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Studies in the genus *Habenaria* Willd. (Orchidaceae). I.

Jany Renz & Rosemary Grosvenor

RÉSUMÉ

RENZ, J. & R. GROSVENOR (1979). Contribution à l'étude du genre *Habenaria* Willd. (Orchidaceae). I. *Candollea* 34: 357-365. En anglais, résumé français.

Description de deux espèces nouvelles de *Habenaria* — *H. petraea* et *H. riparia* — provenant du Nyika-Plateau en Malawi.

ABSTRACT

RENZ, J. & R. GROSVENOR (1979). Studies in the genus *Habenaria* Willd. (Orchidaceae). I. *Candollea* 34: 357-365. In English, French abstract.

Two new species of *Habenaria* — *H. petraea* and *H. riparia* — from the Nyika-Plateau in Malawi are described.

The present paper deals with two new species of *Habenaria*, belonging to the section *Replicatae*, both from Malawi. The members of this section are widespread in savanna and open marshland in tropical and southern Africa. The centre of their distribution undoubtedly lies within the south-eastern region of the continent, i.e. mainly the "Flora Zambesiaca"-area (Zambia, Zimbabwe-Rhodesia, Malawi and Mozambique) and Tanzania. The *Replicatae* in the sense of KRÄNZLIN (1892) and SUMMERHAYES (1969) is well characterized by the following features: sepals reflexed, the dorsal always clearly smaller than the laterals; petals bilobed; lip trilobed; stigmatic process exceeding 2 mm. Several of the many taxa of this section are taxonomically somewhat critical, as some characters may be relatively indistinct in closely allied species, which otherwise are geographically or ecologically well defined. In such cases, conspicuous vegetative characters, especially if correlated with distinctive floral structures, can be significant.

Habenaria petraea Renz & Grosvenor, **spec. nova** (Figs. 1-2).

Typus: *Grosvenor & Renz 1104* (holo-: SRGH; iso-: K et Renz).

Ex affinitate *H. kyimbilae*, sed habitu graciliore, inflorescentia laxa, calcar longiore et horizontaliter patenti, distinguenda.

Herba terrestris, gracilis, 25-50 cm alta. *Tubera* sessilia, parva, ovoidea. *Caulis* ± flexuosus, foliosus, glaber. *Folia* patentia, linearia vel anguste lanceolato-linearia, acuminata, usque ad 10 cm longa et 1 cm lata; infima ad vaginas reducta, interdum brunneo-guttulata; superiora basi vaginantia, in bracteas decrescentia. *Inflorescentia* laxiuscula, interdum pauciflora, breviter cylindrica, usque ad 10 cm longa, 4-5 cm diametro. *Bracteae* ovato-lanceolatae, acuminatae, quam ovaria cum pedicellis breviores, usque ad 18 mm longae. *Flores* patentes vel subpatentes, pallide virides; pedicelli subpatentes, recti, usque ad 16 mm longi, basin versus tantum torti, in ovaria ca. 10 mm longa sub angulo 90°-120° transeuntes. *Sepalum* intermedium reflexum, oblongum, concavum, apice obtusum et ± carnosulum, 6-7 mm longum, 2.5-3 mm latum; *sepala* lateraliter deflexa, oblique obovata, basin versus attenuata, 8-10 mm longa, 5-6 mm lata, lateraliter apiculata, apiculo ca. 1 mm longo. *Petala* fere ad basin bipartita; partitio postica erecta, linearis, obtusiuscula, supra dense pubescens, marginibus ciliatis; partitio antica quam postica duplo longior, anguste lanceolata, apice leviter curvata, horizontaliter patens vel paulo deflexa, supra pubescens, marginibus ciliolatis, 10-12 mm longa, 1-1.5 mm lata. *Labellum* dependens, fere usque ad basin tripartitum, glabrum; lobus intermedius longitudine lateraliter superans, linearis, obtusiusculus, apicem versus curvatus, 12-14 mm longus, 0.4-0.6 mm latus; lobi laterales lineares vel anguste lineari-lanceolati, acuti, leviter curvati, 8-10 mm longi, 0.8 mm lati. *Calcar* horizontaliter patens, ± sigmoideum, apice versus modice inflatum, medio interdum tortum, 15-20 mm longum. *Gynostemium* 4 mm altum, obtusum, antherae canalibus 4.5-5 mm longis, processibus stigmatiferis prorsum projectis, apice paululum incrassatis, 5-6 mm longis, rostellum lobo intermedio anguste triangulari, acuto, 2 mm longo, auriculis (staminodiis) bilobulatis, 1-1.2 mm longis.

