

CRUCIFERAE

NOTES ON THE GENUS HELIOPHILA

My study of the genus *Heliophila* at the Kew Herbarium has shown the necessity for several nomenclatural changes and the description of a new species. I wish to thank the Director of the Royal Botanic Gardens, Kew, for the facilities afforded me to carry out the work and I thank also Directors of other institutions who have sent material on loan.

***Heliophila minima* (Stephens) Marais**, comb. nov.

Cleome minima Stephens in Ann. S. Afr. Mus. 9: 35 (1921).

H. pearsonii Schulz in Bot. Arch. 31: 528 (1931). *H. pearsonii* var. *prageri* Schulz,

l.c. *H. pearsonii* var. *edentata* Hainz in Mitt. Bot. Staatss. München 2, 11: 39 (1954).

H. smithii Schulz in Notizbl. Bot. Gart. Berl. 11: 227 (1931).

***Heliophila scoparia* Burch. ex DC.**, Syst. 2: 693 (1821).

var. **scoparia**.

Stems and leaves, though ridged or wrinkled when dry, mostly quite smooth; flowers described as purple, pale lilac, pale mauve or pink; ovules 24–36. Flowering period mainly from June to July.

var. **aspera** (Schltr.) Marais, stat. nov.

Heliophila aspera Schltr. in Bot. Jahrb. 49: 410 (1913).

Stems and leaves muricately striate or papillate-denticulate; flowers white, produced from November to February; ovules 10–16. Intermediate specimens between the two varieties do occur.

***Heliophila seselifolia* Burch. ex DC.**, op. cit.: 684.

De Candolle cites two specimens, *Burchell* 1318 and 1391. His diagnosis agrees completely with No. 1318. *Burchell* 1391 is *H. crithmifolia* Willd. I take the specimen of *Burchell* 1318 in the Kew Herbarium as lectotype.

var. **seselifolia**.

Petals each with a small appendage at the base, and each of the two short filaments with a large appendage.

var. **nigellifolia** (Schltr.) Marais, stat. nov.
H. nigellifolia Schltr. in Bot. Jahrb. 49: 416 (1913).

Petals without appendages or with a small appendage each; filaments always without appendages; valves of fruit undulate and more or less inflated over the seeds.

var. **marlothii** (Schulz) Marais, stat. nov.
Heliophila marlothii Schulz in Bot. Arch. 31: 533 (1931).

Schulz cites two specimens, *Marloth* 9904 and 10405. The flowers of *Marloth* 10405 have petals with small appendages, and short filaments with large appendages. This does not agree with the description, and I choose the specimen of *Marloth* 19904 in the National Herbarium, Pretoria (from Marloth's own herbarium) as lectotype.

This variety is distinguished in having both petals and filaments without appendages, and in having broad fruits and large seeds.

Heliophila cornuta Sond. in Abh. Ges. Naturw. Hamb. 1: 246, t. 28 (1846).

Sonder based this species on *Leptormus longifolius* Eckl. & Zeyh., Enum. No. 59, excl. syn., and on *Heliophila scoparia* (c) herb. Drege. The Kew herbarium specimen of *Zeyher* (*L. longifolius* E. & Z.) is from Sonder's own herbarium; it is in good condition and I choose it as lectotype.

var. **cornuta**.

Sepals conspicuously horned; ovules (14-) 18-24; flowering period from July to August.

var. **squamata** (Schltr.) Marais, stat. nov.
H. squamata Schltr. in Bot. Jahrb. 27: 139 (1899).

Specimens mostly quite glabrous but some, including the type, with puberulous pedicels and sepals; sepals thickened at the tip, but not conspicuously horned; ovules (18-) 28-38; flowering period mainly from September to November.

In the past there has been a considerable amount of misapplication of names. A few of the cases which have been clarified are given below.

Heliophila pinnata L.f., Suppl.: 297 (1781). Type: *Thunberg* in Herb. linn. No. 840-11!
H. trifida Thunb., Prodr. Pl. Cap.: 108 (1800), nom. illeg., non auct. *H. exilis* Schltr. in Bot. Jahrb. 27: 133 (1899). Type: *Schlechter* 8636 (B!). *H. oreophila* Schltr. in Bot. Jahrb. 49: 416 (1913). Type: *Schlechter* 10951 (B!). *H. clavuligera* Schulz in Bot. Arch. 31: 531 (1931). Type: *Schlechter* 390 (B!).

Thunberg applied his own illegitimate epithet "trifida" to specimens from the Tulbagh, Ceres, Clanwilliam, Calvinia, and Vanrhynsdorp districts, which I now recognize as *H. pinnata* L.f. However, it appears that the name *H. trifida* Thunb. has consistently been misapplied to a plant from the Cape Peninsula which appears still to be without a name. Nevertheless, it would be premature to give it a new name at this stage.

Heliophila elongata (Thunb.) DC., Syst. 2: 697 (1821).
Cheiranthus elongatus Thunb., Prodr. Pl. Cap.: 109 (1800).

De Candolle made the combination, but did not identify any other plants with Thunberg's specimen. In the same work he described *H. stylosa* Burch. ex DC on page 692 and *H. virgata* Burch. ex DC. on page 693. They are conspecific with *H. elongata*. *H. dolichostyla* Schltr. in Bot. Jahrb. 49: 414 (1913) is another synonym.

Adamson in Fl. Cape Penins.: 413 (1950) applied the name *H. elongata* (Thunb.) DC. to the species which formerly went under the name *H. linearifolia* Burch. ex DC. This was presumably done on the basis of Sonder citing *H. elongata* (Thunb.) DC. and the basionym in synonymy under *H. linearifolia* Burch. ex DC. in Flora Capensis. After studying Thunberg's type there is no doubt that this is a wrong application of the name *H. elongata*.

