A REVIEW OF THE GENUS RHIPIDOGLOSSUM SCHLTR.

by

V. S. SUMMERHAYES

(Royal Botanic Gardens, Kew).

The large number of African orchids belonging to the group *Monopodiales,* the so-called "Angraecoid Orchids", constitute a puzzling assemblage of which the main lines of classification are still uncertain. Several well-defined minor groups can, however, be readily distinguished, the most striking of which are such genera as *Cyrtorchis* SCHLTR., *Aerangis* SCHLTR. (*sensu stricto*) and *Tridactyle* SCHLTR. Among the less well-defined but nevertheless reasonably natural groupings is the genus *Rhipidoglossum.* This genus was described by SCHLECHTER in his comprehensive treatment and revision of the Angraecoid orchids in 1918. He separated four genera, including *Rhipidoglossum,* from the remainder on account of the presence of a foot to the column. This character, which appears to be of value in the delimitation of Asiatic genera belonging to the *Monopodiales,* is, however, of less use in classifying the African genera. Several pairs of closely allied species occur in which one species is with and the other without a foot to the column. On the whole those genera constantly possessing a column-foot can be easily characterised by other more obvious features.

Rhipidoglossum, on the other hand, is clearly very closely allied to *Diaphananthe* in which the column foot is absent or very weakly developed. Indeed the theoretical delimitation of these two genera rests on the presence or absence of a callus in the mouth of the spur, the callus being absent in *Rhipidoglossum.* At the same time the two genera show different ranges of variation in habit and in floral structure, although the species at the various points of contact closely resemble some of those in the other genus. For instance, the stem is usually elongated in *Rhipidoglossum* whereas it is short with a rosette type of growth in *Diaphananthe. D. bidens,* however, which is typical in other respects, has much elongated stems. There is, on the other hand, a

tendency towards shortening of the stem in some species of *Rhipidoglossum.* Secondly, in *Diaphananthe* the pollinia, although always provided with distinct stipites, usually share a common viscidium. There are also, however, a number of species in which two separate viscidia are found, this feature being general in *Rhipidoglossum.* The column in the two genera is very similar, and the rostellum is of the same general type.

Perhaps the most satisfactory general distinctions lie in the shapes of the perianth members. *Rhipidoglossum* is characterised by almost orbicular petals and a lip which is usually broader than long and very obtuse or rounded. The lateral sepals and the anticous portion of the petals arise from the column-foot which is continuous with, and almost indistinguishable from, the base of the lip. This is in some species very short and not easily observed. *Diaphananthe,* however, has lanceolate or ovate, more or less acute petals and a lip which is longer than broad, often somewhat toothed along the margins and pointed at the apex.

Rhipidoglossum is also a very near relative of the ditypic genus *Sarcorrhynchus* SCHLTR. The latter differs in the shape of the perianth members, particularly the lip and in the much more pronounced middle lobe of the rostellum.

In *Chamaeangis,* some species of which resemble *Rhipidoglossum* in certain respects, the flowers are usually, though not always, opposite or fasciculate on the rhachis, the pollinia are attached to a common viscidium, and the perianth members are differently shaped. In addition the facies of the species is quite distinct from that of species of *Rhipidoglossum.*

Enough can be gathered from the above remarks to show that we are dealing with an assemblage of units which are not segregated into clearly defined or isolated groups. On the other hand the adoption of a single generic concept for them all would lead inevitably to confusion when considering the whole of the African *Monopodiales.* It seems therefore more convenient to treat them in somewhat the same way as the "Series" in the genus *Rhododendron,* grouping together those species having common characters and maintaining these groups as ill-defined genera until it is possible to reconsider the whole really thoroughly. Even now new types are being discovered continually and no final classification is possible until all the main variants have been discovered.

It is useful, therefore, to look upon *Rhipidoglossum* as a practical entity during this preliminary stage. A key for identifying the species is provided together with citations of specimens seen in order to clarify the present position and to serve as a basis for further work.

SCHLECHTER enumerated five species under *Rhipidoglossum* when he described the genus. Two of these have been reduced to synonymy, while six more species have been added, one of which is described for the first time in this account. Some of SCHLECHTER's synonymy has had to be adjusted, partly due to the fact that he had not seen all the types. *Mystacidium congolense* DE WILDEM., cited by SCHLECHTER as a synonym of *R. rutilum*, is a *Diaphananthe* and is therefore excluded from this account.