Plants 20-50 cm tall. Tubers sessile, ovoid. *Stem* slender, somewhat flexuous, leafy, glabrous. *Leaves* 7-9, the lowermost reduced to sheaths, often with dark brownish speckles, the upper ones linear-lanceolate, acute or acuminate, ± folded, spreading, 6-12 cm long, 0.5-1 cm broad, diminishing rapidly in size to bract-like leaflets with out-turned acuminate tips. *Inflorescence* rather loose, 7-20-flowered, 5-10 cm long, 4-5 cm in diameter. *Bracts* green or brownish-green, ovate-lanceolate, finely acuminate, about as long as pedicels, 10-20 mm long. *Flowers* spreading, pale-green; pedicel straight and slightly spreading, up to 16 mm long, twisted in lower part; ovary bent in a wide angle from the pedicel and horizontal (vertical to axis of inflorescence), 8-10 mm long. *Dorsal sepal* reflexed, oblong, obtuse, somewhat fleshy at apex,

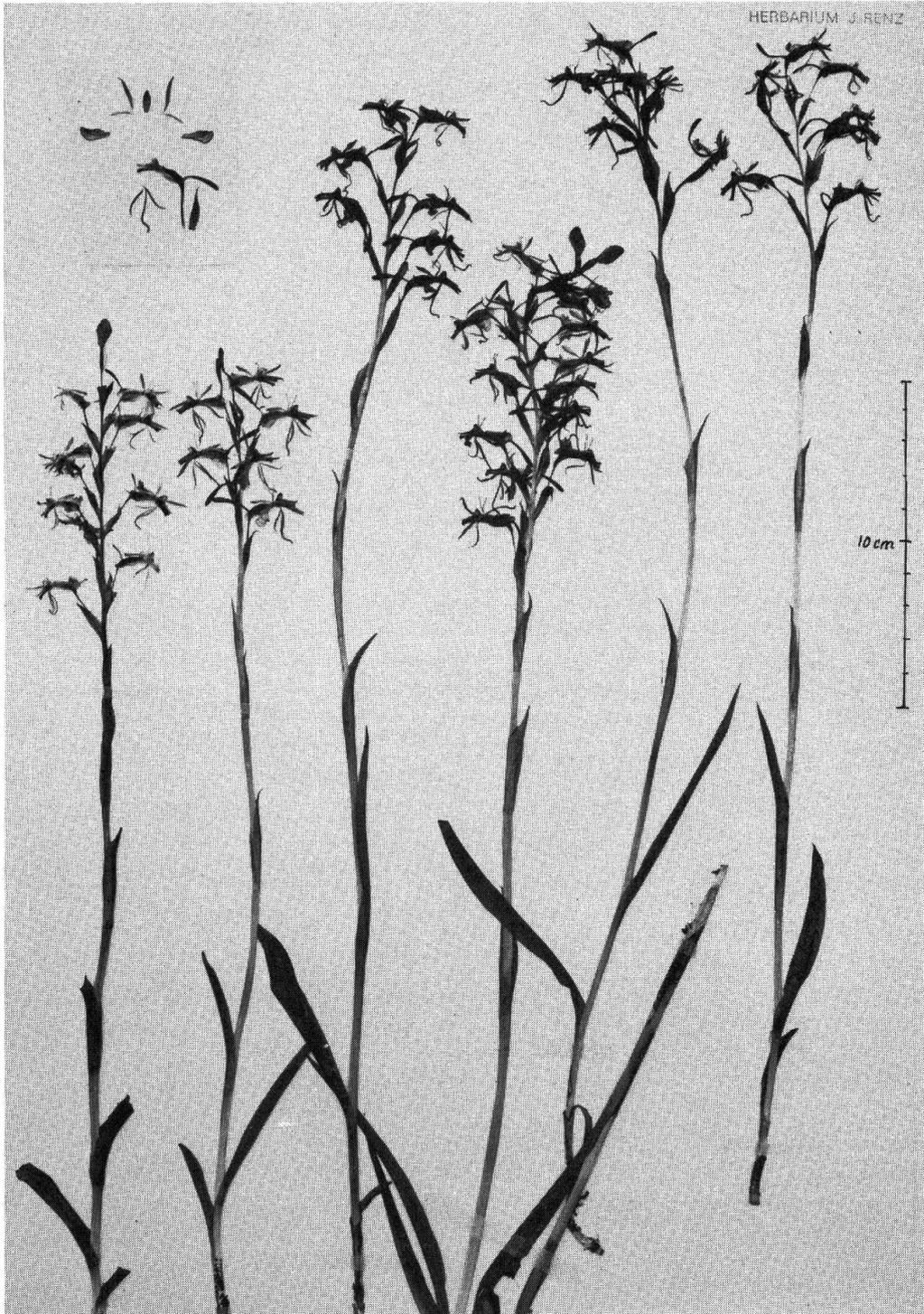


Fig. 1. — *Habenaria petraea* Renz & Grosvenor, Malawi, no. 11552.

