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**NOTES ON UTRICULARIA**

**by**

**P. TAYLOR (Kew)**

A detailed account of the morphology and taxonomy of the genus *Utricularia* in Africa (south of the Sahara) and Madagascar is nearing completion. The following two new combinations may, however, be required for 'Prodromus of a Flora of South West Africa' before the publication of the above work.

*Utricularia inflexa* Forsk., Fl.Aegypt.Arab.Descr.Pl.9  
(1775)

var. *inflexa*

*Utricularia inflexa* Forsk., Fl.Aegypt.Arab.  
Descr.Pl.9(1775); - Vahl, Enum.1:196(1805). - Del.,  
Fl.Aegypt.4(1814). - Roem.etSchultes, Syst.1:194(1817).  
- Smith in Rees, Cyclop.37:no.29(1819). - A.DC. in DC.,

Prodr.8:4(1844). - Oliv. in Trans.Linn.Soc.29:123  
(1875). - Boiss., Fl.Orient.4:3(1879). - Kam. in Engl.  
Bot.Jahrb.33:108(1902).

*Utricularia thonningii* Schumach. in Schumach.  
et Thonn., Beskr.Guin.Pl.12(1827). - A.DC. in DC.,  
Prodr.8:4(1844). - De Wild. et Th.Dur., Reliq.Dewevr.  
172(1901). - Stapf in Dyer, Fl.Trop.Afr.4,2:487(1906).  
- Th. et Hel.Dur., Syll.Fl.Congo 408(1909) partim excl.  
syn. *U. stellaris*. - Pellegr. in Bull.Soc.Bot.Fr.61:19  
(1914). - Hutch. et Dalz., Fl.W.Trop.Afr.2:234(1931).  
- Andrews, Fl.Pl.Sudan 3:154(1956).

*Utricularia stellaris* L.f. var. *inflexa*  
(Forsk.) C.B.Cl. in Hook. f., Fl.Brit.Ind.4,2:329(1884).  
- Dur. et Schinz, Etud.Fl.Congo 1:214(1896). - De Wild.  
et Th.Dur., Contr.Fl.Congo 1,2:46(1900).

*Utricularia inflexa* Forsk. var. *remota* Kam. in  
Deutsch.Bot.Gesell.12:5(1894) et in Engl.Bot.Jahrb.33:  
109(1902).

*Utricularia inflexa* Forsk. var. *tenuifolia* Kam.  
in Deutsch.Bot.Gesell.12:5(1894) et in Engl.Bot.Jahrb.  
33:109(1902).

*Utricularia oliveri* Kam. in Deutsch.Bot.Gesell.  
12:5(1894) et in Engl.Bot.Jahrb.33:108(1902).

*Utricularia oliveri* Kam. var. *fimbriata* Kam.  
in Deutsch.Bot.Gesell.12:4(1894) et in Engl.Bot.Jahrb.  
33:108(1902).

*Utricularia oliveri* Kam. var. *schweinfurthii*  
Kam. in Deutsch.Bot.Gesell.12:4(1894) et in Engl.Bot.  
Jahrb.33:108(1902).

*Utricularia inflexa* Forsk. var. *major* Kam. in  
Engl.Bot.Jahrb.33:109(1902).

*Utricularia thonningii* Schumach. var. *laciniata*  
Stapf in Dyer, Fl.Trop.Afr.4,2:488(1906). - Fries, Wiss.  
Ergebn.Schwed.Rhod.-Kongo-Exped.1:299(1916).

[*Utricularia stellaris* sensu Perrier in  
Humbert, Fl.Madag.Lentib.3(1955) partim non L. f.] .

var. *stellaris* (L. f.) P.Taylor, comb. et stat. nov.

