

## STYLIDIACEAE († D. F. Van Slooten, Amsterdam)

The family consists of 5 genera, if *Donatia* FORST., of which the systematic position is not at all certain, is included. Four genera are confined to Australia, Tasmania, New Zealand and the Magellan region of South America. *Stylidium* is almost entirely Australian, but a few *spp.* occur in *Malaysia*, Ceylon, and continental SE. Asia.

### 1. STYLIDIUM

SWARTZ *ex* WILLD. Sp. Pl. 4 (1805) 146; MILDBRAED, Pfl. R. Heft 35 (1908) 30; SLOOT. Bull. Jard. Bot. Btzg III, 6 (1924) 65; *ibid.* 14 (1937) 169, *nom. cons.*

Small, annual or perennial herbs, often with glandular hairs. *Leaves* small, alternate, cauline or radical-rosulate (or verticillate), simple, entire, exstipulate. *Inflorescences* terminal. *Flowers* ♂, zygomorphic, usually cymose or racemose. *Calyx* gamosepalous; segments 5, the 2 anterior ones often adnate into a bifid lobe. *Corolla* generally conspicuous, sympetalous, irregular, 5-merous, often with a paracorolla formed by coronal or gland-like appendages in the throat; segments free or 2 or 4 of them connate, the fifth developed as a labellum usually smaller than the other segments. *Stamens* 2, lateral, the filaments entirely adnate to the style into an elongate, usually exerted and geniculate column, which is sensitive and mobile at its base; anthers extrorse, sessile just below the stigma, 2-celled. *Ovary* inferior, 2-celled or partly 1-celled by an imperfect septum; ovules usually numerous. *Capsule* dehiscent; seeds very small.

*Distr.* About 120 *spp.*, all but 8 being confined to Australia. Of these 8, four are Asiatic and entirely extra-Australian, one species, *S. kunthii* WALL. *ex* DC., being known from India only. The fifth species, *S. schizanthum* F.v.M., occurs in N. Australia and in Papua. *S. alsinoides* R.Br. is found from Queensland to Celebes and the Philippines. *S. uliginosum* Sw. occupies a disjunct area, viz Queensland, Hongkong, south coast of China, Hainan, and Ceylon. Probably it will be collected in the future in Peninsular India, Indo-China, and in Malaysia where it was not recorded so far. *S. pedunculatum* R.Br. occurs in N. Australia and the S. Moluccas.

*Ecol.* From sea-level up to 1100 m (or 1500 m: *S. graminifolium* Sw.), usually in uliginose, peaty, swampy, muddy or inundated and temporarily desiccated localities, near wells, along water-courses, and on rice-fields after the harvest, but also often on loamy or humous soils as well as on loose sand or on comparatively dry habitats, even on barren gravelly soil or on rocks; on flat open grass-lands as well as among open brushwood, sometimes in *Eucalyptus*-stands, in flat land or on hills. In Australia the main flowering season seems to be September to January.

*Notes.* Often graceful of habit, usually with brightly coloured flowers. Not cultivated.

#### KEY TO THE SPECIES

1. Stem thickish, up to 3 cm, bearing an apical, dense tuft of narrow-lanceolate, mucronate leaves  $\frac{1}{2}$ -1 cm long. Peduncles leafless, filiform, 1-flowered. Capsule 7-8 mm long. 6. *S. pedunculatum*
1. Leaves either cauline or in a basal rosette, not mucronate. Inflorescences at least 2-flowered.
2. All corolla segments free, the posterior one bifid. Appendages of the corolla-tube small but distinct.
3. Cauline leaves numerous, alternate in the lower, opposite in the upper part. Inflorescences lax, many-flowered. Flowers rosy. Corolla glabrous . . . . . 2. *S. inconspicuum*
3. Leaves subrosulate, stem few-leaved. Inflorescences composed of 2-3 flowers only. Flowers white. Corolla sparingly glandular hairy . . . . . 1. *S. tenellum*
2. Either the posterior corolla segments or the lateral ones connate with each other. Appendages of the corolla-tube distinct or absent.
4. Stem glandular-puberulous. Flowers yellow. Appendages distinct. Calyx laxly glandular hairy. Labellum inserted below the margin of the corolla-tube . . . . . 5. *S. schizanthum*
4. Stem glabrous. Flowers white or rosy-purplish. Appendages absent. Calyx glabrous. Labellum inserted at the margins of the corolla-tube.
5. Corolla white, 2-3 mm long. Column 2-3 mm long . . . . . 4. *S. alsinoides*
5. Corolla rosy-purplish, 4-4½ mm long. Column 5 mm long . . . . . 3. *S. javanicum*

