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IRENEPHARSUS, A NEW GENUS IN BRASSICACEAE IN AUSTRALIA

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Abstract

The new genus *Irenepharsus* with three species is recognised: *I. phasmatodes* Hewson, *I. magicus* Hewson and *I. trypherus* Hewson. The genus is placed in tribe *Sisymbrieae*, subtribe *Arabidopsidinae* together with several other Australian endemic genera. An analysis of generic delimitation is presented.

IRENEPHARSUS Hewson

Irenepharsus Hewson, Fl. Aust. 8: 391, 349 (1982).

Type: *Irenepharsus phasmatodes* Hewson.

Annual herbs, tap-rooted, sparingly to profusely branched, erect. *Leaves* in basal rosette and cauline, attenuate to petiolate, obtuse to acute, sparsely pubescent with sessile to shortly stipitate branched hairs. *Inflorescence* an ebracteate raceme elongating from a few-flowered terminal corymb; flowering pedicels slender, half spreading; buds spherical. *Calyx* open; sepals sub-equal, ovate to obovate, green to purple-pigmented with narrow hyaline margin. *Petals* to twice as long as sepals, spreading, white; blade broadly ovate, contracting sharply into narrow claw approximately one third of petal length. *Stamens* 6, the 4 median ones erect to slightly spreading, the 2 lateral ones ascending; filaments slightly dilated at base. *Nectariferous glands* apparently in a continuous ring outside median filaments and encircling the lateral filaments (not examined in vivo). *Pistil* not stipitate; ovary linear, terete, glabrous; ovules pendulous, 10-20 per loculus; style shortly cylindrical or indistinct; stigma capitate; fruiting pedicels not markedly expanding towards receptacle, erect to half-spreading. *Fruit* a siliqua, dehiscent, linear, terete; valves convex, glabrous, sometimes purple-pigmented, mid-vein fading above, somewhat delicate so that mature seeds can be seen, though not markedly constricted between seeds; stigma as wide or wider than style; septum translucent, folded around adjacent seed surface. *Seeds* uniseriate to sub-biseriate, 10-20 per loculus, oblong-ovoid, dark-brown reticulate, with or without half wing, mucose; cotyledons incumbent.

The generic name is derived from the Greek *Irene* (peace) and *pharseos* (piece).

Key to Species

1. Cauline leaves with entire margin, sparse, the upper ones linear; style 0.2-0.7 mm long.
..... 1. *I. phasmatodes*
- 1: Cauline leaves with serrate or dentate margin, plentiful, the upper ones lanceolate; style
0.75-1.75 mm long.
2. Leaves with sparse pubescence; siliqua more than 1 mm wide; seeds with half-wing on
cotyledon margin, mucose. 2. *I. magicus*
- 2: Leaves glabrous; siliqua up to 1 mm wide; seeds without wing, sticky (scarcely mucose)
..... 3. *I. trypherus*