*Utricularia stellaris* L. f., Suppl.86(1781). -  
Willd., Sp.Pl.ed.4,1:113(1797) partim excl. syn. *U.*  
*inflexa* Forsk. - Roxb., Corom.Pl.2:42,t.180(1798). -

Vahl, *Enum.* 1:196(1805). - Roem. et Schultes, *Syst.* 1:194(1817). - Smith in Rees, *Cyclop.* 37:no.30(1819). - Roxb., *Fl.Ind.* 1:143(1820) et 1:143(1832). - E.Mey., *Comm.Fl.Afr.Austr.* 281(1837). - A.DC. in DC., *Prodr.* 8:3(1844). - Wight, *Icon.* 4:9,t.1567(1850). - Oliv. in *Journ.Linn.Soc.* 3:174(1859). - Dalz. et Gibs., *Bomb.Fl.* 135(1861). - Oliv. in *Journ.Linn.Soc.* 9:146(1865). - F.v. Muell., *Fragm.* 6:161(1867). - Boiss., *Fl.Orient.* 4:3(1879). - Bailey, *Synops.Queensl.Fl.* 361(1883). - C.B. Cl. in Hook. f., *Fl.Brit.Ind.* 4:328(1884) partim excl. var. *inflexa* (Forsk.) C.B. Cl. - Goebel in *Ann.Jard.Bot.Buitenz.* 9:89(1890). - Kam. in *Engl.,Pflanzenfam.* 4,3b:112(1895). - Trimen, *Fl.Ceylon* 3:267(1895). - Dur. et Schinz, *Etud.Fl.Congo* 1:214(1896). - Hiern, *Cat.Afr.Pl.Welw.* 1:785(1900) partim quoad spec. Welw. 268 et 268a. - Bailey, *Queensl.Fl.* 1125(1901). - Kam. in *Engl.Bot.Jahrb.* 33:107(1902) et in *Warb., Kunene-Zamb.Exped.* 373(1903). - Stapf in Dyer, *Fl.Cap.* 4,2:433(1904) et in Dyer, *Fl.Trop.Afr.* 4,2:488(1906). - Cooke, *Fl.Bombay* 2:316(1905). - Pellegr. in *Bull.Soc.Bot.Fr.* 61:19(1914). - Gamble, *Fl.Madras* 980(1921). - Dinter in *Fedde Repert.* 24:367(1928). - Pellegr. in Lecomte, *Fl.Gen.Indoch.* 4:470(1930). - Hutch. et Dalz., *Fl.W.Trop.Afr.* 2:234(1931). - Santapau in *Journ.Bombay Nat.Hist.Soc.* 49:217(1950). - Perrier in Humbert, *Fl.Madag., Lentib.* 3(1955) partim. - Andrews, *Fl.Pl.Sudan* 3:154(1956) partim excl. syn. U. incerta Kam.

*Utricularia stellaris* L. f. var. *coromandeliana* A.DC., *Prodr.* 8:3(1844).

*Utricularia macrocarpa* Wall. ex C. B. Cl. in Hook. f. *Fl.Brit.Ind.* 4,2:328(1884) pro syn.

*Utricularia muelleri* Kam. in *Deutsch.Bot.Gesell.* 12:5(1894) et in *Engl.Bot.Jahrb.* 33:108(1902).

*Utricularia stellaris* L. f. var. *dilatata* Kam. in *Deutsch.Bot.Gesell.* 12:3(1894) et in *Engl.Bot.Jahrb.* 33:108(1902).

*Utricularia flexuosa* Vahl var. *parviflora* Kam. in *Engl.Bot.Jahrb.* 33:110(1902). - De Wild., *Etud.Fl. Bas et Moyen Congo* 1:75 (1903) sphalm. "var. *flexuosa*". - Th. et Hel. Dur., *Syll.Fl.Congo* 407 (1909) sphalm. "var. *flexuosa*".

*Utricularia stellaris* L.f. var. *breviscapa* Kam. in *Engl.Bot.Jahrb.* 33:108(1902).

*Utricularia stellaris* L.f. var. *filiformis* Kam. in *Engl.Bot.Jahrb.* 33:108(1902).

*Utricularia trichoschiza* Stapf in Dyer, *Fl.Trop.Afr.* 4,2:488(1906). - Hutch. et Dalz., *Fl.W.Trop.Afr.* 2:

234(1931).

STAPF (1906) considered *U. inflexa* Forsk., *U. thonningii* Schum. and *U. stellaris* L.f. to be distinct species and proposed a fourth *U. trichoschiza*. After a careful study of a very large amount of material (over 1.000 specimens) I find myself in agreement with C. B. CLARKE (1884) who recognised a single species and a variety. Unfortunately, he adopted *stellaris* for his typical variety, whereas in fact *inflexa* has priority by six years, making the above new combination necessary.

*U. trichoschiza* Stapf I consider no more than a slightly aberrant form of var. *stellaris*.