Rhipidoglossum SCHLTR. in Beih. Bot. Centralbl. XXXVI, 2, 80 (1918).

Epiphytic or very rarely terrestrial plants, usually with much elongated stems bearing numerous leaves in the upper parts and provided with smooth frequently branched aerial roots in the lower parts; sometimes the stems are relatively short but the leaves are never crowded to form a false rosette. Leaves rather fleshy, spreading, normally ligulate, oblong or oblong-oblanceolate, unequally and obtusely or subacutely bilobed at the apex, the shorter lobe sometimes not clearly defined. Inflorescences simply racemose, arising either from the axils of the present leaves or from the axils of the sheaths on the leafless part of the stem, spreading, loosely or more or less densely several- or many-flowered; bracts short, sheathlike, very obtuse. Flowers small, rather dull-coloured, sometimes fragrant. Sepals spreading, oblong, elliptical or ovate, obtuse, laterals oblique, arising on the column foot. Petals obliquely orbicular or very broadly ovate, rounded or very obtuse, shorter than the sepals. Lip flabellate, broadly rhombic, broadly orbicular or broadly ovate, usually broader than long, obtuse, retuse or indistinctly 2—3—4-lobed; spur more or less incurved, with a narrow mouth, usually not much thickened towards the apex. Column erect, rather short or of medium length, more or less terete, with a short or very short foot passing almost imperceptibly into the lip. Anther cucullate, truncate in front, rather large; pollinia subglobose, stipites 2, distinct, usually somewhat widened towards the apex, viscidia distinct, ovate, elliptical, semi-orbicular or linear-elliptical. Rostellum trilobed, middle lobe fleshy, often more or less spathulate, projecting forward, lateral lobes usually much shorter, erect, rounded triangular; stigma quadrate, often with a projecting lower edge.

Lectotype species: *R. xanthopollinium* (RCHB.F.) SCHLTR.

Key of the Species.

Spur less than 3 mm. long, shorter or only slightly longer than the lip, more or less swollen at the obtuse apex; lip transversely elliptical, about 1.5 mm. long and 3 mm. wide; tepals about 2 mm long:

Inflorescence 3.5—11 cm. long; flowers 4—5 mm. apart; leaves narrowly ligulate, 5—9 cm. long, 5—9 mm. wide . . . . . **1. R. laxiflorum**

Inflorescences up to 2.5 cm. long, flowers 0.5—1.5 mm. apart:

Leaves about 1.5—2 cm. wide; lip retuse at apex . . **2. R. obanense**

Leaves 7—10 mm. wide; lip very bluntly pointed at apex . . . . . **3. R. globuloso-calcaratum**

Spur usually more than 5 mm. long, distinctly longer than the lip, usually not swollen at the apex (swollen in *R. Burttii*):

Lip longer than broad, 3—3.5 mm. long, almost quadrate, truncate in front, slightly emarginate, margins irregular; spur 11—13 mm. long, very slender; leaves acute, 9—14 cm. long, 6—16 mm. broad; lateral sepals 3.5—4 mm. long, oblong, obtuse . . . . . **4. R. longicalcar**

Lip broader than long or length equalling breadth, not distinctly truncate in front; spur up to 1 cm. long, sometimes somewhat swollen towards the apex; leaves more or less bilobed but the shorter lobe sometimes adnate so that no sinus is visible:

Spur distinctly swollen towards the apex, about 1 cm. long; lip about twice as broad as long, indistinctly 4-lobed, 4.5 mm. long, 9 mm. wide; petals 6 mm. long; middle lobe of rostellum relatively short; viscidia semi-orbicular; leaves 10—17 cm. long, 1.5—2 cm. broad . . . . . **5. R. Burttii**

Spur not swollen towards the apex, up to 10 mm. but usually not over 8 mm. long; petals not more than 3.5 mm. long; middle lobe of rostellum much longer than the laterals; viscidia oblong or elliptical:

Lip ovate-orbicular, about as long as broad, 4—4.5 mm. long, retuse at the apex; rostellum middle lobe truncate, rather broad; sepals 4 mm. long; stems up to 45 cm. long; inflorescences rather dense, up to 6 cm. long; leaves 3.5—6.5 cm. long, 8—16 mm. wide . . . **6. R. brevifolium**

