coxim, a beira do pantanal, em pantano, flor amarela, May 1911, *F. C. Hoehne 4134* (Syntype: SP); *F. C. Hoehne 4135* (Syntype: R); *F. C. Hoehne 4136* (Syntype: R); *F. C. Hoehne 4137* (Syntype: R); *F. C. Hoehne 4138* (Syntype: R).

Synonyms: *Cyrtopodium paludicolum* Hoehne var. *reginae* Pabst, Bradea 2(14): 85. 1976. TYPE: BRAZIL. Distrito Federal: Setor Industrial, 5 February 1974, *R. Wels-Windisch s.n.* (Holotype: HB).

*Cyrtopodium paludicolum* Hoehne var. *goiandirensis* L. C. Menezes, Boletim CAOB 27: 18. 1997. TYPE: BRAZIL. Goiás: Goiandira, February 1997, *L. C. Menezes UB-63* (not located).

*Cyrtopodium francanum* Edwall ex Hoehne, Fl. Bras. 12(4): 21. 1942, *pro syn.*

**Distribution:** Brazil (DF, GO, MG, MS, MT, PR, SP) and Bolivia.

The characters used by Pabst to separate *Cyrtopodium paludicolum* var. *reginae* from the typical form (i.e., the larger flowers and the

straighter central lobe of the labellum) are extremely variable (even the type population of the variety in the Reserva Ecológica do Guará, Brasília-Distrito Federal was variable). We propose that it should not be recognized as a variety or even as a form. Likewise, *C. paludicolum* var. *goiandirensis* is difficult to justify, since the presence or absence of red spots in the petals and occasionally in the sepals is extremely variable. Furthermore, the type of *C. paludicolum* var. *goiandirensis* has never been deposited at UB.

The record for Bolivia is from Vásquez et al. (2003).

*Cyrtopodium paludicolum* Hoehne var. *goiandirensis* L. C. Menezes = **Cyrtopodium paludicolum** Hoehne

*Cyrtopodium paludicolum* Hoehne var. *reginae* Pabst = **Cyrtopodium paludicolum** Hoehne

**Cyrtopodium paniculatum** (Ruiz & Pav.) Garay, *Caldasia* 8: 524. 1962.

Basionym: *Maxillaria paniculata* Ruiz & Pavón, *Syst. Veg. Fl. Peruv. et Chil.* 1: 223. 1798. TYPE: PERU. Huánuco: Pillao, *H. Ruiz & J. Pavón s.n.* (Holotype: MA [photo]; AMES [fragment], G [fragment]).

Synonyms: *Cyrtopodium bracteatum* Linden ex Lindl., *Orch. Linden.* 23. 1846.

*Cyrtopodium punctatum* (L.) Lindl. var. *bracteatum* (Linden ex Lindl.) Rchb.f., *Ann. Bot. Syst.* 6: 667. 1863. TYPE: VENEZUELA. Mérida: "Scorching savannahs, near Merida, 5000 ft., flowers and bracts bright yellow, spotted with red," *J. J. Linden s.n.* (Holotype: K-Lindl.).

*Cyrtopodium engelii* Karsten, *Wochenschr. Gärnererei Pflanzensk.* 2: 236. 1859. TYPE: VENEZUELA. Mérida, *Karsten s.n.* (Holotype: W).

**Distribution:** Venezuela, Peru, Colombia and Bolivia.

The record for Bolivia is from Vásquez et al. (2003).

*Cyrtopodium paranaense* Schltr. = **Cyrtopodium flavum** Link & Otto ex Rchb.

*Cyrtopodium paranaense* var. *pickelii* Hoehne, *Fl. Brasílica* 12, 6: 17, t. 8, fig. 2. 1942, *nomen nudum*. [TYPE CITED]: BRAZIL. Paraíba: João Pessoa, terrenos arenosos do tabuleiro, 16 November 1933, *B. Pickel 3425* (supposedly at SP, not located).

Synonym: *Cyrtopodium polyphyllum* (Vell.) L. C. Menezes var. *pickelii* (Hoehne) L. C. Menezes, *Orquidário* 12(4): 104. 1999.

This taxon was published after 1935 but the description did not include the required Latin diagnosis. The exact identity of *Cyrtopodium paranaense* var. *pickelii* is unclear. It is remarkably similar to, and probably conspecific with, *C. andersonii*. If this assumption is further confirmed, it would indicate that the distribution of *C. andersonii* extends along the Brazilian northeastern coast and overlaps with *C. flavum*.

