BYBLIDACEAE (C. G. G. J. van Steenis, Leyden)

In the former century *Byblis* was mostly included in the *Droseraceae*, for example by BENTHAM & HOOKER. *f.* (Gen. Pl. 1, 1859, 220); even ENGLER had it in that position in 1912 (Syllabus ed. 7, 329). PLANCHON had in 1848 (Ann. Sc. Nat. III, 9, 1848, 80, 90) already pointed to affinity with *Cheiranthera* of the *Pittosporaceae*; HALLIER *f.* merged *Byblis* and *Roridula* with *Tremandraceae*, curiously referring this to an Ochnaceous assemblage (Abh. Gebiete Naturw. Hamburg 18, 1903, 53). About the same time LANG argued (Flora 88, 1901, 179) that on morphological and anatomical grounds *Byblis* cannot belong to *Droseraceae*, but should be referred to *Lentibulariaceae*.

DIELS (Pfl. R. Heft 26, 1907, 51) and DOMIN (Act. Bot. Bohem. 1, 1922, 1) definitely concluded to the alliance with *Pittosporaceae*, and so did HUTCHINSON (1926, 1959) and SCHULTZE-MENZ (Syllabus 1964): resemblance with *Drosera* is superficial, sympetaly unimportant. HALLIER *f.* and HUTCHINSON include the S. African genus *Roridula* also in the family *Byblidaceae*, but others regard this as an allied family.

BYBLIS

SALISB. Parad. Lond. (1808) t. 95; BTH. Fl. Austr. 2 (1864) 469; LANG, Flora 88 (1901) 179; DOMIN, Act. Bot. Bohem. 1 (1922) 1; Bibl. Bot. 22 (1929) 702; DIELS in E. & P. Nat. Pfl. Fam. ed. 2, 18a (1930) 288; VESTER, Bot. Arch. 41 (1940) 563, map 192. — **Fig. 1.**

Erect herbs, viscid, by longitudinal rows of minute, sessile glands and capitate-glandular hairs. *Leaves* linear to filiform, involute-coiled in vernation, exstipulate, spirally arranged. *Flowers* axillary, solitary, without bracteoles, 5-merous. *Sepals* imbricate, persistent, short-connate at the base. *Petals* larger than sepals, contorted, with a broad, dentate apex and cuneate base, oblique, ± connate at the very base. *Stamens* 5, sometimes unequal; anthers basifixed, alternipetalous, cells opening with a very short pore-like slit. Disk none. *Ovary* superior, 2-celled, with ∞ ovules attached to the axis of the dissepiment about the middle; integument 1; style 1, simple, with a faintly 2-lobed stigma. *Capsule* ± compressed, 2-celled, loculicid with 2 valves, sometimes the valves later splitting, the dissepiment splitting ± halfway. *Seeds* dark, rugose; embryo elongate, cylindric; cotyledons short, fleshy; albumen present.

Distr. Two *spp.*, one in SW. Australia, the other from NW. to NE. Australia, in *Malesia*: the N. Australian species in South New Guinea.

Ecol. This is the fifth genus of insectivorous plants in Malesia, the others being *Nepenthes*, *Utricularia*, *Drosera* and *Aldrovanda*. Both species grow in depressions which are swampy on poor soils or which become swampy or water-logged in the wet season. Often gregarious.

The way of catching insects (small flies, mosquitoes, moths and ants) superficially resembles that in *Drosera*, but differs in that the capitate-glandular hairs make no movement towards the prey. RICA ERICKSON (Austr. Pl. 3, 1966, 319, 321) calls it a 'flypaper trap of the passive type'. According to GRIEVE (*ibid.* 1, *n.* 9, 1961, 23) "insects are usually first caught by the sticky mucilage exuded from the gland-tipped hairs and these tend to collapse or bend as they pour out secretion. The insect is thus also brought into contact with the numerous, minute sessile glands and becomes enveloped in additional secreted fluid. The process of secretion and absorption continues until all of the soft parts of the insect are dissolved and absorbed, and only the hard, indigestible parts remain. The glands then stop secretion and the stalked ones commence to recover to their normal position. In due course the hard parts of the insect which are left dry out and fall off."