Lip transversely quadrangular or elliptical, flabellate or broadly flabellate-orbicular, distinctly broader than long, usually indistinctly trilobed in front; rostellum middle lobe much produced, more or less spathulate:

Lip more or less flabellate or flabellate-orbicular, broader towards the apex; leaves linear-ligulate or ligulate, up to 12 cm. long and 1 cm. broad:

Lateral sepals 2.8—5 mm. long; pollinia stipites lanceolate-linear, distinctly broadened in the upper part, 2—3 times as long as the pollinia; lip 2.8—4.5 mm. long, 3.4—5 mm. broad; spur 5—9 mm. long, 1 mm. or more in diameter; leaves up to 8 mm. broad . . . **7 R. xanthopollinium**

Lateral sepals 2.5 mm. long; pollinia stipites capillary, more than 3 times as long as the pollinia; lip 3.5—4 mm. long; spur 5 mm. long; leaves 3—5 cm. long, 7—10 mm. wide . . . . . **8. R. Peglerae**

Lip more or less quadrangular or quadrangular-elliptical, broader towards the base; leaves linear-ligulate to oblong-oblanceolate, up to 15 cm.

long and 2.5 cm. broad; lateral sepals 2.5—4 mm. long; lip 2—3.5 mm. long, 3—4.5 (rarely to 5.4) mm. broad; spur 5—10 mm. long, less than 1 mm. in diameter . . . . . **9. R. rutilum**

Enumeration of Species.

The following abbreviations following the specimens give the herbaria from which specimens have been seen: B, Berlin; Br, Brussels; BM, British Museum; K, Kew; P, Paris.

1. R. laxiflorum SUMMERHAYES in Kew Bull. 1936, 225; SUMMERHAYES in HUTCH. & DALZ., Fl. West Trop. Afr. II. 449 (1936).

Ivory Coast: Mt. Goula, near Danané, 445 m., April 1909, CHEVALIER 21213 (P).

Gold Coast: Aburi Gardens, on coffee trees, March 1902, JOHNSON 858 (type, K).

2. R. obanense SUMMERHAYES in HUTCH. & DALZ. l. c. — *Angraecum obanense* RENDLE, Cat. Talb. Nig. Pl. 104, t. 14, fig. 1—2 (1913).

S. Nigeria: Oban District, 1911, TALBOT 896 (type, BM).

3. R. globuloso-calcaratum SUMMERHAYES, comb. nov. — *Angraecum globuloso-calcaratum* DE WILDEM. in Bull. Jard. Bot. Brux. V. 186 (1916).

Belgian Congo: between Zobia and Buta, May 1907, SERET 871 (type, Br, BM, K).

I am doubtful as to the specific distinctness of species 2 & 3. The differences are very slight and both species are very distinct from any others in the genus. In view of the considerable geographical separation I have decided to maintain the two species pending the discovery of further specimens.

4. R. longicalcar SUMMERHAYES in Kew Bull. 1936, 226.

S. Nigeria: Oban District, 1911, TALBOT 937 (BM); Kwa River, Obutong Beach, common, TALBOT 939 (type, BM).

5. R. Burttii SUMMERHAYES, comb. nov. — *Diaphananthe Burttii* SUMMERHAYES in Kew Bull. 1934, 211.

Belgian Congo: Virunga Mountains, Namlagira Volcano, east slope, 1950 m., Jan. 1931, BURTT 3138 (type, K).

When I first described this species I suggested that it might be better placed in *Rhipidoglossum*. As a result of further work on the Angraecoid orchids this view is now confirmed. *R. Burttii* possesses a much shorter stem than any of the other species, while the rostellum middle lobe is short and triangular, but in other features, e.g. the shapes of the perianth members and the pollinia, the species is typical of the genus.

6. **R. brevifolium** SUMMERHAYES, sp. nov.; affine *R. rutilo* (RCHB.F.) SCHLTR., a quo caulibus longioribus ± rectis, foliis brevioribus magis distantibus, inflorescentiis brevioribus, floribus majoribus, petalis ± ovatus, labello pro rata angustiore apice retuso distinguitur.