*Cyrtopodium parkinsonii* F. V. Mueller & Kränzlin = **Eulophia venosa** Rchb.f. var. **papuana** Schltr. (*vide* Schlechter, 1912).

**Cyrtopodium parviflorum** Lindl., *J. Bot.* (London) 2: 672. 1843. TYPE: GUYANA. Without any other locality, "on sand," 1839, *R. H. Schomburgk 617* (Holotype: K-Lindl.; Isotypes: BM, BR, G, P, W [Reichenbach Herbarium 27656]).

Synonyms: *Cyrtopodium broadwayi* Ames, *Orchidaceae* 7: 51, t. 112. 1922. TYPE: TRINIDAD AND TOBAGO. Aripo Savanna, "reddish-brown and green flowers," 16 April 1908, *W. E. Broadway 2343* (Holotype: AMES; Isotype: SEL).

*Cyrtopodium falcilobum* Hoehne & Schltr., *Anexos Mem. Inst. Butantan, Sec. Bot.*, 1, 2: 39, t. 9, fig. 1. 1921. TYPE: BRAZIL. São Paulo: Butantan, "in solo paludoso," 30 October 1917, *A. Gehrt s.n.* (Holotype: B [destroyed]; Lectotype, designated here: SP [818]; Isolectotype: AMES).

*Cyrtopodium paynei* Ruschi, *Bol. Mus. Biol. Prof. Mello-Leitao, Bot. ser.*, 25: 1. 1969. TYPE: BRAZIL: Bahia: Andaraí, Serra do Capa Bode, 1180 m, in campis sterilioribus, humidis, 5 January 1969, *A. Ruschi & L. Marden 6358* (Holotype: MBML, probably lost).

**Distribution:** Brazil (AM, BA, DF, ES, GO, MG, MT, PA, PR, SP), Guyana, French Guiana, Suriname, Trinidad and Tobago, and Venezuela.

This is probably the species with the broadest distribution in the genus, extending from northern South America to southern Brazil. It is well characterized by the somewhat long and falcate lateral lobes of the labellum. In the protologue of *Cyrtopodium falcilobum* the collector is indicated as *F. C. Hoehne 818*. However, in the isotype located at SP, and also in that herbarium's

accession book, the collector is indicated as A. Gehrt, one of Hoehne's field assistants. The number "818" is a herbarium number.

*Cyrtopodium paynei* Ruschi = **Cyrtopodium parviflorum** Lindl.

**Cyrtopodium pflanzei** Schltr., Repert. Spec. Nov. Regni Veg. Beih. 10: 49. 1922. TYPE: BOLIVIA. Tarija: "Bei Villa Montes," January 1911, *C. Pflanz s.n.* (Holotype B, destroyed).

**Distribution:** Argentina, Bolivia, and Paraguay.

This is an unusual epiphytic *Cyrtopodium* from the Río Paraná basin. It is closely related to *C. saintlegerianum*, reported from Paraguay and Brazil. The collections from Argentina, identified as *C. aliciae* by Hoehne (1942), are probably referable to *C. pflanzei*. The species belongs to the *C. punctatum* complex. The original illustration of the species was published by Mansfeld (1929, t. 140, fig. 548).

*Cyrtopodium plantagineum* (Thouars) Benth. = **Eulophia plantaginea** (Thouars) Rolfe ex Hochr.

**Cyrtopodium poecilum** Rchb.f. & Warm., Otia Bot. Hamb. 2: 89. 1881. TYPE: BRAZIL. Minas Gerais: Lagoa Santa, *E. Warming 56* (type not located, but most likely at W [Reichenbach Herbarium]).

Synonyms: *Cyrtopodium vernum* Rchb.f. & Warm. var. *fulvum* L. C. Menezes, Boletim CAOB 5(4): 16. 1993; Schlechteriana 4(4): 151. 1993.

*Cyrtopodium poecilum* Rchb.f. & Warm. var. *fulvum* (L. C. Menezes) L. C. Menezes, Orquidário 9(3): 68. 1995. TYPE: BRAZIL: Distrito Federal: Brasília, October 1993, *L. C. Menezes UB-48* (Holotype: not found).

**Distribution:** Brazil (DF, GO, MT, MG) and Bolivia.

See notes under *Cyrtopodium eugenii*.