1. *Stylidium tenellum* SWARTZ, Mag. Ges. Naturf. Fr. Berlin 1 (1807) 51, t. 2, f. 3; MILDBRAED, Pl. R. Heft 35 (1908) 35; SLOOT, Bull. Jard. Bot. Btzg III, 6 (1924) 66; *ibid.* 14 (1937) 170, non R.BR. 1810.

Annual, erect, 5–20 cm high. Stem simple or very sparingly dichotomously branched, glabrous, with a few leaves only. *Leaves* scattered, (sub)sessile, (oblong-)obovate, blunt, the lower leaves somewhat rosulate and 10 mm long at the utmost, the upper ones smaller and gradually passing into the linear bracts. *Inflorescences* composed of 2–3 flowers or subdichotomously branched.

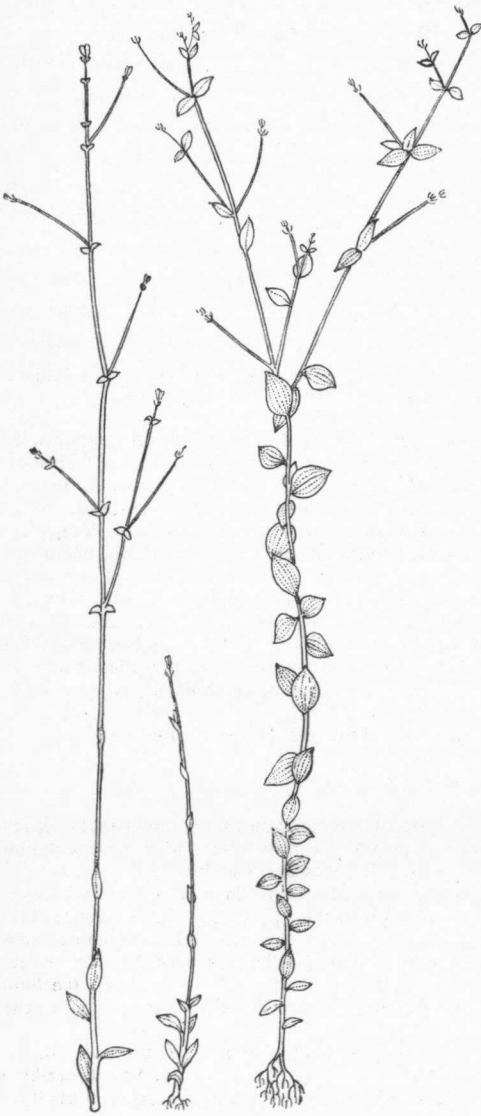


Fig. 1. *Stylidium inconspicuum* SLOOT.  
Habit, nat. size.

Flowers very small, sessile. *Calyx* thinly sprinkled with glandular hairs or glabrous; tube (ovary) very narrow, about 10 mm long; two of the segments connate into a slightly bifid lobe. *Corolla* very small, white (or violet?), very sparingly glandular hairy; tube hardly longer than the calyx lobes; appendages of the throat minute though distinct; segments free, the posterior ones bifid, the anterior segments much smaller; labellum very small, subulate. *Capsule* linear, up to 2 cm long.

Distr. Mergui, Indo-China, in *Malaysia*: N. Sumatra, Malay Peninsula. Not in Australia.

Ecol. Rare, found twice in Sumatra: once in Tapanuli in a swamp, 1100 m, and once in the Padang Uplands in rice-fields, 800 m.

Vern. *Sakkar ni sarampitpit*, Toba.

Notes. MILDBRAED stated that the corolla was white, though *S. roseum* KURZ is considered by him to be conspecific.

2. *Stylidium inconspicuum* SLOOT, Bull. Jard. Bot. Btzg III, 14 (1937) 171, f. 1–2.—Fig. 1–2.