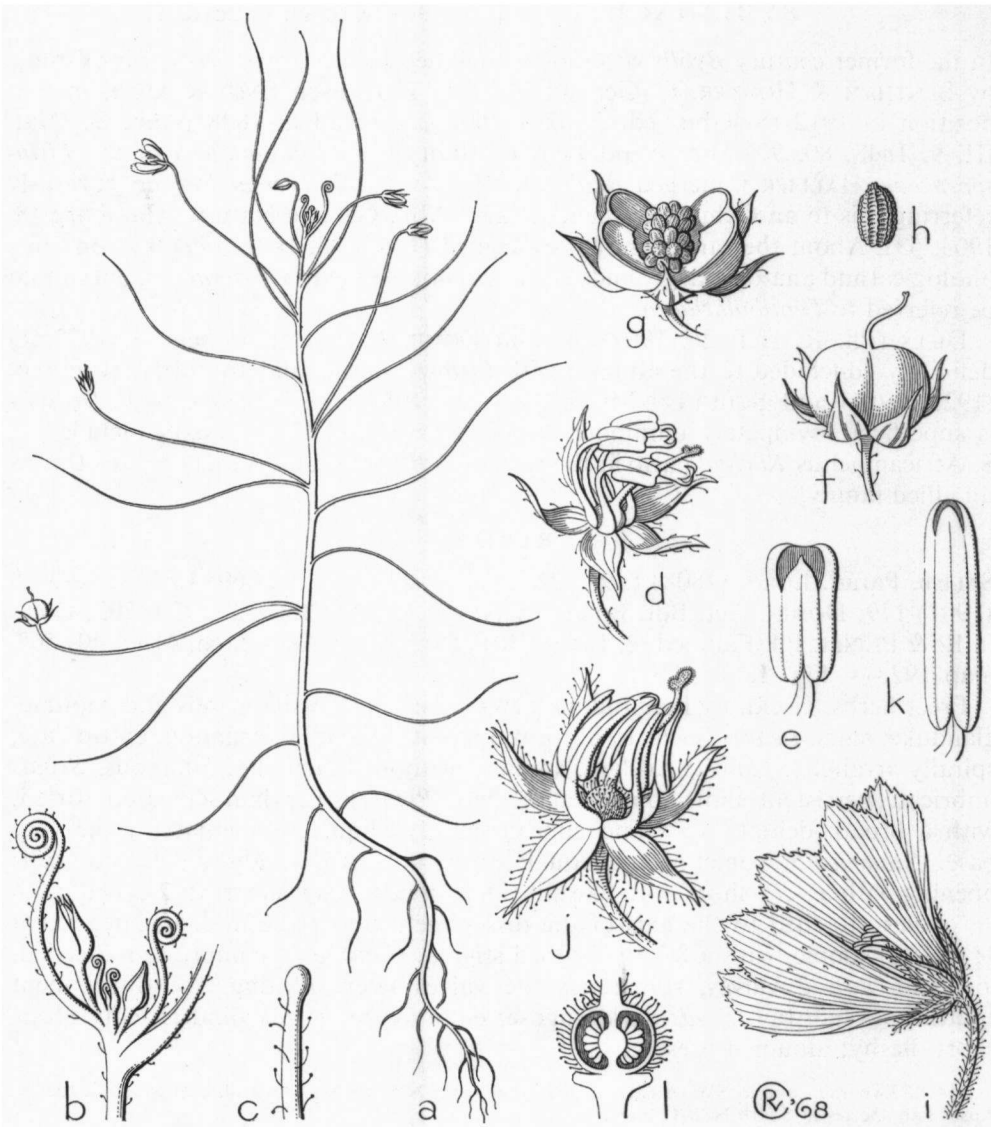

Fig. 1. *Byblis liniflora* SALISB. *a.* Habit, ×⅔, *b.* stem tip, ×4, *c.* leaf tip, ×12, *d.* flower, corolla removed ×4, *e.* anther, ×12, *f–g.* fruit, ×4, *h.* seed, ×8, *i.* flower, ×3, *j.* flower, corolla removed, ×4, *k.* anther ×12, *l.* lengthwise section of ovary (*a–h* HOOGERWERF 273, *i–l* BYRNES 230).

It has been suggested that the capitate-glandular hairs secrete a sticky mucilage, but that the secretion of the sessile ones is less sticky and would serve mainly for digesting proteins, but I have no pertinent data to sustain this opinion.

The large West Australian species, *B. gigantea*, is well-known as the 'rainbow plant', a name "believed to be derived from the fact that on looking through the plant towards the setting sun, one can see a spectrum of colours where the edges of the leaves are bordered by the shining drops of liquid on the glands."

Anat. FENNER (Flora 93, 1904, 382–388) gave a detailed account of the anatomy of the glands of *B. gigantea* LINDL.

1. Byblis liniflora SALISB. Parad. Lond. (1808) t. 95; DC. Prod. 1 (1824) 319; ENDL. Iconogr. (1841) t. 113; BTH. Fl. Austr. 2 (1864) 470; F. v. M. Fragm. 10 (1876) 81; BAILEY, Queensl. Fl. (1900) 551; Compr. Cat. (1913) 174, f. 145; BRITTEN, Ill. Pl. Banks 1 (1900) 30, t. 96; EWART & DAVIES, Fl. North. Terr. (1917) 117; DOMIN, Act. Bot. Bohem. 1 (1922) 4; Bibl. Bot. 22 (1929) 703; SPECHT, Rec. Am.-Austr. Exp. Arnhem Land 3 (1958) 231; STEEN. Blumea 16 (1968) 355. — **Fig. 1.**

Unbranched, weak herb, *c.* 15–40 cm. Rhizome thin. *Leaves* filiform, very thin, blunt, *c.* 4–6 cm, spreading. Pedicels already from the base of the plant, usually exceeding the leaves, in fruit up to *c.* 10 cm, patent, the lower ones reflexed. Pistil and stamens somewhat zygomorphic. *Sepals* ovate-lanceolate, acute, erect, 3–4 mm, with scarious margin, glabrous, *c.* 3–4 by 1½ mm. *Petals* oblanceolate, acute, with dentate upper margin, 4–8(–11) mm. *Stamens* glabrous, anthers varying from 1½–3 mm, filaments longest where anthers are shortest. *Ovary* glandular; style *c.* 3 mm. *Capsule* transversely elliptic, with 2 shallow grooves, *c.* 2 by 4 mm. *Seeds* ellipsoid, at one end ± pointed, black, 1 mm, lengthwise ribbed, ladder-like tessellate between the ribs.

Distr. Queensland to NW. Australia, in *Malesia*: South New Guinea (near Merauke: HOOGERWERF 273), one collection.

Ecol. Marsh herb of shallow, seasonal swamps in *Melaleuca-Acacia-Tristania-Eucalyptus* savannah, at very low altitude. *Fr.* March.