This species, superbly illustrated in *Flora Brasílica* (1942, tab. 16), was mistakenly identified as *C. vernum* by Hoehne (1942) and the error has been followed by subsequent authors (Pabst and Dungs, 1975; Menezes, 1992, 1993). For a more detailed analysis on the subject see Bianchetti and Batista (2004).

Variety *fulvum* does not appear to have a type and probably should be considered a *nomen nudum*. Furthermore, it was apparently based on

just one, old, faded flower, a phenomenon found in all *Cyrtopodium* flowers as they turn old.

The record of *C. poecilum* for Bolivia is from Vásquez et al. (2003).

*Cyrtopodium poecilum* Rchb.f. & Warm. var. *crispa* Hoehne = **Cyrtopodium fowliei** L. C. Menezes

*Cyrtopodium poecilum* Rchb.f. & Warm. var. *crispum* Hoehne = **Cyrtopodium fowliei** L. C. Menezes

*Cyrtopodium poecilum* Rchb.f. & Warm. var. *fulvum* (L. C. Menezes) L. C. Menezes = **Cyrtopodium poecilum** Rchb.f. & Warm.

*Cyrtopodium poecilum* Rchb.f. & Warm. f. *minor* Hoehne = **Cyrtopodium fowliei** L. C. Menezes

**Cyrtopodium poecilum** Rchb.f. & Warm. var. **roseum** J. A. N. Bat. & Bianch., Brittonia 56(3): 73. 2004. TYPE: BRAZIL. Minas Gerais: Município de Moeda, Serra da Moeda, ca. 1400 m, 24 October 2001, *J. A. N. Batista, L. B. Bianchetti, A. Salino, R. C. Mota & P. L. Viana 1261* (Holotype: CEN; Isotype: BHCB).

**Distribution:** Brazil (MG).

*Cyrtopodium polyphyllum* (Vell.) Pabst ex F. Barros = **Cyrtopodium flavum** Link & Otto ex Rchb.

*Cyrtopodium polyphyllum* (Vell.) L. C. Menezes = **Cyrtopodium flavum** Link & Otto ex Rchb.

*Cyrtopodium polyphyllum* (Vell.) L. C. Menezes var. *pickelii* (Hoehne) L. C. Menezes, Orquidário 12(4): 104. 1999. *Nomen nudum*. Basionym: *Cyrtopodium paranaense* var. *pickelii* Hoehne, Fl. Brasílica 12, 6: 17, t. 8, fig. 2. 1942, *nomen nudum*.

**Cyrtopodium punctatum** (L.) Lindl., Gen. Sp. Orch. Pl. 188. 1833.

Basionym: *Epidendrum punctatum* L., Sp. Pl. Ed. 2, 2: 1349. 1763. Based on Plumier Pl. Amer. Burm. 182, t. 187 (as *Heleborine ramosissima*). TYPE: "SANTO DOMINGO," without any other locality, Pl. Amer. 182, t. 187. 1758.

Synonyms: *Cyrtopodium speciosissimum* hort. ex DuBuyss., L'Orchid. 299. 1878, *pro syn.*

**Distribution:** United States, Cuba, Haiti, Dominican Republic, and Puerto Rico.

This was the first described species in a complex characterized by the epiphytic habit, the large, fusiform pseudobulbs, and spotted flowers, which include *Cyrtopodium gigas*, *C. saintlegerianum* Rchb.f., *C. pflanzei*, *C. palmifrons*, and *C. schargellii* G. A. Romero, Aymard & Carnevali. However, *C. punctatum* is distinguished from all these species by the lateral lobes of the labellum, which are longer than the central lobe when the labellum is flattened. In the past, *C. punctatum* was a catch-all name for practically all species of *Cyrtopodium* (Romero-González and Carnevali, 1999).

*Cyrtopodium punctatum* (L.) Lindl. var. *bracteatum* (Linden ex Lindl.) Rchb.f. = **Cyrtopodium paniculatum** (Ruiz & Pav.) Garay

*Cyrtopodium punctatum* (L.) Lindl. var. *saintlegerianum* (Rchb.f.) hort. ex Stein = **Cyrtopodium saintlegerianum** Rchb.f.

*Cyrtopodium punctatum* (L.) Lindl. var. *salvadorense* Hamer & Garay = **Cyrtopodium macrobulbon** (La Llave & Lex.) G. Romero & Carnevali f. **salvadorense** (Hamer & Garay) G. Romero & Carnevali

*Cyrtopodium purpureum* Rchb.f. & Warm. = **Cyrtopodium brandonianum** Barb. Rodr.

