

The plant is used medicinally in tropical Africa mostly as a purgative and to expel internal parasites (seed oil). The oil is also applied internally as an abortifacient (Kawanga, 2007). Leaves, bark and sap are used for a variety of diseases and conditions. In the West Indies, for instance, it is used to treat, amongst others, diarrhoea, colds, asthma and diabetes (Ayensu, 1981). The seed oil can also be used as lamp oil and fuel (Kawanga, 2007).

Jatropha gossypifolia var. *elegans* is an opportunistic invader of disturbed sites where it can become weedy. In southern Africa it has only been recorded as naturalised in South Africa (Limpopo). It is a short-lived plant, often only annual in cultivation and became naturalised in regions with a pronounced dry season, occurring along roads, on waste areas, in grassland and shrub vegetation (Kawanga, 2007).



Fig. 307. Flowers and fruit of *Jatropha gossypifolia* L. var. *elegans* (Pohl) Müll.Arg.
(Picture by Geoff R. Nichols)



Fig. 308. Leaves of *Jatropha gossypifolia* L. var. *elegans* (Pohl) Müll.Arg.
(Picture by Geoff R. Nichols)

3. *Jatropha podagrica* Hook.

In: *Botanical Magazine* 74: pl. 4376 (1848).

Common names: gouty-stalked jatropha (English); bottelplant, vetvoet (Afrikaans).

Erect shrubs up to 2 m tall, with woody stem swollen at base or lower part, completely glabrous with short fleshy branches. **Leaves** with petiole 8–20 cm long, glabrous; blade peltate, entire or shallowly 3–5-lobed, round to elliptic, 8–18(–25) × 6–16 cm, base truncate or obtuse, apex obtuse, shiny green on upper surface, grey-green on lower surface, glabrous; stipules spiniform, divided to c. 5 mm, glandular, becoming hardened, leaf scars persistent, prominent. **Inflorescence** a terminal corymb up to 26 cm long; peduncle up to 20 cm long; branches short, red. **Male flowers:** calyx c. 2 mm long; sepals round, c. 0.6 mm long, erose or emarginate at apex; petals obovate-oblong, c. 6 mm long, scarlet; nectary glands urceolate; stamens 6–8, basally connate, 5 mm long; anthers c. 2 mm long, orange. **Female flower:** sepals ovate-lanceolate, c. 2 mm long, apex obtuse, entire; petals 6–7 mm long; nectary glands free; ovary ellipsoid, 3–4 × 2.5 mm, glabrous; styles 3, bifid. **Fruit** a capsule, ellipsoid, c. 1.5 × 1.3 cm, septicidally and loculicidally dehiscent. **Seed** ellipsoid, c. 12 × 6 mm, smooth, brown; fluted caruncle. **Distribution:** SA. (Fig. 309).

References: Radcliffe-Smith (1987), Carter (2002), Li & Gilbert (2008a).



Fig. 309. Distribution map of *Jatropha podagrica* Hook.

Jatropha podagrica is native to central America but has been dispersed to many tropical countries as a garden-plant (Burkill, 1994). It has beautiful showy red inflorescences and a bottle-shaped trunk (Fig. 310, 311, 312) making it a striking garden subject and popular among succulent enthusiasts. In southern Africa it has been recorded as naturalised on the south coast of KwaZulu-Natal in South Africa. It is frost-sensitive and does not easily survive in South Africa's climatically severe interior.

Apart from its use as an ornamental it is also cultivated for medicinal purposes. In Africa it is used for treating wounds, skin ailments and as an antipyretic, diuretic, choleric and purgative (Burkill, 1994; Neuwinger, 2000) and has been shown to have anti-bacterial activity (Oliver-Bever, 1983).



Fig. 310. *Jatropha podagrica* Hook.
(Picture by Gideon F. Smith)



Fig. 311. Flower of *Jatropha podagrica* Hook. (Picture by Neil R. Crouch)



Fig. 312. Fruit of *Jatropha podagrica* Hook. (Picture by Neil R. Crouch)

***Pedilanthus* Neck. ex Poit.**

Shrubs or small trees with woody or fleshy branches. Latex white. **Leaves** alternate, distichous, entire, shortly petiolate, or absent; stipules small. **Inflorescence** with cyathia in dichotomous axillary or terminal bracteate cymes; bracts persistent. **Cyathia** pedunculate, involucre with 5 bracts, obliquely shoe- or boat-shaped, with 2–6 glands at the base, often brightly coloured. **Male flowers:** many, each reduced to 1 stamen, in 5 groups. **Female flower:** solitary at center of involucre, pedicellate, with the perianth reduced to a rim below the ovary; ovary 3-locular, with 1 ovule per locule; styles 3, united; stigmas bifid. **Fruit** a capsule, 3-lobed, usually dehiscent. **Seeds** smooth or tuberculate, without a caruncle.