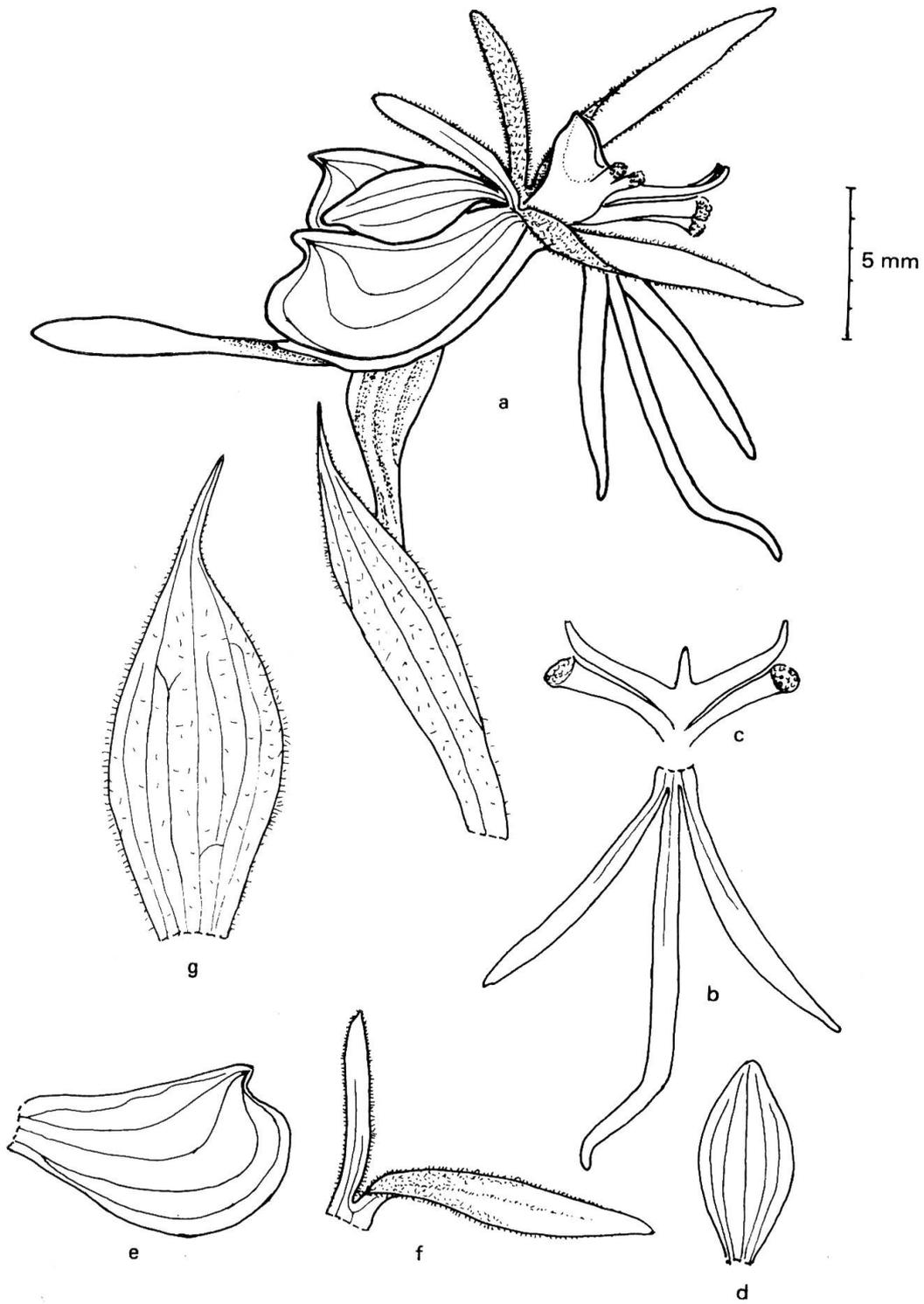


Fig. 2. — *Habenaria petraea* Renz & Grosvenor.
 a, flower; b, lip; c, rostellum and stigmatic process spread out; d, dorsal sepal; e, lateral sepal;
 f, petal; g, bract. All after a dissected flower from no. 1104.

concave 6-7 mm long, 2.5-3 mm broad. *Lateral sepals* deflexed, obliquely obovate-lanceolate, narrowed towards the base, 8-10 mm long, 5-6 mm broad, with a lateral apiculum up to 1.2 mm long. *Petals* bipartite nearly to the base; posterior lobe erect or recurved, linear, obtuse, 6-7 mm long, 0.6 mm broad, upper surface densely pubescent, margins ciliolate; anterior lobe up to twice as long as the posterior, spreading forwards, narrowly lanceolate, acute, slightly flexuous, with the tips curved, densely pubescent above, margins ciliate, 10-12 mm long, 1-1.5 mm broad. *Lip* deflexed, tripartite nearly to the base; mid-lobe longer than lateral lobes, flexuous, linear, obtuse, 12-14 mm long, 0.4-0.6 mm broad; lateral lobes slightly curved, linear-lanceolate, acute, 