Annual, erect, slender, 5–20 cm high. Stem slender, simple or in the upper part with erectopatent branchlets, glabrous, leafy. *Leaves* alternate along the stem, sessile, very thin, ovate, subacute, c. 7 mm long and 5 mm wide, the floral leaves opposite (every pair consisting of one leaf and one bract), attenuate. *Inflorescences* very lax, many-flowered. Flowers sessile in the axil of the leaf-like bracts. *Calyx* sparsely sprinkled with glandular hairs; tube very short; segments linear,

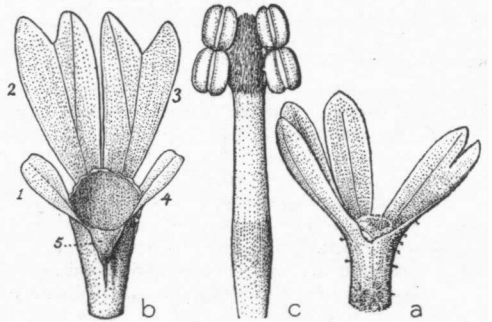


Fig. 2. *Stylidium inconspicuum* SLOOT. a. Calyx, b. corolla (2 & 3 posterior segments, 1 & 4 anterior segments, 5 labellum), c. column; all  $\times 12$ .

subacute, the 2 anterior ones connate into a bifid lobe. *Corolla* very small, rose-coloured, glabrous; tube about as long as the calyx-lobes; appendages of the throat hardly visible; segments free, the posterior ones bifid, subspathulate-oblong, up to 2 mm long, the anterior bifid equal, 1 mm long, subretuse, slightly notched at the top; labellum very small, subdeltoid, acuminate, without appendages. Column much exerted, geniculate, up to  $3\frac{1}{2}$  mm long. *Capsule* narrowly linear,  $1\frac{1}{2}$  cm long.

Distr. *Malaysia*: W. Central Java (Indramaju).

Ecol. In the forest-section Indramaju it grows

in periodically moist places of grass-fields at 20-30 m, under seasonal conditions, together with the next species; locally common. Unlike *S. tenellum* it seems to be a species of the lowlands.

**3. *Stylidium javanicum* SLOOT.** Bull. Jard. Bot. Btzg III, 14 (1937) 173, f. 3.—Fig. 3.

Annual, erect, slender, up to 20 cm high. Stem thin, in the upper part with erecto-patent branchlets, glabrous, leafy. *Leaves* alternate along the stem, sessile, ovate, subacute, 7-8 mm long, 4-5 mm wide, the floral leaves opposite (leaf and bract), attenuate. *Flowers* sessile in the axil of the leaf-like bracts. *Calyx* glabrous; tube very short; segments linear, acute, the 2 anterior ones connate into an oblong bifid lobe. *Corolla* rather large, rosy-purplish, without or with a few glandular hairs; tube about half as long as the calyx lobes;

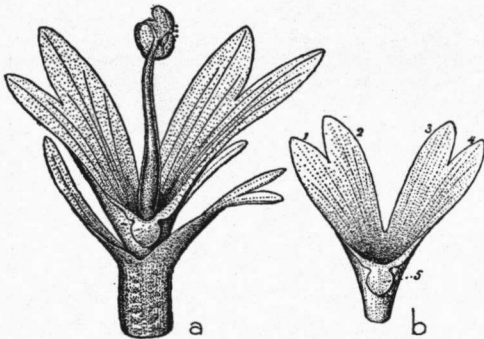


Fig. 3. *Stylidium javanicum* SLOOT. a. Flower on apical part of ovary,  $\times 8$ , b. corolla separately (1 & 2 and 3 & 4 connate pairs of each one anterior and one posterior segment, 5 labellum),  $\times 5$ .

appendages of the throat not seen; segments oblong, not free, 4-4½ mm long, attenuate or abruptly acuminate, 4 of the segments connate into 2 bifid lobes, separated by a deep incision; labellum minute, deltoid-ovoid, without appendages. Column much exerted, geniculate, c. 5 mm long. *Capsule* linear, glabrous, c. 1½ cm long.

*Distr. Malaysia:* W. Central Java (Indramaju), Lesser Sunda Islands (E. Sumba).

*Ecol.* Periodically wet grass-fields, under seasonal conditions, locally common, in Java at 20-30 m, in Sumba in a marsh at 500 m.