References: Carter & Leach (2001), Carter (2002), Li & Gilbert (2008b).

Pedilanthus is a genus with c. 15 species from Central America, northern South America and the West Indies (Carter & Leach, 2001; Li & Gilbert, 2008b), sometimes included in *Euphorbia*. It includes a few species cultivated in tropical regions. In the whole of Africa only *Pedilanthus tithymaloides* subsp. *smallii* has been recorded as naturalised, in South Africa.

***Pedilanthus tithymaloides* (L.) A.Poit. subsp. *smallii* (Millsp.) Dressler**

In: *Contributions from the Gray Herbarium of Harvard University* 182: 152 (1957).

=*Pedilanthus smallii* Millsp.

=*Euphorbia tithymaloides* L. subsp. *smallii* (Millsp.) V.W.Steinm.

Common names: bird cactus, jacob's ladder, slipperplant (English); swaelblom (Afrikaans); ibunga labesutu (unrecorded language).

Shrubs up to 1–3 m tall with markedly zigzag stems. **Leaves** distichous; petiole 2–5 mm long; blade broadly ovate to lanceolate, 3.5–8 × 2.5–3.5 cm, base rounded or obtuse, apex ± acuminate, entire, fleshy, sometimes variegated with yellowish-green or pink, slightly glaucous, glabrescent, deciduous; stipules small, caducous. **Inflorescence** a cyme, in terminal and axillary clusters on leafless stems. **Cyathia** with many male flowers and 1 female flower; involucre slipper-shaped, deep-red or purple-red, glabrous, apex nearly labiate, bifid, 3-serrulate, other lobe boat-shaped, with 4 glands. **Male flowers:** pedicel slender, 2.5–4 mm long, similar to filaments; anther globose. **Female flower:** inserted at center of involucre, exerted; pedicel 6–8 mm long; ovary fusiform; styles usually united; stigmas 3, bifid. **Fruit** 5–6 mm in diameter. **Distribution:** SA. (Fig. 313).

References: Carter & Leach (2001), Carter (2002), Li & Gilbert (2008b).

This taxon originates from North America and Cuba (Carter, 2002). It is naturalised in many parts of the world such as Australia (Forster, 1996) and China (Li & Gilbert, 2008a). It is often grown for its showy inflorescence and ornamental foliage. The subsp. *smallii* (Millsp.) Dressler is particularly widespread due to the attractiveness of the accentuated zigzag stems and variegated foliage (Fig. 314, 315). The

species is also grown as a hedge (Mabberley, 2008) and it is used medicinally locally (Von Ahlefeldt *et al.*, 2003) and in other regions as an antidote to venomous bites or stings, as an emetic or for the treatment of fractures (Burkill, 1994; Li & Gilbert, 2008a).

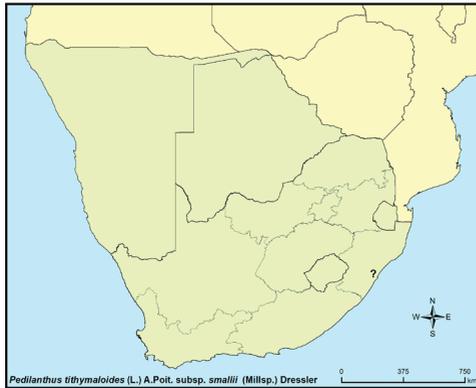


Fig. 313. Distribution map of *Pedilanthus tithymaloides* (L.) A.Poit. subsp. *smallii* (Millsp.) Dressler.



Fig. 314. Zigzag stems of *Pedilanthus tithymaloides* (L.) A.Poit. subsp. *smallii* (Millsp.) Dressler. (Picture by Estrela Figueiredo)



Fig. 315. Variegated leaves of *Pedilanthus tithymaloides* (L.) A.Poit. subsp. *smallii* (Millsp.) Dressler. (Picture by Estrela Figueiredo)

LAMIACEAE Martinov.