8-10 mm long, 0.6-0.8 mm broad. *Spur* slightly sigmoid, horizontally spreading, first parallel to ovary, then somewhat bent upwards, moderately swollen in apical third, 15-20 mm long, partly twisted. *Column* 3-4 mm high; anther canals porrect, 4.5-5 mm long; stigmatic arms projecting forwards, slender, slightly swollen at apex, glabrous, 4-5 mm long, usually slightly shorter than the anther canals; rostellum mid-lobe narrowly triangular, acute, 2 mm long; auricles bilobed, each lobule 1-1.2 mm long, \pm parallel to each other.

Malawi. Distr. Rumphi, Nyika-Plateau, S. of Chelinda Camp, on Chosi summit, 2290 m, wet grassy patches on granite rocks, March 1977, *Grosvenor & Renz 1104!* (holotype). N.W. Zambia Resthouse, 2100-2200 m, *Renz & Grosvenor 11552!* Dembo Bridge, E. of Chelinda Camp, 2150 m, *Renz & Grosvenor 11295!* Chowo Rock, *G. Williamson 273! 287!* (K, SRGH). Kasaramba View, 2400 m, April, *J. Pawek 9327!* (SRGH). Distr. Mulanje, above Chambe, *J. S. Balls 1027!* (SRGH).