*Cyrtopodium roraimense* L. C. Menezes = **Cyrtopodium andersonii** (Lamb. ex Andrews) R. Br.

*Cyrtopodium rufum* (Thwaites) Trimen = **Eulophia**

**Cyrtopodium saintlegerianum** Rchb.f., Flora 68: 301. 1885. *Cyrtopodium punctatum* (L.) Lindl. var. *saintlegerianum* (Rchb.f.) hort. ex Stein, Orchideenb. 181. 1892. TYPE: PARAGUAY. Without any other locality, St. Léger ex Hort. Veitch (Holotype: W [Reichenbach Herb. 27370]).

Synonym: *Oncidium palmophilum* Mart., nomen, ex Lindl., Sert. Orch. sub t. 12. 1838, pro syn.

**Distribution:** Brazil (BA, DF, GO, MT, MS, MG, PA, TO) and Paraguay.

The species belongs to the *Cyrtopodium punctatum* complex and is similar to *C. gigas*. The specimen cited by Lindley as *Oncidium palmophilum* Mart. from Rio de Contas, Bahia, Brazil (Martius 1965), is at M.

*Cyrtopodium sanguineum* (Lindl.) N. E. Br. = **Eulophia zollingeri** (Rchb.f.) J. J. Sm.

*Cyrtopodium sarneyanum* L. C. Menezes = **Cyrtopodium braemii** L. C. Menezes

**Cyrtopodium schargellii** G. A. Romero, Aymard & Carnevali, Harvard Pap. Bot. 10: 123, figs. 1–2. 2005. TYPE: VENEZUELA. Portuguesa: Distrito Guanare, Municipio Boconoito, bosque húmedo-seco tropical, lugar inundado de la represa del río Boconó, 250, epífita en copa de palma alta, 14 January 1984, B. Stergios & D. Taphorn 7819 (Holotype: PORT [fragment at AMES]).

**Distribution:** Colombia and Venezuela.

Specimens of *Cyrtopodium punctatum* from northern Colombia and Venezuela cited by Romero-González and Carnevali (1999) are now referred to *C. schargellii*.

*Cyrtopodium speciosissimum* hort. ex DuBuys. = **Cyrtopodium punctatum** (L.) Lindl.

*Cyrtopodium squalidum* S. Vidal = **Eulophia spectabilis** (Dennst.) Suresh

*Cyrtopodium strictum* Griseb. = **Eulophia ecristata** (Fernald) Ames

*Cyrtopodium tigrinum* Linden, Ill. Hort. 28: 95. 1881, nomen.

This name is merely an entry in a list entitled *Plantes Introduites [et mises pour la première fois dans le commerce par L'Établissement J. Linden]* that occupies pages 95–96 in the entry indicated above (but, as a series, many pages before and after that particular citation). According to Linden, *Cyrtopodium tigrinum* was collected in the Rio Branco in 1867. Although the name has traditionally been referred to *C. punctatum*, the authors believe that it should be attributed to some other, yet unknown, species. Careful attention should be paid to the *Cyrtopodium* species illustrated by R. H. Schomburgk, who traveled extensively in this region (see Romero-González, 2005, for a

list of Schomburgk's illustration at the British Museum and their preliminary identification).

***Cyrtopodium triste*** Rchb.f. & Warm., *Otia Bot. Hamb.* 90. 1881. TYPE: BRAZIL. Minas Gerais: Lagoa Santa, *E. Warming* 60 (Holotype: W [Reichenbach Herb. 30428, drawings on 27682]).

**Distribution:** Brazil (DF, GO, MG, MT, SP).  
See notes under *Cyrtopodium eugenii*.

***Cyrtopodium vernum*** Rchb.f. & Warm., *Otia Bot. Hamb.* 2: 89. 1881. TYPE: BRAZIL. Minas Gerais: Lagoa Santa, *E. Warming* 55 (Holotype: W [Reichenbach Herb. 30431, drawings on 27679]; Isotype: P).