FERRIER (1955) cites no specimens but the sheets in the Paris herbarium annotated by him prove to be a mixture of var. *inflexa*, var. *stellaris* and a second, quite distinct species, *U. foliosa* L.

ANDREWS (1956) on my advice reduced *U. incerta* Kam. to *U. stellaris*. The specimen is sterile but I now consider it to be almost certainly *U. vulgaris* L., which occurs elsewhere in tropical and South Africa.

*Utricularia gibba* L., Sp.Pl.18 (1753)

subsp. *gibba*

*Utricularia gibba* L., Sp.Pl.18(1753). - Willd., Sp.Pl., ed.4, 1:113(1798). - Vahl, Enum.1:204(1804). - Pursh, Fl.Amer.Sept.1:16(1814). - Elliot, Sketch 1:22 (1816). - Nuttall, N.Am.Pl.13(1818). - Smith in Rees, Cyclop.37:no.41(1819). - Beck, Bot.N. and Mid.St.287 (1833). - A. DC. in DC., Prodr.8:11(1844). - A.Gray, Manual Bot.N.Un.St.287(1848). - Hemsley, Biol.Centr. Amer.2:470(1882). - Britton et Brown, Ill.Fl.3:193 (1898). - Small, Fl.S.E.Un.St.1091(1903). - Muenscher, Aquatic Pl.U.S.322(1944). - Shinners, Spring Fl. Dallas - Fort Worth Texas 353(1958) et auctt.Amer. Bor. fere omnes.

*Utricularia gibbosa* Hill, Veg.Syst.20:45(1772).

*Utricularia obtusa* Sw., Prod.Veg.Ind.Occ.14 (1788). - Willd.Sp.Pl.ed.4,1:112(1798). - Vahl Enum.1:199(1804). - Sw., Fl.Ind.Occ.1:41(1806)(sphalm. obtu-

sata). - Smith in Rees, Cyclop.37:no.40(1819). - A. DC. in DC., Prodr.8:10(1844). - Benj. in Linnaea 20:490 (1847) et in Mart., Fl.Bras.10:239(1847). - Hemsley, Biol.Centr.Amer.2:470(1882). - Kam. in Engl.Bot.Jahrb. 33:113(1902) et in Warb., Kunene-Zamb.Exped.374(1903). - Stapf in Dyer, Fl.Trop.Afr.4,2:495(1906). - Sylvén in Arkiv för Botanik 8,6:33(1908). - P.Taylor in Fl. Trin.and Tob.2,5:13(1955). - Leon et Alain, Fl.de Cuba 4:479(1957) et auctt.mult.Ind.Occ.et Amer.Centr.

*Utricularia pumila* Walt., Fl.Carol.64(1788).  
Leon et Alain, Fl.de Cuba 4:479(1957).

*Utricularia fibrosa* Walt., Fl.Carol.64(1788).  
- Vahl, Enum.1:199(1804). - Pursh, Fl.Amer.Sept.1:15 (1814). - Elliott, Sketch 1:20(1816). - Roem. et Schultes, Syst.1:196(1817). - Nuttall, N.Am.Pl.12(1818). - Smith in Rees, Cyclop.37:no.39(1819). - A. DC. in DC., Prodr.8:11(1844). - A.Gray, Manual Bot.N.Un.St.ed.6: 396(1890). - Britton et Brown, Ill.Fl.3:192(1898). - Muenscher, Aquatic Pl.U.S.322(1944). - Mason, Fl. Marshes Cal.737(1957) et auctt.mult.Amer.Bor.

*Utricularia biflora* Lam., Ill.1:50(1797). - Vahl, Enum.1:200(1804). - Pursh, Fl.Amer.Sept.1:15 (1814). - Elliott, Sketch 1:23(1816). - Roem. et Schultes, Syst.1:196(1817). - Nuttall, N.Am.Pl.13(1818). - Smith in Rees, Cyclop.37:no.44(1819). - A. DC. in DC., Prodr.8:10(1844). - A.Gray, Manual Bot.N.Un.St.ed.5: 319(1867). - Britton et Brown, Ill.Fl.3:193(1898). - Small, Fl.S.E.Un.St.1091(1903). - Muenscher, Aquatic Pl.U.S.322(1944). - Shinners, Spring Fl.Dallas - Fort Worth Texas 353(1958) et auctt.Amer.Bor. fere omnes.