Zambia. Nyika-Plateau, 2100 m, in peat grit tussocks or humus pockets on granite, February 1960, *W. D. Holmes 0214!* (K, SRGH). Lundazi, *Williamson 946!* (K, SRGH).

H. petraea occupies the open low layers of wet humus soil on flat granite rocks, often also shallow depressions, where humus and water accumulate. Flowering from February to April. The flowers are pale green.

The species is closely allied to *H. kyimbilae* SCHLECHTER (1915), also having densely pubescent petals. It can however easily be distinguished by the narrow leaves, the lax, shorter and broader inflorescence, the elongated pedicel, the longer, horizontally directed, slightly sigmoid spur, which is only moderately inflated in the apical part, and the longer stigmatic arms and anther canals. *H. kyimbilae* has a wide range of distribution in tropical Africa, having been recorded from Zambia, Malawi, Tanzania and Zaire (SUMMER-HAYES, 1968). *H. petraea* is so far only known from the Nyika-Plateau, a high mountain area, which extends from the northeast of Zambia into Malawi as far as to an abrupt escarpment on the western border of Lake Malawi (formerly Lake Nyasa), and from the Mulanje mountains in the south of Malawi.

Habenaria riparia Renz & Grosvenor, **spec. nova** (Figs. 3-4).

Typus: *Grosvenor & Renz 1180* (holo-: SRGH; iso-: Renz).

Affinis *H. welwitschii* Reichenb. fil., a qua imprimis floribus majoribus, labelli lobis lateralibus falcate lanceolato-linearibus, petalorum partitione antica quam postica paulo longiore, staminodiis bene bilobulatis, distinguitur.

Herba terrestris, ad 60 cm alta. *Tubera* parva, ellipsoidea. *Caulis* rectus, foliatus, omnino glaber. *Folia* inferiora 1-2 bene evoluta, erecta, longe vaginantia, linearia, breviter acuminata, usque 11-20 cm longa, 1 cm lata, infimum ad vaginam reductum, superiora parva, caule adpressa, in bracteas transeuntia. *Inflorescentia* cylindrica, subdense multiflora, 8-12 cm longa, 4 cm diametro. *Bracteae* lanceolatae, acuminatae, sparse pilosae, margine ciliatae, pedicellis cum ovariis 2-3-plo breviores, inferiores usque ad 15-20 mm longae. *Flores* virides, medio albescentes, longe pedicellati; pedicelli recti, \pm paralleli ad axem inflorescentiae, 20-25 mm longi, glabri. *Ovarium* papillosum, leviter arcuatum, 6-8 mm longum. *Sepala* glabra; intermedium reflexum, ellipticum, obtusum, concavum, 7 mm longum, 3 mm latum; lateralia deflexa, valde oblique obovata, lateraliter apiculata, 10-12 mm longa, 6 mm lata. *Petala* fere ad basin bipartita; partitio postica erecta vel \pm reflexa, linearis, margine minute ciliolata, 6 mm longa, 0.4-0.5 mm lata; partitio antica \pm deflexa, inaequaliter ovato-lanceolata, apice acutiuscula, 7.5-9 mm longa, 3.5-4 mm lata, basin versus minutissime papilloso-pubescentis, marginibus \pm crenulatis. *Labellum* fere ad basin tripartitum; lobus intermedius dependens, curvatus, linearis, medio leviter latior, 12 mm longus, \pm 1 mm latus; lobi laterales falcate lanceolato-lineares, acuti, 6-7 mm longi, 1.5-2 mm lati. *Calcar* leviter sigmoideum, parallelum ad ovarium et pedicellum, nullo modo tortum, 16-19 mm longum, basin versus leviter incrassatum, apicem versus inflatum. *Gynostemium* 3 mm altum, obtusum, antherae canalibus 7 mm longis, apice sursum curvatis, processibus stigmatiferis prorsum projectis, graciliter teretibus, apice vix incrassatis, superne papillosis, 6 mm longis, rostellum lobo intemedio anguste triangulari, 1.5 mm longo; auriculis (staminodiis) bilobulatis, circiter 1 mm longis, lobis parallelis.