Synonym: *Cyrtopodium aureum* L.C. Menezes, *Boletim CAOB* 3(4): 50. 1991; *Schlechteriana* 3(1): 14. 1992. TYPE: BRAZIL. Distrito Federal: Ceilândia, 1000 m, terrestre em área de encosta com afloramentos rochosos, October 1991, *L. C. Menezes UB-21* (Holotype: UB [vegetative]). EPITYPE (designated by Barros et al., 2003): BRAZIL. Distrito Federal: Ceilândia, area of country houses behind QNP-36, on the slopes of the valley of Taguatinga stream, 2 October 2001 (fl.), *J. A. N. Batista & O. B. Oliveira-Neto 1249* (Epitype: CEN; Isoepitypes: AMES, MBM, SP).

**Distribution:** Brazil (DF, GO, MG).

*Cyrtopodium vernum* Rchb.f. & Warm. var. *fulvum* L. C. Menezes = ***Cyrtopodium poecilum*** Rchb.f. & Warm.

*Cyrtopodium verrucosum* Griseb. = ***Oncidium floridanum*** Ames

*Cyrtopodium virens* Pabst & Dungs = ***Cyrtopodium virescens*** Rchb.f. & Warm.

***Cyrtopodium virescens*** Rchb.f. & Warm., *Otia Bot. Hamb.* 2: 89. 1881. TYPE: BRAZIL. Minas Gerais: Lagoa Santa, *E. Warming* 59 (type not located, but most likely at W [Reichenbach Herbarium]).

Synonyms: *Cyrtopodium orophilum* Hoehne, *Comm. Linh. Tel. Estrat. Matto Grosso, Anexo 5, Bot.* 1: 42, t. 31. 1910. TYPE: BRAZIL. Mato Grosso: São Luiz de Cáceres, Morro da Fumaça, campis altis

inter gramineas, October 1908, *F. C. Hoehne* 565 (Holotype: R).

*Cyrtopodium buchtienii* Schltr., *Repert. Spec. Nov. Regni Veg.* 27: 64. 1929. TYPE: BOLIVIA. La Paz: Polo-Polo near Coroico, North Yungas, 1100 m, 1912, *O. Buchtien* 3709 (Holotype: B [destroyed]; Lectotype, designated here: AMES; Isolectotype: US).

*Cyrtopodium virens* Pabst & Dungs, *Orchidaceae Brasilienses* 1: 174. 1975. *nomem.*

**Distribution:** Brazil (DF, GO, MA, MG, MS, MT, PA, TO), Paraguay and Bolivia.

See notes under *Cyrtopodium eugenii*.

The name *C. virens* is a misspelling for *C. virescens*.

***Cyrtopodium willmorei*** Knowles & Westc., *Fl. Cab.* 1: t. 4. 1837. TYPE: VENEZUELA. Sucre: "Cumanacoa," *J. Henchman ex Hort. J. Willmore* (Holotype: not located; Lectotype, designated by Romero-González and Fernández-Concha 1999, *Fl. Cab.* 1: t. 4. 1837).

**Distribution:** Venezuela and Trinidad.

This species is similar to *Cyrtopodium paniculatum*. According to Romero-González and Fernández-Concha (1999) it is probably conspecific with *C. macrobulbon*. The following comment by Lindley (1841, *sub tabula*), "*C. willmorei* of the *Flora Cabinet* (sic) is nothing but *C. punctatum* ill flowered..." is not tenable.

***Cyrtopodium withnerii*** L. C. Menezes, *Orchid Digest* 60: 12. 1996. TYPE: BRAZIL: Distrito Federal e Unai (Minas Gerais): áreas com afloramento rochoso, planta rupícola com pseudobulbos grandes, flores amarelas, 10 August 1995, *L. C. Menezes UB-57* (Holotype: UB [vegetative]). EPITYPE (designated by Barros et al., 2003): BRAZIL. Goiás: Formosa, about 10 km NE of "Bezerra" village, on the "Formosa-Alvorada do Norte" road, 5 August 1990, *J. A. N. Batista 94* (Epitype: CEN).

**Distribution:** Brazil (DF, GO, MG).

*Cyrtopodium woodfordii* Sims = ***Eulophia alta*** (L.) Fawc. & Rendle

*Cyrtopodium woodfordii* Chapman, non Sims. = ***Eulophia alta*** (L.) Fawc. & Rendle

*Cyrtopodium yauaperyense* Barb. Rodr., See *C. jauaperyense* Barb. Rodr.