Herba epiphytica vel terrestris; caules ± erecti, usque ad 45 cm. longi, 2.5—4 mm. diametro, inferne vaginis foliorum delapsorum fere omnino obtecti, superne subdistanter pluri- vel multi-foliati, per totam longitudinem radices ± patentes pauciramosas glabras emittentes. *Folia* vaginis vix imbricantibus, ± patentia, oblonga vel lanceolato-oblongo, basi in vaginam ± abrupte angustata, apice valde inaequaliter bilobulata, lobulo longiore obtuso incurvato, lobulo breviore brevissimo vel fere nullo incurvato, 3.5—6.5 cm. longa, 8—16 mm lata. *Inflorescentiae* ex axillis foliorum vel foliorum delapsorum ortae, arcuatae vel subpendulae, fere per totam longitudinem ± dense multiflorae, usque ad 6 cm. longae, basi vaginis pluribus imbricantibus obtusis vel subacutis instructae; rhachis gracilis, glabra; bracteae ochreiformes, e basi sursum dilatatae, uno latere acutae, 1—2.5 mm. longae; ovarium cum pedicello basi valde incrassato circiter 2 mm. longum. *Flores* patentes, pallide flavi, paulo suaveolentes. *Sepalum intermedium* ellipticum, apiculatum, circiter 4 mm. longum, vix 2.5 mm. latum, trinervium; sepala lateralia e basi angusta elliptico-ovata, rotundata, vel obtusa, 4 mm. longa, 2 mm. lata, uninervia. *Petala* oblique quadrato-ovata, obtusa vel subacuta, 3 mm. longa et fere lata. *Labellum* diagonaliter quadrato-orbiculare, apice ipso breviter bilobum, lobis rotundatis, sinu latiusculo lobulo humillimo lato interjecto, totum 4.5 mm. longum, circiter 4 mm. latum; calcar cylindricum, leviter curvatum vel fere rectum, apice obtusum, circiter 6.5 mm. longum. *Columna* brevis, crassa, 1.5 mm. longa; anthera hemisphaerica, antice truncata; pollinia sphaeroidea, stipitibus 2 linearibus, viscidiis 2 distinctis ellipticis parvis instructa; rostellum paulo productum, breviter trilobum, lobo intermedio lato truncato, lobis lateralibus intermedio multo minoribus.

São Tomé: Lagoa Amelia, in crater swamp, 1260 m., epiphytic and growing among the grass, common, Nov. 1932, EXELL 220 (BM); 387 (type, BM, K).

This species is chiefly noticeable on account of the terrestrial habit, the stiff erect or scrambling stems, the short and relatively distantly placed leaves and the short inflorescences. The lip is about as long as or slightly longer than broad and slightly retuse or cleft at the apex. In the general structure of the flowers it agrees well with other species. The rostellum middle lobe, however, is broad and truncate and not produced to such an extent as generally in the genus.

7. **R. xanthopollinium** SCHLTR. in Beih. Bot. Centralbl. XXXVI. 2, 81 (1918) — *Aëranthus xanthopollinius* RCHB.F. in Flora, XLVIII. 190 (1865) — *A. erythropollinius* RCHB.F. l. c. (1865) — *A. Gerrardi* RCHB.F. in Flora, L., 117 (1867) — *Angraecum Gerrardi* BOLUS, Icon. Orch. Austr.-Afr. I, t. 7 (1893) — *Mystacidium Gerrardi* BOLUS in Journ. Linn. Soc. Bot. XXV. 187 (1889); BOLUS in Trans. S. Afr. Phil. Soc. XVI. 145 (1905); DUR. & SCHINZ, Consp. Fl. Afr. V. 52 (1892); ROLFE in DYER, Fl. Cap. V. iii. 76 (1912) — *Mystacidium xanthopollinium* DUR. & SCHINZ, l. c. 55 (1892); ROLFE in DYER, Fl. Trop. Afr. VII. 173 (1897); RENDLE, Cat. Afr. Pl. Welw. II. 11 (1899) — *Mystacidium erythropollinium* DUR. & SCHINZ, l. c. 52 (1892) — *Listrostachys Scheffleriana* KRAENZL. in ENGL. Bot. Jahrb. XXXIII. 75 (1902) — *Mystacidium Mahoni* ROLFE in Kew Bull. 1906, 116 — *Rhipidoglossum Gerrardi* SCHLTR. in Beih. Bot. Centralbl. XXXVI. 2, 80 (1918) — *R. Woodianum* SCHLTR. l. c. 81 (1918), pro parte.