Plants terrestrial up to 60 cm tall. *Tubers* small, ellipsoid. *Stem* erect, leafy, glabrous. *Leaves* few; the lowermost reduced to a sheath, succeeded by two erect, well developed linear or narrowly lanceolate, acute, long-sheathed leaves, up to 20 cm long (the sheathed part included), up to 1 cm broad; those above decreasing immediately in size and becoming bract-like. *Inflorescence* cylindric, rather laxly 10- to many flowered, up to 12 cm long and 4 cm in diameter. *Bracts* green, ovate-lanceolate or lanceolate, acuminate, decreasing in length upwards, the lowest 20 mm long, somewhat less than half as long as pedicel + ovary, margins ciliate. *Flowers* green, becoming whitish towards the centre, with straight, 20-25 mm long pedicels, \pm parallel to the axis of inflorescence; ovary papillose, slightly curved outwards, 7-9 mm long.

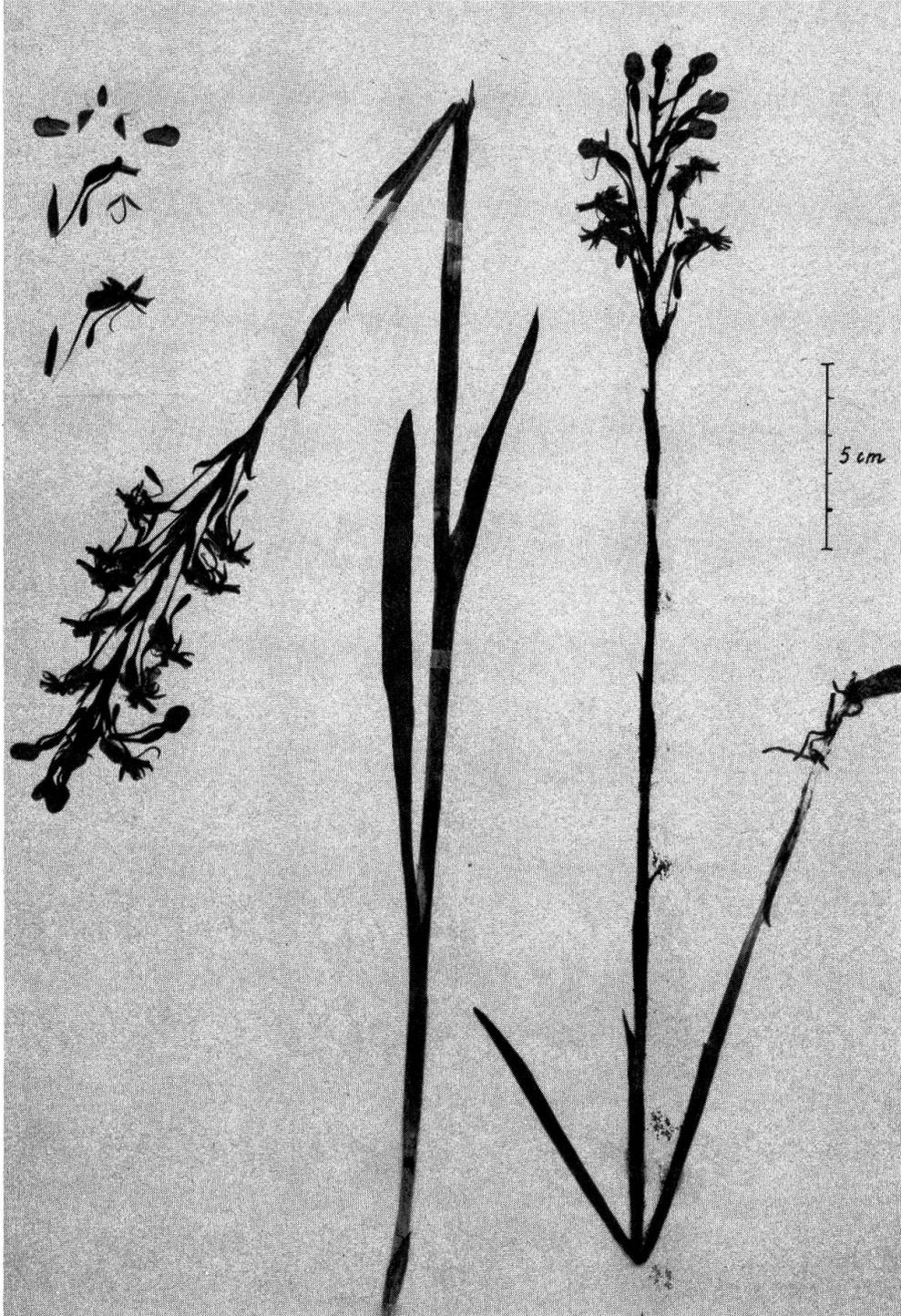


Fig. 3. — *Habenaria riparia* Renz & Grosvenor, Malawi, no. 1180.