## SPECIES DESCRIBED IN OTHER GENERA

- Cymbidium andersonii* Lambert ex Andrews = **Cyrtopodium andersonii** (Lamb. ex Andrews) R. Br.  
*Cymbidium trinerve* G. Mey. = **Cyrtopodium andersonii** (Lamb. ex Andrews) R. Br.  
*Epidendrum gigas* Vell. = **Cyrtopodium gigas** (Vell.) Hoehne  
*Epidendrum* (Mayzifolium) *macrobulbon* La Llave & Lex. = **Cyrtopodium macrobulbon** (La Llave & Lex.) G. Romero & Carnevali  
*Epidendrum polyphyllum* Vell. = **Cyrtopodium flavum** Link & Otto ex Rchb.  
*Epidendrum punctatum* L. = **Cyrtopodium punctatum** (L.) Lindl.  
*Maxillaria paniculata* Ruíz & Pavón = **Cyrtopodium paniculatum** (Ruiz & Pav.) Garay  
*Oncidium palmophilum* Mart., *Nomen*, ex Lindl. = **Cyrtopodium saintlegerianum** Rchb.f.  
*Tylochilus flavus* Nees = **Cyrtopodium flavum** Link & Otto ex Rchb.

## EXCLUDED SPECIES

- Cyrtopodium album* Barb. Rodr., *Vellozia* 1: 127. 1891 (in clavi.): *Nomen*. = **Koellensteinia eburnea** (Barb. Rodr.) Schltr.  
*Cyrtopodium bicolor* (Blume) Ridl., *J. Linn. Soc., Bot.* 21: 472. 1885.  
 Basionym: *Eulophia bicolor* Blume, *Coll. Orchid.*: 151. 1859.  
 = **Eulophia spectabilis** (Dennst.) Suresh  
*Cyrtopodium cristatum* Cogn. non Lindl., *Symb. Antill.* 6. 1910.  
 = **Otostylis**  
*Cyrtopodium cristatum* Griseb. non Lindl., *Fl. Brit. W. I.* 630. 1864.  
 = **Otostylis**  
*Cyrtopodium eburneum* Barb. Rodr., *Revist. Eng.* 3: 74. 1881; *Gen. Sp. Orchid.* 2: 182. 1882.  
 TYPE: BRAZIL. Minas Gerais: São João d'El-Rey, *Barbosa Rodrigues s.n.* (Holotype: unknown, presumably lost; original illustration by Barbosa Rodrigues in *Iconographie des Orchidées du Brésil*, vol. 5, t. 208: RB, copy K; reproduced in *Barbosa-Rodrigues*, 1996: 333).  
 = **Koellensteinia eburnea** (Barb. Rodr.) Schltr.  
*Cyrtopodium ecristatum* Fern., *Bot. Gaz.* 24: 433. 1897. TYPE: U.S.A. Florida, near Jacksonville, *A. H. Curtiss 2808* (Lectotype, designated by Romero, 1993: AMES [82164]; Isolectotypes: G, GH, K, MO, NY).  
 = **Eulophia ecristata** (Fernald) Ames  
*Cyrtopodium elegans* Ham., *Prodr. Pl. Ind. Occid.* 53. 1825. TYPE: ANTIGUA. Green Castle (Isotype: P).  
 = **Tetramicra elegans** (Aubl.) Fedde  
*Cyrtopodium ensiforme* S. Vidal, *Phan. Cuming. Philipp.* 78, 80, 150. 1885.  
 = **Eulophia stricta** (Presl.) Ames  
*Cyrtopodium flavum* (Lindl.) Benth., *J. Linn. Soc., Bot.* 18: 320. 1881.  
 Basionym: *Cyrtopera flava* Lindl., *Gen. Sp. Orchid. Pl.*: 189. 1833.  
 = **Eulophia flava** (Lindl.) Hook.  
*Cyrtopodium fuscum* Trimen, *Handb. Fl. Ceylon* 4: 177. 1898.  
 = **Eulophia spectabilis** (Dennst.) Suresh  
*Cyrtopodium galeandroides* Cogn., *Repert. Spec. Nov. Regni Veg.* 7: 70. 1909. TYPE: PARAGUAY. Sierra de Amambay in campis altis Punta Porá, December 1906, *T. Rojas sub E. Hassler 9936* (Lectotype, designated by Romero, 1993: BR).  
 = **Eulophia ruwenzoriensis** Rendle  
*Cyrtopodium grisebachii* Rolfe ex Patt., *Orch. Rev.* 3: 276. 1895. TYPE: (Holotype: K).  
 = **Otostylis brachystalix** (Rchb.f.) Schltr.  
*Cyrtopodium jauaperiense* Barb. Rodr., *Vellozia* 1: 128. 1891. as *C. jauaperyense*. TYPE: BRAZIL. Roraima: Rio Yauapary, *Barbosa Rodrigues s.n.* (Holotype: unknown, presumably



lost; Original illustration by Barbosa Rodrigues in *Iconographie des Orchidées du Brésil*, vol. 6, t. 252: RB, copy K; reproduced in Barbosa-Rodrigues, 1996: 1: 380).