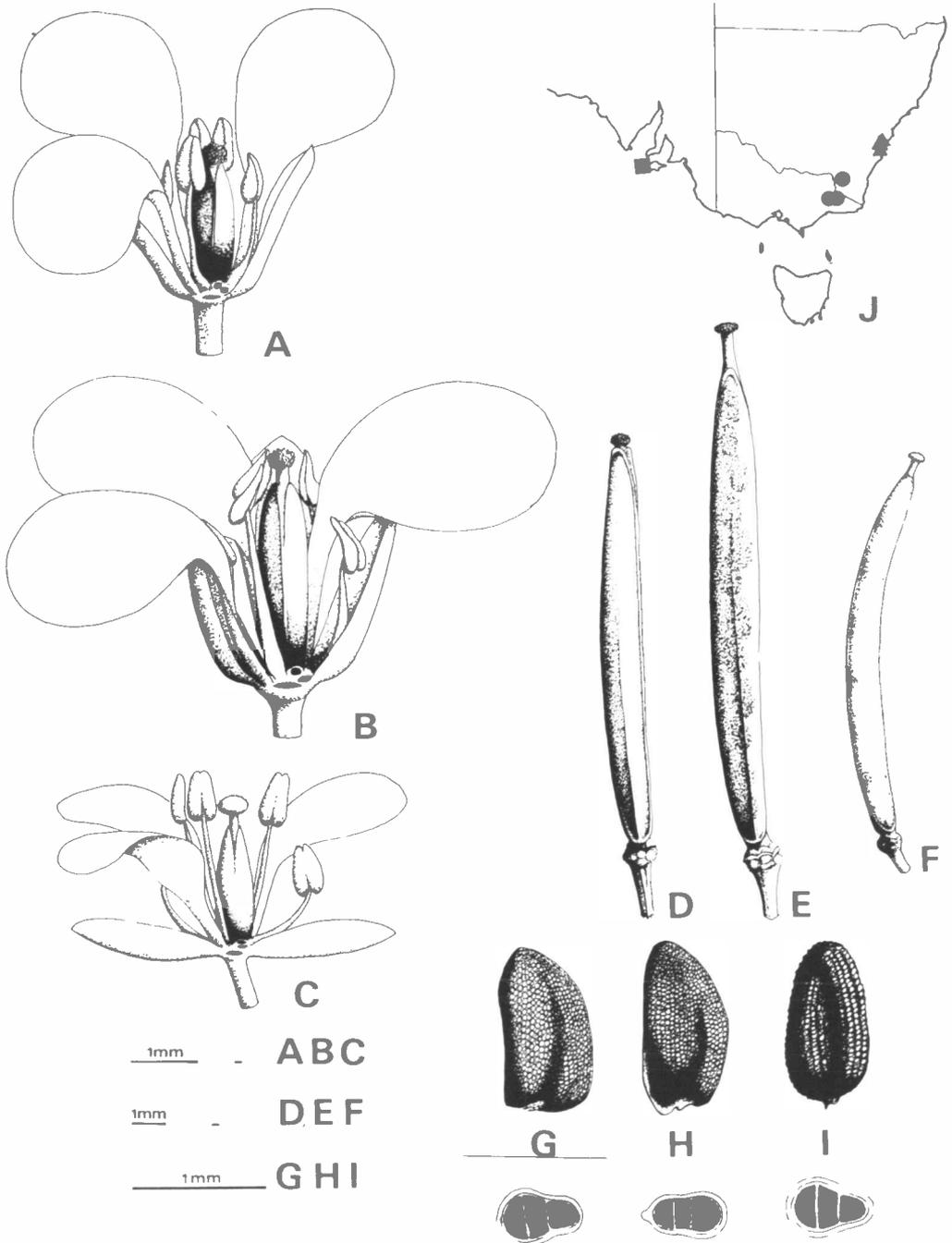


Fig. 1. A, D & G, *Irenepharsus phasmatodes*. A, flower with one sepal, one petal and one stamen removed; D, siliqua; G, seed and diagram of TS of seed. B, E & H, *Irenepharsus magicus*. B, flower with one sepal, one petal and one stamen removed; E, siliqua; H, seed and diagram of TS of seed. C, F & I, *Irenepharsus trypherus*. C, flower with one sepal, one petal and one stamen removed; F, siliqua; I, seed and diagram of TS of seed. J, Distribution: square, *I. phasmatodes*; dots, *I. magicus*; triangles, *I. trypherus*.

1. **Irenepharsus phasmatodes** Hewson, Fl. Aust. 8: 391, 349 (1982).

Holotype: On burnt flat nr. H.S. Rocky River, Flinders Chase, Kangaroo Island (South Australia), *Cleland s.n.*, 29.xi.1923 (AD97449229).

Sisybrium ? sp. : Eichler, Suppl. Black's Fl. S. Austral. 156 (1965).