Uganda: Kiagwe, Kolo Forest, 1125 m., Sept. 1932, EGGELING 904 (K); Bugoma, Bunyoro, in savannah, Aug. 1935, EGGELING 2187 (K); Kipayo, in forest, 1200 m., Sept. 1914, DUMMER 1053 (BM); Mabira Forest, Mubango, 1200 m., Oct. 1920, DUMMER 4439 (K, BM); Entebbe, Botanic Gardens, wild on trees, MAHON 7 (K).

Tanganyika Territory: Usambara, Derema to Monga, 800—1300 m., Nov. 1899, SCHEFFLER 124 (B); Amani, in evergreen forest, 915—930 m., Sept. 1902, ENGLER 579 (B), 584 (B).

Angola: Gulongo Alto, Cuango River, in dense woods, March 1856, WELWITSCH 665 (K, BM, B); Mata de Pungo and near Cabondo, in primitive woods, April 1857, WELWITSCH 678 (type; BM, K); Pungo Andongo, Jan.-April 1879, MECHOW 111 (B).

Natal: no locality, GERRARD 1819 (K, BM); Krans Kop, MCKEN 19 (K); Lower Umzimkulu, MEDLEY WOOD 5893 (B); Alexandra Distr., Friedenas, Umgayeflat, 600 m., in shady woods, March 1910, RUDATIS 887 (K, BM, B); Deepdene near Richmond, in forest, 750 m., Nov. 1864, SANDERSON 831 (B).

Cape Province: Komgha Div., near Komgha, in a wood, Feb. 1893, FLANAGAN 1698 (K, B).

R. xanthopollinium may be distinguished from *R. rutilum*, with which it is sometimes associated, by the constantly narrow, parallel-sided leaves, the laxer-flowered inflorescences, the larger flowers, the more or less flabellate lip and the relatively shorter and thicker spur. It seems to have a more generally southern distribution than its ally although both occur in Uganda. *R. xanthopollinium* has so far not been found

in northern West Africa. The flowers are white, pale yellow or reddish in colour.

8. **R. Peglerae** SCHLTR. in Beih. Bot. Centralbl. XXXVI. 2, 81 (1918) — *Mystacidium Peglerae* BOLUS in Trans. S. Afr. Phil. Soc. XVI. 146 (1905); BOLUS, Icon. Orch. Austr.-Afr. II. t. 6, A (1911); ROLFE in DYER, Fl. Cap. V, iii. 76 (1912).

Cape Province: Kentani Div., near Kentani, in forest, 300—360 m., Feb., PEGLER 993 (type, Bolus Herbarium).

I have not seen this species. It occurs within the geographical range of *R. xanthopollinium* from which it differs only in the smaller flowers and capillary stipites to the pollinia. It is possible that more collecting will show these features not to be constant.

9. **R. rutilum** SCHLTR. in Beih. Bot. Centralbl. XXXVI. 2, 81 (1918), pro maxima parte; MILDBR., Wiss. Ergeb. Zweit. Deutsch. Zentr.-Afr.-Exped. 1910—11, Bot. 94 (1922); SUMMERHAYES in HUTCH. & DALZ. Fl. West Trop. Afr. II. 449 (1936) — *Aëranthus rutilus* RCHB.F. in Flora, LXVIII. 382 (1885) — *Listrostachys rutila* RIDL. in Bolet. Soc. Brot. V. 200 (1887) — *Mystacidium rutilum* DUR. & SCHINZ, Consp. Fl. Afr. V. 54 (1892); ROLFE in DYER, Fl. Trop. Afr. VII. 173 (1897) — *Listrostachys gabonensis* ROLFE, l. c. 161 (1897) — *L. multiflora* ROLFE, l. c. 162 (1897) — *Angraecum Woodianum* SCHLTR. in ENGL. Bot. Jahrb. XXVI. 343 (1899); SCHLTR. Westafr. Kautsch.-Exped. 285 (1900) — *Angraecum* sp. no. 741, RENDLE, Cat. Afr. Pl. Welw. II. 9 (1899) — *Listrostachys Margaritae* DE WILDEM. Notic. Pl. Util. Congo, 150 (1903) — *Rhipidoglossum Woodianum* SCHLTR. in Beih. Bot. Centralbl. XXXVI. 2, 81 (1918), pro parte. — *Diaphananthe Margaritae* SCHLTR. l. c. 98 (1918) — *Chamaeangis Schliebenii* MANSF. in Notizbl. Bot. Gart. Berl. XI. 809 (1933).