**4. *Stylidium alsinoides* R.BR.** Prod. (1810) 572; MILDBRAED, Pfl. R. Heft 35 (1908) 40; SLOOT. Bull. Jard. Bot. Btzg III, 6 (1924) 66; Nova Guinea 14 (1926) 195; Bull. Jard. Bot. Btzg III, 14 (1937) 172.

Annual, erect, in all parts glabrous and without glandular hairs, up to 35 cm high. Stem repeatedly branched from the base, 5-angular to 5-costate, whitish or green, turning carmine. *Leaves* variously coloured, alternate or distichous along the stem, sessile, broadly ovate, cuneate or subrounded at the base, 7-8 mm long and wide, the floral

leaves opposite (leaf and bract), broadly ovate or elliptic-lanceolate, subacutely attenuate, smaller than the cauline leaves. *Inflorescences* cymose, many-flowered. *Flowers* sessile in the axil of the leaf-like bracts. *Calyx*-tube (ovary) 12-13 mm long; segments linear, the 2 anterior ones connate into a slightly bifid lobe. *Corolla* small, white with a fine violet streak passing into white, tube about half as long as the calyx-lobes, appendages of the throat absent; segments 2-3 mm long, not free, 4 of which being connate into 2 bifid lobes separated by a deep incision; labellum sub-3-angular or suborbicular, without appendages. Column little exerted, 2-3 mm long. *Capsule* linear, 10-22 mm long.

*Distr.* N. Australia and Queensland, in *Malaysia:* S. New Guinea (vicinity of Merauke and near Wuroi), SW. & SE. Celebes, and the Philippines.

*Ecol.* In New Guinea it was found on a sandy ridge in the shadow of grass, and on damp savannah ridges, 0-30 m, growing luxuriantly, in Celebes on roadsides and rice-fields up to 950 m.

*Note.* The species was recorded for the Philippines by MERRILL (En. Philip. 3, 1923, 591) but I have not seen specimens from that area.

**5. *Stylidium schizanthum* F.v.M.** Fragm. 1 (1858) 152; BENTH. Fl. Austr. 4 (1869) 25; MILDBRAED, Pfl. R. Heft 35 (1908) 38.

Annual, erect, very slender, up to 35 cm high. Stem slender, leafless or with a single linear leaf, sparingly furnished with very short glandular hairs. *Leaves* petioled, subsulate, obovate-subspatulate, usually 5 mm long or less; petioles half as long as the blades. *Inflorescences* large, very lax, cymose, many-flowered. *Flowers* (sub-)sessile; bracts minute, lanceolate. *Calyx*-tube and lobes very laxly glandular-hairy; tube (ovary) filiformous, 7-10 mm long; lobes oblanceolate-subspatulate, 2-2½ mm long, the 2 anterior ones somewhat larger and connate almost up to the very top. *Corolla* pale yellow (BRASS), 5 mm long, tube glabrous or very laxly glandular-hairy, about as long as the calyx-lobes; appendages of the throat 2, broad and distinct; between the anterior and posterior segments with a conspicuous glandular corpusculum; segments not free, the posterior ones 2-3 mm long, connate about half their lengths, bifid, forming together a 4-fid whole with unequal lobes, the anterior segments smaller, equal, dissected at the top, the lobes linear; labellum small, lanceolate-ovate, long-acuminate, inserted below the margin of the tube, without appendages. Column geniculate, 5-6 mm long. *Capsule* narrow, 1 cm long or less.

*Distr.* N. Australia, in *Malaysia:* SE. New Guinea (Fly River area).

*Ecol.* Once found on grey soil on a savannah ridge at 30 m, and once in dense turf on wet grasslands.

*Notes.* Closely related to *S. lobuliflorum* F.v.M., a herb of c. 12 cm height, with rose-coloured flowers and with a connective exceeding the anthers with a bifid apex. The BRASS-numbers from Papua (5796 and 7825) have the anterior calyx-lobes

almost entirely connate and not two-thirds their length.

6. *Stylidium pedunculatum* R.Br. Prod. (1810) 571; DC. Prod. 7 (1839) 337; BENTH. Fl. Austr. 4 (1869) 28; BAILEY, Queensl. Fl. (1900) 890; MILDBRAED, Pfl. R. Heft 35 (1908) 39; BAILEY, Compr. Cat. Q. Pl. (1912) 282, f. 249.—*Tandollea pedunculata* F.v.M. Syst. Cens. (1882) 86; Sec. Syst. Cens. (1889) 145; BRITTON, Ill. COOK'S Voy. 2 (1901) 53, t. 170c (after type).—*St. bryoides* F.v.M. Fragm. 6 (1867) 91.—Fig. 4.