Annual herb, sparingly branched; stems to 90 cm tall, glabrous, sometimes purple-pigmented. *Leaves* sparsely pubescent with almost sessile branched hairs predominantly 2-fid (some to 4-fid) with branches appressed; basal leaves in a rosette, more or less persistent, pinnatisect to lyrate, to 10 cm long, terminal lobe (when present) wider than rest of leaf, to 2 cm wide, sometimes purple-pigmented; cauline leaves sparse, less than 6 cm long and 3 cm wide, margin entire, the higher ones linear. *Flowering pedicels* c. 0.2 mm wide. *Sepals* 2.0-2.5 mm, green to purple, sometimes sparsely pubescent. *Petals* 3.5-4.5 mm long; blade 2-3.5 x 2-3 mm. Lateral *stamens* 1.5-2 mm long; median ones 2-3 mm long. *Fruiting pedicels* 7-10 mm long and c. 0.2-0.3 mm wide. *Siliqua* 9-22 x 0.9-1.5 mm, straight; valves convex, often purple pigmented; style 0-2-0.7 mm long. *Seeds* 1-1.25 x 0.75 mm, not winged. (Fig. 1 A, D, G & J).

Specimens examined:

SOUTH AUSTRALIA (Flinders Chase National Park, Kangaroo Island): *Hj. Eichler 15375*, sandhill on road to Cape du Couédic, c. 1.5 km south of Rocky River Homestead, 11.xi.1958 (AD, CANB), 15529; near West Bay at end of track to the Bay, c. 20 km south of Cape Borda, 15.xi.1958 (AD, CANB); *G. Jackson 716, 717*, on track to mouth of Breakneck, 14.xi.1971 (AD); *P.G. Wilson 966*, c. 3 km from mouth of Breakneck River, 19 km south of Cape Borda, 15.xi.1958 (AD, CANB).

2. **Irenepharsus magicus** Hewson, Fl. Aust. 8: 391, 351 (1982).

Holotype: Growing on mineral soil of embankment in upper Geehi Valley, elev. 3000 ft., (New South Wales) *M. Mueller 1837*, 13.iv.1954 (MEL93359; NSW, isotype).

Annual herb, sparingly to profusely branched; stems to 80 (or more) cm tall, glabrous, green. *Leaves* very sparsely pubescent (to glabrous), hairs (rarely simple) irregularly branched, shortly stipitate, branches appressed to spreading; basal leaves apparently not persistent (not known); cauline leaves denser near base, more remote upwards and reducing in size from 8.5 x 1 cm to less than 2 x 0.2 cm, attenuate to petiolate, narrow ovate to lanceolate, margins serrate (none entire), acute. *Flowering pedicels* c. 0.2 mm wide. *Sepals* 2-3 x 1.25-1.75 mm, green glabrous. *Petals* 4-5.5 mm long; blade 3-3.5 x 2-3.5 mm. Lateral *stamens* 2-2.5 mm long, median ones 2.5-3.0 mm long. *Fruiting pedicels* 7-15 mm long and c. 0.2-0.3 mm wide. *Siliqua* (6) 15-20 (30) x 1.25-1.75 mm, straight; valves convex, green; style (0.75) 1.25-1.50 (1.75) mm long. *Seeds* (1.5) 1.25 x 0.75 (0.9) mm, winged on margin above cotyledon. (Fig. 1 B, E, H & J).

Specimens examined:

VICTORIA (Victorian Alps): *A.C. Beaglehole 35559*, Melick Munjie Rd., N of Melick Munjie Creek, 15.xii.1970 (MEL); *36946*, Windy Ridge Road, off Nunning Road, 22.ii.1971 (MEL); *37079*, between Dingoes Ridge and Ezards logging Road, 27.ii.1971 (MEL).

3. **Irenepharsus trypherus** Hewson, Fl. Aust. 8: 391, 351 (1982).