So far true *H. elongata* (Thunb.) DC. is the only species in which sessile axillary resinous glands have been observed. Similar glands can sometimes be seen on pedicels with reduced sepals in the lower part of the inflorescence below the normal flowers.

Heliophila carnosus (Thunb.) Steud., Nom. ed. 2, 2: 742 (1840).
Cheiranthus carnosus Thunb., Prodr. Pl. Cap.: 108 (1800). Type: Hb. Thunberg no. 15141! *C. gramineus* Thunb. l.c. Type: Hb. Thunberg No. 15157! *H. tripartita* Thunb. l.c. Type: Hb. Thunberg No. 15227! *H. graminea* (Thunb.) DC., Syst. 2: 697 (1821). *H. abrotanifolia* Banks ex DC. op. cit.: 690. Type not seen. *H. platysiliqua* R. Br. in Hort. Kew. ed. 2, 4: 99 (1812). Type: Masson s.n. (BM!). *H. abrotanifolia* Banks ex Sond. in Abh. Ges. Naturw. Hamb. 1: 249 (1846). Type as *H. platysiliqua*. *H. abrotanifolia* var. *heterophylla* Sond. l.c., excl. syn. Thunberg. *H. abrotanifolia* var. *tripartita* (Thunb.) Sond. l.c. Type as *H. tripartita*. *H. abrotanifolia* var. *tenuiloba* Sond. in Fl. Cap. 1: 49 (1860). Type: Zeyher 1901 (K, iso.!). *H. sulcata* Conrath in Kew. Bull. 1908: 219 (1908). Type not seen. *H. subcornuta* Beauv. in Bull. Soc. Bot. Genève 1913, sér. 2, 5: 328 (1914). Type: Jacottet 86 (G!). *H. grandiflora* Schltr. in Bot. Jahrb. 49: 415 (1913). Type: Schlechter 11353 (B!).

This is the most widespread species of the genus and also the most variable. Apart from an occasional distinctive plant there is a gradation over the whole range, and it has proved impossible to sort out any clear-cut varieties.

Heliophila laciniata W. Marais, sp. nov.; a *H. carnosus* Steud. planta annuali; a *H. crithmifolia* Willd. foliis omnino laciniatis, floribus majoribus, seminibus parvioribus plerumque longis latioribus differt.

Herba annualis glabra, foliis rosulatis. *Folia* 4–15 cm longa pinnato–5–14-lobata omnino laciniata alterna vel opposita brevia vel longa ascendentia descendentia vel patentia; stipulis duabus minutis subtenta; folia inferiora interdum simplicia. *Pedunculus* 20–50 cm altus nudus simplex vel ramosus. *Pedicelli* sub anthesi 8·8–1·3 cm longi erecti, in fructu 1–1·6 cm longi patentes vel recurvato-patentes; folia bracteis duabus minutis subtenta. *Sepala* 4–5 mm longa 1·4–1·5 mm lata oblonga, exterioribus duobus cucullatis apice brevissime cornutis, interioribus duobus basi inflatis. *Petala* 8·8–11 mm longa 4·3–6 mm lata obovata vel valde late obovata rotundata unguiculata. Filamenta 3·2–3·8 mm et 3·4–4 mm longa. *Antherae* 1·7–2·1 mm longae. *Ovarium* lineare, stylo brevi, ovulis 20–28. *Siliqua* 2·5–4 cm longa, 2–2·7 mm lata linearis, margine recto; valvae 1-nervatae subtiliter reticulatae; stylus 1–2·5 mm longa tenuis rectus. *Semina* 1·7–1·8 x 1·5–1·6 mm, reniformi-rotundata anguste alata.

CAPE.—Namaqualand: Springbok, *Acocks* 19573 (K; PRE, holotype); *Acocks* 19335 (K, PRE); between Spektakel and Komaggas, *Bolus* 6515 and in Herb. Mus. Austro-Afric. No. 483 (BM, BOL, K).

Glabrous annual herb with the leaves crowded in a basal rosette. *Leaves* 4–15 cm long, pinnately 5–14-lobed, the lobes spaced over the whole length of the leaf, alternate or opposite, short or long, projecting backwards, at right angles or upwards; the lower few (juvenile) leaves sometimes simple; each leaf subtended by two minute stipules. *Peduncle* 20–50 cm tall, naked, simple or branched. *Pedicels* 0·8–1·3 cm long in flower, erect; 1–1·6 cm long in fruit, spreading or recurved-spreading; each subtended by two minute bracts. *Sepals* 4–5 mm long, 1·4–1·5 mm broad, oblong; the outer two cucullate, very shortly horn-tipped; the inner two inflated at the base. *Petals* 8·8–11 mm long, 4·3–6 mm broad, obovate or very broadly obovate, rounded,

clawed. *Filaments* 3·2–3·8 and 3·4–4 mm long. *Anthers* 1·7–2·1 mm long. *Ovary* linear; style short; ovules 20–28. *Siliqua* 2·5–4 cm long, 2–2·7 mm broad, linear, margin straight; valves 1-nerved, finely net-veined; style 1–2·5 mm long, slender, straight. *Seeds* 1·7–1·8 by 1·5–1·6 mm, reniform-circular, narrowly winged.

Heliophila laciniata is allied to but differs from *H. carnosa* in being an annual and it differs from *H. crithmifolia* in the leaves, which have the lobes spaced along the whole length of the leaf, the larger flowers, and the smaller seeds which tend to be broader than long. Our species is known from only a few collections from an area south-west of Springbok. They were collected during July and September. The flowers are white, becoming mauve.