French Guinea: Kouria, Aug., POBÉGUIN 1678 (P).

Sierra Leone: Njala, July 1933, DEIGHTON 2784 (K).

São Tomé: Nova Moka, Santa Maria, 800—1350 m., MOLLER (BM).

West Africa: south of Equator, Dec. 1882, HENRIQUES (type, Vienna).

Cameroons: Kribi, near Fenda, 200 m., on undergrowth of forest, July 1911, MILDBRAED 5887 (B).

Gabon: no locality, LOURY 18 (K).

French Congo: R. Ngoko, on trees near river, Sept. 1899, SCHLECHTER 12726 (B).

Belgian Congo: Lakè Leopold Prov., Basenga, Dec. 1901, GENTIL 30 (K, Br.); between Paeli and Kik, Sept. 1916, LACOMBLEZ 78

(BM); Virunga Mts., Namlagira Volcano, in moist forest on east slope, BURTT 3135 (K).

Oubangui-Chari: Haute Kotto, Bambéle, W. of Yalinga, Aug. 1921, LE TESTU 3112 (Herb. Le Testu).

Uganda: Budongo Forest, Sept. 1933, EGGELING 1356, 1370 (K); Bunyoro, Sept. 1935, EGGELING 2226 (K); Siba, Sept. 1935, EGGELING 2229 (K); Budongo, Sept. 1935, EGGELING 2238 (K); Kibale Forest, 1500 m., 1905, DAWE 534 (K); near Fort Portal, in forest, 1500 m., July 1906, BAGSHAWE 1097 (BM); Toro, in forest, 1500 m., SNOWDEN 734 (K), 735 (K, BM); Ruwenzori, Namwamba Valley, 1875 m., in dense forest, Jan. 1935, TAYLOR 2807 (BM); Ankole, Mt. Lutoto, in forest near lake, 1380 m., SNOWDEN 1643 (K, BM); Namanve, near Kampala, 1350 m., by edge of swamp, Oct. 1934, SYNGE 1226 (BM); Chagwe, Sept. 1921, LANKESTER 27 (K); Mabira Forest, 1200 m., Dec. 1908, BROWN 471 (BM); same locality, Oct. 1916, DUMMER 2985 (K, BM); Mubango, Sept. 1919, DUMMER 4299 (K); Nabagulo Forest, near Bago, 1200 m., Sept.-Oct. 1917, DUMMER 3277 (BM); Kipayo, 1200 m., in forest, Sept. 1914, DUMMER 1053 (BM); Lemunga Forest, FYFFE 205, 207 (K).

Kenya Colony: Kakamega Forest, May 1933, DALE 3108 (K); Ngong Escarpment, 2100 m., May 1931, NAPIER 1302 (K); Saui, May 1902, KÄSSNER 741 (K, B).

Tanganyika Territory: Usambara, Pangani Valley, KIRK (K); Amani, in forest, 980 m., Sept. 1903, WARNECKE 500 (K, B); same locality, 915 m., Sept. 1902, ENGLER 581 (B); Monga near Amani, Dec. 1912, GROTE 3977 (B); Mahenge, 1000 m., in savannah, May 1932, SCHLIEBEN 2168 (BM, B); Lindi Distr., Muera Plateau, 650 m., in forest, May 1935, SCHLIEBEN 6532 (B).

Nyasaland: no locality, 1895, BUCHANAN (MEDLEY WOOD 6027) (B); no locality, 1895, BUCHANAN 213 (BM).

Angola: Pungo Andongo, banks of Lombe River, 720—1140 m., March 1857, WELWITSCH 741 (BM).

A very widely spread species from which *R. xanthopollinium* differs by the characters given under that species. The flowers vary in colour from white through pale yellow and greenish up to brownish or reddish. The width of the leaves varies very considerably being in some plants as narrow as in *R. xanthopollinium* and in others over 2 cm. wide.