Holotype: Rocky cliff face in gorge near falls, Minnamurra Falls Reserve (New South Wales), *E.F. Constable s.n.*, 10.ii.1959 (NSW137707).

Annual herb, slender, branched, spreading to erect, to 1 m tall, glabrous, somewhat mesophytic. *Leaves*: basal leaves unknown; cauline leaves numerous, elliptical to linear-lanceolate, petiolate, dentate to serrate. *Flowering pedicels* c. 0.2 mm wide. *Sepals* 2-2.5 mm long, spreading, somewhat petaloid. *Petals* 3-4 mm long; blade c. 2 x 1.5 mm. Lateral *stamens* 1.5-1.75 mm long, filaments curved; median *stamens* 1.75-2 mm long,

filaments straight. *Fruiting pedicels* 6-10 mm long, c. 0.2 mm wide, spreading to slightly reflexed. *Siliqua* 5-20 x 0.75-1 mm, curved, ascending; valves somewhat constricted between seeds, green, mid-vein obscure; style 0.75-1.75 mm long. *Seeds* 0.75-1.25 x 0.5-0.75 mm, not winged, sticky (scarcely mucose) when wet. (Fig. 1 C, F, I & J).

Specimens examined

NEW SOUTH WALES (gullies behind the south coast region between Nowra and Wollongong): *Carron s.n.*, Shoalhaven, iii.1861 (NSW); *H.K. Judd s.n.*, Minnamurra Falls, iv.1955 (NSW); *F.A. Rodway 13020*, Upper Kangaroo River, ii.1943 (NSW); *s.n.*, Barrengarry, 29.iii.1948 (PERTH); *anon 30*, ii.1865 (MEL).

Discussion

This genus with its open calyx, one half-prominent mid-vein on the siliqua valves, mucose seeds and incumbent cotyledons belongs in tribe *Sisymbrieae*, subtribe *Arabidopsidinae*. It is close to several other Australian endemic genera in this tribe as circumscribed in a revision by Shaw (1965), viz. *Arabidella* (F. Muell.) O. Schulz, *Drabastrum* (F. Muell.) O. Schulz, *Geococcus* J.L. Drumm. ex Harvey, *Harmsiodoxa* O. Schulz, *Pachymitus* O. Schulz and *Scambopus* O. Schulz (see Table 1). Of these genera *Irenepharsus* is closest to *Pachymitus* and *Drabastrum*. Following the traditional practice for the delimitation of genera in this tribe, one should regard the possession of a reticulate seed testa as setting it apart from *Pachymitus* and the possession of linear fruits as distinguishing it from *Drabastrum*.

Table 1. Affinities of *Irenepharsus* within subtribe *Arabidopsidinae*.

Genus	Hairs	Petals		Nectaries Median Glands Present Absent	Fruit Aspect	Fruit Shape	Seeds Testa
	Morphology	Size mm.	Colour				
<i>Arabidella</i>	Simple, Papillae or Absent	>2	White or Yellow	+/-	Aerial	Linear	Papillose
<i>Scambopus</i>	Branched	>2	Yellow	+	Aerial	Fusiform	Papillose
<i>Harmsiodoxa</i>	Branched	>2	White to Pink	-	Aerial	Fusiform	Papillose
<i>Geococcus</i>	Branched	1<	White	-	Geotropic	Fusiform	Papillose
<i>Pachymitus</i>	Branched	>2	White to Pink	+	Aerial	Linear	Papillose
<i>Irenepharsus</i>	Branched or Absent	>2	White	+	Aerial	Linear	Reticulate (Fine)
<i>Drabastrum</i>	Branched	>2	White to Pink	-	Aerial	Fusiform	Reticulate (Coarse)

Acknowledgements

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Reference

Shaw, E.A. (1965). A critical revision of some endemic Australian genera of Cruciferae. *Trans. Roy. Soc. S. Austral.* 89: 145-253.