*Utricularia aphylla* Ruiz et Pavon, Fl.Peruv.1: 20(1798). - Roem. et Schultes, Syst.1:199(1817). - A. DC. in DC., Prodr.8:17(1844).

*Utricularia tenuis* Cav., Ic.5:24(1799). - Vahl, Enum.1:203(1804). - Smith in Rees, Cyclop.37:no.57 (1819). - A. DC. in DC., Prodr.8:10(1844). - Gay, Fl. Chil.4:364(1849).

*Utricularia crenata* Vahl, Enum.1:203(1804). - Smith in Rees, Cyclop.37:no.56(1819).

*Utricularia furcata* Pers. Syn.1:18(1805).

*Utricularia bipartita* Ell., Sketch 1:22(1816). - Nuttall, N.Am.Pl.13(1818). - A. DC. in DC., Prodr.8: 10(1844). - Chapman, Fl.S.Un.St.283(1860).

*Utricularia longirostris* Le Conte in Ell.,

Sketch 1:21(1816). - Nuttall, N.Am.Pl.13(1818). - A. DC. in DC., Prodr.8:10(1844). - Benj. in Mart., Fl.Bras. 10:238(1847).

*Utricularia gracilis* H.B.K., Nov.Gen.et Sp.2: 225(1818).

*Utricularia alba* Hoffmg. ex Link, Jahrb.Gew. 3:54(1820).

*Utricularia striata* Le Conte in Ann.Lyc.N. York 1:75(1824). - Beck, Bot.N.and Mid.St.287(1833). - A. DC. in DC., Prodr.8:8(1844). - A.Gray, Manual Bot. N.Un.St.287(1848). - Chapman, Fl.S.Un.St.282(1860).

*Utricularia integra* Le Conte in Ann.Lyc.N. York 1:76(1824).

*Utricularia fornicata* Le Conte in Ann.Lyc.N. York 1:76(1824). - Beck, Bot.N.and Mid.St.287(1833). - A. DC. in DC., Prodr.8:11(1844).

*Utricularia pallens* St.Hil. et Girard in Ann. Sci.Nat.Sér.2,11:153(1839). - A. DC. in DC., Prodr.8:9 (1844). - Benj. in Mart., Fl.Bras.10:237(1847). - Sylvén in Arkiv för Botanik 8,6:35(1908).

*Utricularia pallens* St.Hil. et Girard var. *natans* St.Hil. et Girard in Ann.Sci.Nat.Sér.2,11:154 (1839). - A. DC. in DC., Prodr.8:9(1844). - Benj. in Mart. Fl.Bras.10:237(1847). - Warm. in Kjoeb.Vidensk. Meddel.1:3(1874). - Sylvén in Arkiv för Botanik 8,6: 35(1908).

*Utricularia anomala* St.Hil. et Girard in Ann. Sci.Nat.Sér.2,11:153(1839). - A. DC. in DC., Prodr.8: 10(1844). - Benj. in Mart., Fl.Bras.10:244(1847).

*Utricularia gayana* A. DC. in DC., Prodr.8:9 (1844). - Gay, Fl.Chil.4:363(1849).

*Utricularia parkeriana* A. DC. in DC., Prodr.8:9 (1844). - Hemsley, Biol.Centr.Amer.2:470(1882).

*Utricularia emarginata* Benj. in Linnaea 20: 489(1847). - Hemsley, Biol.Centr.Amer.2:469(1882). - Sylvén in Arkiv för Botanik 8,6:34(1908). - Chandler in Annals of Bot.24:549(1910).

*Utricularia tenuifolia* Benj. in Linnaea 20:304 (1847).

*Utricularia secunda* Benj. in Linnaea 20:308 (1847). - Hemsley, Biol.Centr.Amer.2:470(1882).

*Utricularia spirandra* Wright ex Griseb., Cat. Pl.Cub.161(1866).

*Utricularia macrorrhyncha* Barnhart in Bull. Torr.Bot.Cl.1895:515(1898). - Small, Fl.S.E.Un.St.1091 (1903).

*Utricularia tricrenata* Bak. ex Hiern, Cat.Afr. Pl.Welw.1:785(1900).