Glabrous, ?perennial. Stems single or 2 together,

c. 2–3 cm high, at the base with a few small leaves, at the top with a dense tuft of crowded leaves. *Blades* sessile, narrow-lanceolate, 5–10 by  $2\frac{1}{5}$ – $3\frac{1}{5}$  mm; midrib distinct, margins nerve-like thickened and rough by distinct papillae, apex mucronate by hyaline hair-like cells, mucro sometimes forked. Peduncles 3–8 from the tuft, 1-flowered, exceedingly thin-filiform, terete, c. 2–3 cm. *Flower* subtended by 2 tiny, narrow, acute bracts  $\frac{1}{2}$  mm long. Fruit obliquely patent, linear, terete, with 2 longitudinal ribs, 7–8 by  $\frac{1}{2}$  mm, splitting from the top downwards with 2 valves; dissepiment  $\frac{1}{8}$  mm broad.

Distr. N. Australia and N. Queensland, in *Malaysia*: South Moluccas (Aru Islands; P. Trangan, between Kp. Meroor and Kp. Selarin, BUWALDA 5534).

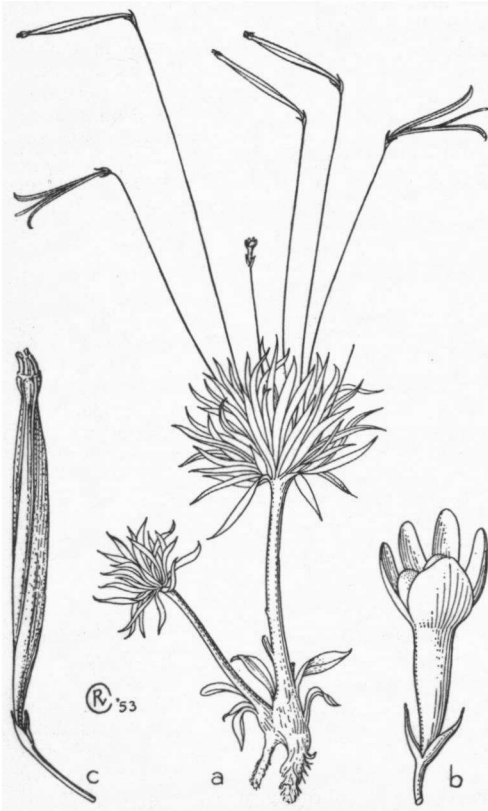


Fig. 4. *Stylidium pedunculatum* R.Br. a. Habit  $\times 2$ , b. flower without corolla,  $\times 18$ , c. fruit  $\times 6$  (After BUWALDA 5534).

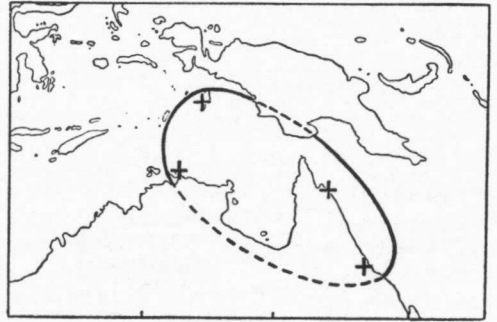


Fig. 5. Localities of *Stylidium pedunculatum* R.Br.

Ecol. Coastal sandy *Melaleuca* savannah, collected together with *Xyris oligantha*, *Restionaceae*, etc., fr. July 1938.

Note. The cited Malaysian material came at hand Sept. 1953 and I am responsible for the identification, description, and figure. This species is apparently rare (fig. 5). Mr J. H. KERN, who was so kind to compare the Malaysian material with the type sheets of BROWN and MUELLER in respectively the Brit. Museum and the Royal Botanic Gardens, Kew, could only locate the following specimens in these herbaria: *N. Australia*: Port Essington, ARMSTRONG 597 (K); *N. Queensland*: Endeavour River, BANKS & SOLANDER a. 1770 (BM, type of *S. pedunculatum* L.), CUNNINGHAM 103 (BM); Rockingham Bay, DALLACHY (K, type of *S. bryoides*).—VAN STEENIS.