= **Eriopsis**

*Cyrtopodium lineatum* Barb. Rodr., *Contr. Jard. Bot. Rio de Janeiro* 1: 52, t. 6, fig. B. 1900. TYPE: BRAZIL.

= **Koellensteinia lineata** (Barb. Rodr.) Garay, *Orquideología* 8: 23. 1973.

*Cyrtopodium parkinsonii* F. V. Mueller & Kränzlin, *Oest. Bot. Zeitschr.* 44: 256. 1894 (as "Cyrtopodium").

= **Eulophia venosa** Rchb.f. var. **papuana** Schltr. (*vide* Schlechter, 1912).

*Cyrtopodium plantagineum* (Thouars) Benth., *J. Linn. Soc., Bot.* 18: 320. 1881.

Basionym: *Limodorum plantagineum* Thouars, *Hist. Orchid.*: t. 41. 1822.

= **Eulophia plantaginea** (Thouars) Rolfe ex Hochr.

*Cyrtopodium plantagineum* Thouars, *Orch. Iles Afr.* t. 41–42. 1822, cited in Perrier de La Bâthie (1981), *Flora of Madagascar (Vascular Plants)*: 295 (as "planaginium").

This citation is not accurate. Tables 41–42 in the copy of du Petit-Thouars's *Histoire Particulière des Plantes Orchidées Recueillies sur les Trois Iles Australes D'Afrique* (du Petit-Thouars, 1822) at the library of the Oakes Ames Orchid Herbarium, depict *Limodorum plantagineum*. The error was made in the English translation, because the original French edition of Perrier de La Bâthie (1941: 10) *Orchidaceae* for *Flore de Madagascar* cited the correct Thouars' name (i.e., "*Limodorum plantagineum*").

= **Eulophia plantaginea**

*Cyrtopodium rufum* (Thwaites) Trimen, *Syst. Cat. Fl. Pl. Ceylon* 89. 1885.

= **Eulophia**

*Cyrtopodium sanguineum* (Lindl.) N. E. Br., *Suppl. Johnson's Gard. Dict.*: 912. 1882.

Basionym: *Cyrtopera sanguinea* Lindl., *J. Proc. Linn. Soc., Bot.* 3: 32. 1859.

= **Eulophia zollingeri** (Rchb.f.) J. J. Sm.

*Cyrtopodium squalidum* (Lindl.) Vidal, *Phan. Cuming. Philipp.* 79, 150. 1885.

Basionym: *Eulophia squalida* Lindl., *Edwards's Bot. Reg.* 27(Misc.): 77. 1841.

= **Eulophia spectabilis** (Dennst.) Suresh

*Cyrtopodium strictum* Griseb., *Cat. Pl. Cubensis* 266. 1866. TYPE: CUBA. In savanis pr. Retiro, 23 October 1866, *Wright s.n.* (Holotype: GOET; Isotype: GH).

= **Eulophia ecristata** (Fernald) Ames

*Cyrtopodium verrucosum* Griseb., *Cat. Pl. Cub.* 265. 1866. TYPE: CUBA. "Pr. Mayari," *C. Wright 3324* (Holotype: GOET; Isotype: AMES).

= **Oncidium floridanum** Ames

Grisebach (l.c.) cited, albeit incorrectly, *Wright 2324*. Acuña (1939: 182) referred this species to *Oncidium altissimum* (Jacq.) Sw. However, an examination of the isotype at AMES showed it is referable to *O. floridanum* Ames.

*Cyrtopodium woodfordii* Chapm., *Fl. S. U. S.*, ed. 3: 482. 1897, non Sims.

= **Eulophia alta** (L.) Fawc. & Rendle

*Cyrtopodium woodfordii* Sims, *Bot. Mag.* 43: t. 1814. 1816.

= **Eulophia alta** (L.) Fawc. & Rendle

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