*Utricularia bifidocalcar* Good in Journ.Bot.62: 161(1924).

subsp. exoleta (R. Br.) P.Taylor, comb. et stat. nov.

*Utricularia exoleta* R. Br., Prodr.430(1810). - Smith in Rees, Cyclop.37:no.38(1819). - A. DC. in DC., Prodr.8:7(1844). - Benth., Fl.Austral.4:526(1869). - C. B. Clarke in Hook. f., Fl.Brit.Ind.4,2:329(1884). - Aschers. in Deutsch.Bot.Gesell.4:404(1886). - Forbes et Hemsley, Index Fl.Sin.2:223(1890). - Goebel in Ann. Jard.Bot.Buitenz.9:91(1890). - Trimen, Fl.Ceylon 3:268 (1895). - Hiern, Cat.Afr.Pl.Welw.1:786(1900). - Kam. in Engl.Bot.Jahrb.33:112(1902) et in Warb., Kunene-Zamb. Exped.373(1903). - Stapf in Dyer, Fl.Cap.4,2:435(1904) et in Dyer, Fl.Trop.Afr.4,2:495 et 575(1906). - Koorders. Exkursionsflora von Java 3:204(1912). - Coutinho, Fl. Port.572(1913). - Pellegr. in Bull.Soc.Bot.Fr.61:20 (1914). - R.E. Fries, Wiss.Ergebn.Schwed.Rhod.-Kongo-Exped.1:301(1916). - Ridley, Fl.Malay Penins.2:491 (1923). - Merrill, Enum.Philipp.Pl.3:466(1923). - Dinter in Fedde Repert.24:367(1928). - Pellegr. in Lecomte, Fl.Gen.Indoch.4:473(1930). - Hutch. et Dalz., Fl.W.Trop.Afr.2:234(1931). - Perrier in Mém.Inst.Sci. Madag.B,5:190(1955) et in Humbert, Fl.Madag.,Lentib.6 (1955). - Andrews, Fl.Pl.Sudan 3:154(1956) et auctt. mult.As.et Afr.trop.

*Utricularia diflora* Roxb., Hort.Beng.4(1814).

*Utricularia diantha* Roxb. ex Roem. et Schultes, Mant.1:169(1817). - Wight, Icon.4:9,t.1569(1850). - Miq., Fl.Ind.Bat.2:999(1859). - Oliv. in Journ.Linn. Soc.3:176(1859) et 9:147(1865).

*Utricularia biflora* Roxb., Fl.Ind.1:144(1820) et 1:143(1832).

*Utricularia roxburghii* Spreng., Syst.1:52(1825).

*Utricularia pauciflora* Blume, Bijdr.739(1825).

*Utricularia ambigua* A. DC. in DC., Prodr.8:9  
(1844).

*Utricularia pterosperma* Edgew. in Proc.Linn.  
Soc.1:352(1847).

*Utricularia conferta* Hassk. in Natuurck.  
Tijdschr.Nederl.Ind.10:90(1855) et in Retzia s.Obs.  
Bot.Pugil.1:90(1855). - Miq., Fl.Ind.Bat.2:998(1859).

*Utricularia sumatrana* Miq., Fl.Ind.Bat.2:  
998(1859).

*Utricularia saharunporensis* Royle ex Oliv. in  
Journ.Linn.Soc.3:176(1859) pro syn.

*Utricularia elegans* Wall. ex Oliv. in Journ.  
Linn.Soc.3:176(1859) pro syn.

*Utricularia gracilis* Lepr. ex Oliv. in Journ.  
Linn.Soc.9:147(1865) pro syn.

*Utricularia exoleta* R.Br. var. *lusitanica* Kam.  
in Engl.Bot.Jahrb.33:112(1902).

*Utricularia riccioides* A.Chev. in Bull.Soc.  
Bot.Fr.Mém.8:187(1912). - Pellegr. in Bull.Soc.Bot.Fr.  
61:20(1914).