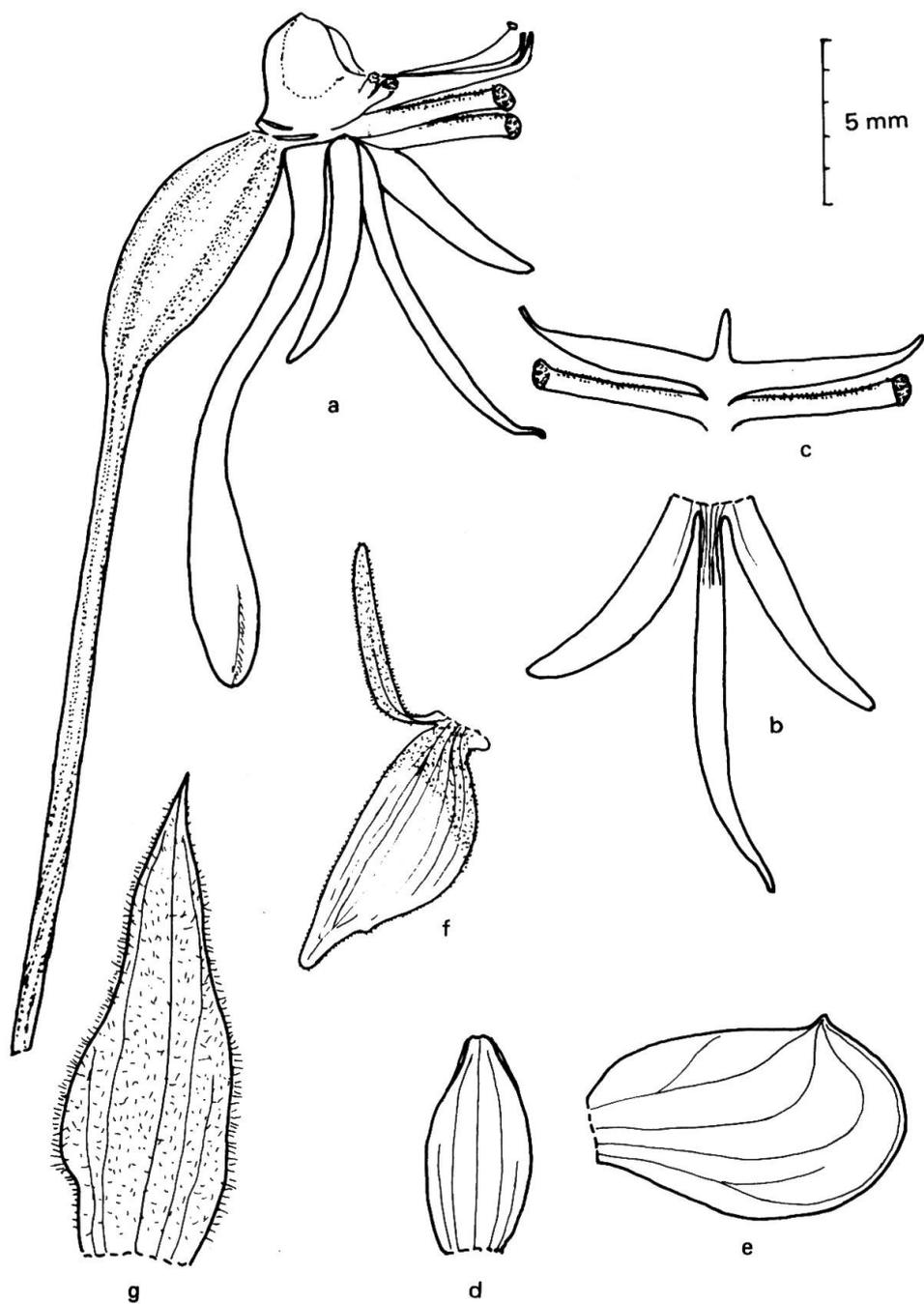


Fig. 4. — *Habenaria riparia* Renz & Grosvenor.
 a, column, lip, spur and ovary with pedicel; b, lip; c, rostellum and stigmatic process spread out;
 d, dorsal sepal; e, lateral sepal; f, petal; g, bract. All after a dissected flower from no. 1180.

Dorsal sepal reflexed, ovate-elliptic, obtuse, concave, apex somewhat hooded, about 7 mm long and 3 mm broad. *Lateral sepals* deflexed, obliquely obovate, 10 mm long and 6 mm broad, with a lateral apiculum. *Petals* bipartite nearly to the base; posterior lobe erect or recurved, linear, 6 mm long, 0.4-0.5 mm broad, papillose-pubescent above with ciliolate margins; anterior lobe longer and broader, 7.5-9 mm long, 3.5-4 mm broad, spreading, obliquely ovate-lanceolate, slightly narrowed at base, margins minutely crenate, minutely papillose-pubescent above, mainly towards the base. *Lip* tripartite to the base; mid-lobe longer and narrower than the side-lobes, hanging downwards, linear, acute, often curved, 12-14 mm long, 1 mm broad; side-lobes spreading forwards, sickle-shaped, lanceolate-linear, acute, 6-7 mm long, 1.5-2 mm broad. *Spur* hanging down, slightly flexuous, gamma-shaped, parallel to ovary and pedicel and nearly half as long, not twisted, swollen in apical half, 16-19 mm long. *Column* 3 mm high; stigmatic arms projecting forwards, slender, not much widened at apex, papillose-pubescent above, 6 mm long; anther canals 7 mm long, very slender; rostellum mid-lobe narrowly triangular, acute, 1.5 mm long; auricles (staminodes) bilobed, 1 mm long, lobules \pm parallel to each other.

Malawi. Distr. Rumphu, Nyika-Plateau, Dembo Bridge, 6 km E. of Chelinda Camp, in swampy grassland near stream, 2150 m, March 1977, *Grosvenor & Renz 1180!* (holotype).

The species is similar to *H. welwitschii* REICHENB. fil. (1865), from which it differs by the larger flowers and the lateral lobes of the lip, which are falcately lanceolate-linear and not obliquely obovate. Also the petals — especially the anterior lobe — are \pm papillose-pubescent, whereas the petals of *H. welwitschii* are glabrous.

H. riparia is also allied in habit to *H. weberana* SCHLECHTER (1915), however the latter has a lip with a distinct undivided base, which is 2-3 mm long, and narrowly curved-lanceolate anterior petal lobes, which are about twice as long as the posterior lobes.

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