STAPF (1906) identified the smaller flowered of the above two taxa with the Australian and Asian *U. exoleta* R.Br. and the larger flowered with the West Indian *U. obtusa* Sw. An examination of the South and Central American material of *Utricularia* proves that the latter is widespread, under a great variety of names, in those areas. Further research shows that the North American *U. biflora* Lam. is identical with *U. obtusa*. Most recent North American authors, (e.g. ROSSBACH (1939), THOMSON (1940), MUENSCHER (1944), FERNALD (1950)), recognise two further species allied to *U. biflora* - *U. gibba* L. and *U. fibrosa* Walt., the former being distinguished mainly by its smaller short-spurred flowers, the latter by its larger flowers and tuberculate seeds. At least one recent American author (SHINNERS 1958) has suggested that *U. biflora* and *U. gibba* are not in fact distinct, and a careful examination of a large quantity of material leads me to agree that they are mere forms of one variable species. *U. fibrosa* appears at first sight to be more distinct, but seeds which are tuberculate to a varying degree are to be



found on specimens both from South America and Africa which do not possess the other characters of *U. fibrosa*. Moreover, in several specimens from tropical Africa, smooth and tuberculate seeds are present in the same capsule.

'*U. exoleta* R.Br.' has a very wide distribution, from Portugal and north Africa, throughout tropical and South Africa, Madagascar, tropical and subtropical Asia and Australia, but it is absent from America. Most of the synonymy given above has been accepted by previous authors. It is more or less constantly distinct from *U. gibba* in its smaller corolla with a relatively narrower upper lip. Intermediate forms are, however, not infrequent both in Africa and Asia. I feel that to give it the rank of subspecies is more indicative of the probable relationship between the two entities.

Some of the very wide variation in the size and shape of the corolla of *U. gibba*, between different populations, within individual collections and in a single inflorescence are shown in figs. 1-3.

### References

- C. B. CLARKE in Hook. f.: Fl. Brit. India (1884)  
STAPF in Dyer: Fl. Trop. Africa (1906)  
ROSSBACH: Rhodora 41 (1939).  
THOMSON in Fasset: A Manual of Aquatic Pl. (1940)  
MUENSCHER: Aquatic Pl. of the U.S.A. (1944)  
FERNALD in A. Gray: Manual of Botany ed. 8 (1950)  
PERRIER DE LA BATHIE in Humbert: Fl. Madag., Lentibulariaceae (1955)  
ANDREWS: Fl. Pl. of the Sudan (1956)  
SHINNERS: Spring Flora of the Dallas - Fort Worth area, Texas (1958).

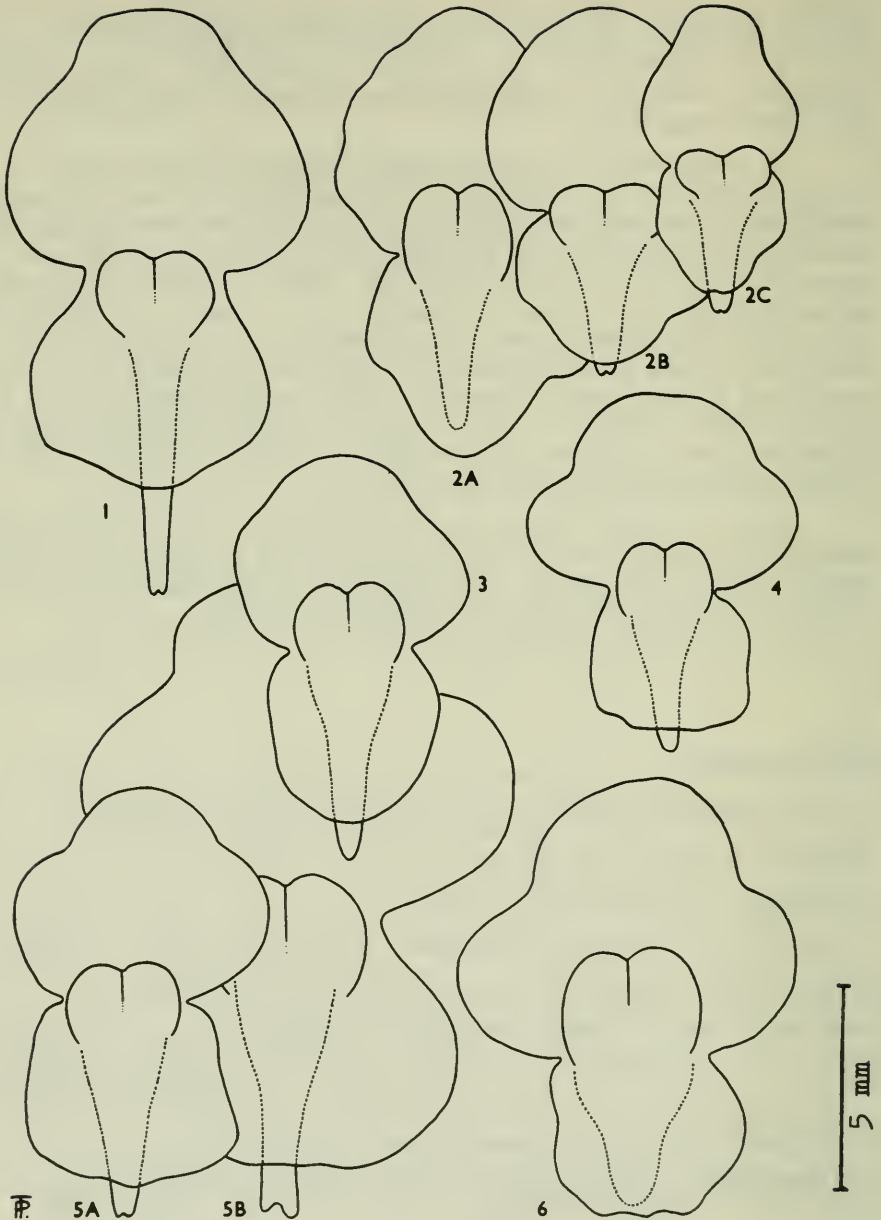


Fig. 1. *Utricularia gibba* subsp. *gibba*: 1 STEARN s.n., Jamaica; 2 A, B & C Trinidad Herb.15174, Trinidad; 3 SANDWITH 1020, British Guiana; 4 LANJOUW 1098, Surinam; 5 A & B MIKULA 3583, Virginia; 6 MIKULA 3219, Virginia.

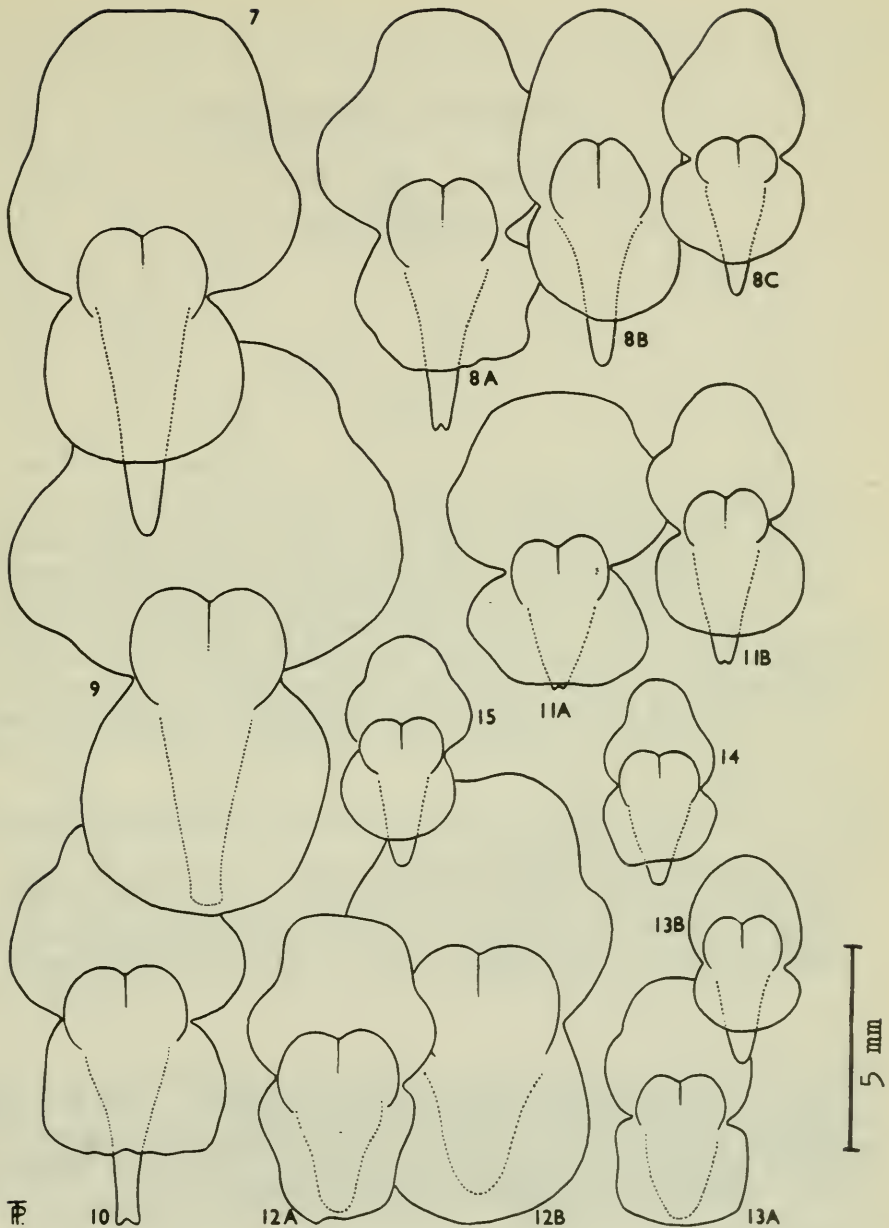


Fig.2. *Utricularia gibba* subsp. *gibba*: 7 RICHARDS 5703, Northern Rhodesia; 8 A, B & C RICHARDS 6383, Northern Rhodesia; 9 BRENAN & GREENWAY 8073, Northern Rhodesia; 10 BRENAN & JONES 8598 A, Nigeria; 11 A & B, RICHARDS 6251, Northern Rhodesia. - subsp. *exoleta*: 12 A & B LIND 184, Uganda; 13 A & B HEPPEL 2660, Sierra Leone; 14 MEIKLE 1021, Nigeria; 15 ADAMES 201, Sierra Leone.

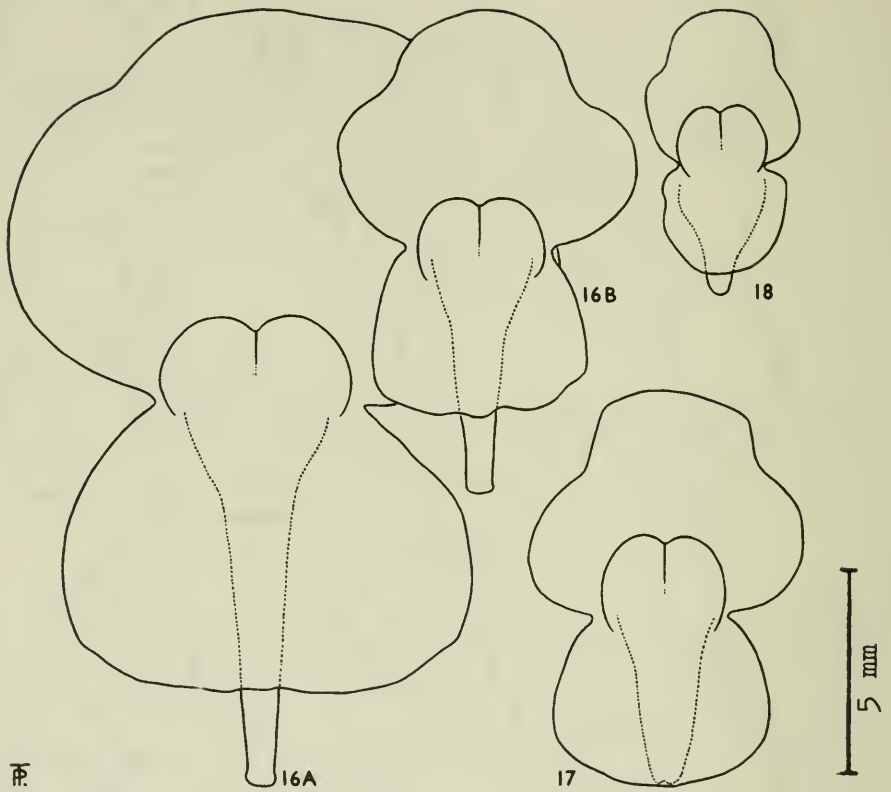


Fig. 3. Utricularia gibba subsp. gibba: 16 A & B two corollas from the same inflorescence, cultivated at Kew, origin unknown; 17 ?subsp. gibba: YAPP 378, Malaya. - subsp. exoleta: 18 BARNES s.n., India.

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