(Mint family; *Saliefamilie*)

by

N.R. Crouch

Perennial or annual, aromatic, mesophytic to xerophytic herbs, shrubs or trees, rarely succulent; roots fibrous, occasionally succulent; stems usually 4-angled. **Leaves** decussate or whorled, simple, sometimes succulent, rarely pinnatifid or digitately compound, usually gland-dotted, without stipules. **Inflorescence** a terminal (rarely axillary) raceme or panicle (rarely spikes or corymbs). **Flowers** strongly zygomorphic (rarely actinomorphic), normally bisexual, rarely unisexual, usually 5-merous, bracts present, foliaceous, often caducous. **Calyx** of 5 fused sepals, tubular, campanulate to spreading, often persistent and enlarged in fruit; lobes often toothed. **Corolla** with 5 united petals, tubular (straight or geniculate), often 2-lipped at the throat or subregular and 4–5-lobed. **Stamens** 4 (rarely 2), subequal or didynamous, epipetalous at corolla mouth or in tube; filaments occasionally connate, sometimes with a crest or projection near base; anthers 1–2-locular. **Ovary** superior, often deeply 4-lobed, seated often on entire or lobed nectariferous disc, of 2 united carpels divided into 2–4 locules; ovule 1 per locule, erect, basal or sub-basal; style gynobasic. **Fruits** usually 4 (or by abortion fewer) 1-seeded nutlets, \pm enveloped by the persistent calyx, usually smooth, rarely

rugose or winged, dry at maturity, otherwise if ovary entire the fruit a drupe with 4 pyrenes.

References: Codd (1985), Retief (2000), Van Jaarsveld (2002), Heywood *et al.* (2007).

Lamiaceae is a well-known family of c. 230 genera and 4 000–7 000 species. It has a worldwide distribution, except in Antarctica and is best represented in the Mediterranean region. The majority of the genera belong to the subfamily Nepetioideae (Heywood *et al.*, 2007). Succulence is scattered throughout seven genera, which (with the exception of *Tetradenia* Benth.) belong to subfamily *Ocimoideae*. *Plectranthus* is the largest of these genera. Leaf succulence is found in the family particularly in southern and tropical Africa, but caudiciform, swollen stems are also encountered in some representatives.

Many species of Lamiaceae are frequently cultivated both for medicinal, culinary or ornamental value. They include common kitchen herbs such as basil (*Ocimum* L.), rosemary (*Rosmarinus* L.), thyme (*Thymus* L.), mint (*Mentha* L.) and oregano (*Origanum* L.), used on account of their flavoursome essential oils. Many very attractive garden plants such as numerous species of *Salvia* L. and *Leonotis* (Pers.) R.Br. are frequently encountered in cultivation. Many taxa are grown commercially for their essential oils such as basil (*Ocimum*) and *Pogostemon* Desf. (product patchouli). Some species of *Plectranthus* L'Hér. and *Solenostemon* Thonn. are popular house plants. *Plectranthus esculentus* N.E.Br. and *Solenostemon rotundifolius* (Poir.) J.K.Morton have been cultivated in southern Africa for their edible potato-like root-tubers (Van Jaarsveld, 2002).

Two exotic species from the genus *Plectranthus* are naturalised in southern Africa.

***Plectranthus* L'Hér.**

Annual, biennial or perennial herbs, subshrubs or shrubs up to 3.5 m tall, herbaceous, fleshy or sometimes succulent; roots fibrous or rarely fleshy or tuberous. **Leaves** decussate, simple, often succulent, usually crenate-dentate, petiolate. **Inflorescence** terminal or in the upper leaf axils, spike-like, often branched and paniculate. **Flowers** zygomorphic, arranged in verticils, few-flowered cymes or dichasia, occasionally solitary, bracts small. **Calyx** 2-lipped to sub-equally 5-toothed; when 2-lipped, upper lip consisting of a single broad lobe scarcely longer than the lower lip which comprises 4 lanceolate-deltoid to subulate teeth, tube glabrous or villous within, sometimes gibbous at base. **Corolla** 2-lipped, mauve, white, purple or yellow; tube longer than calyx, gibbous or produced into a spur on the upper side, usually bent and variously expanded near the base, occasionally expanding gradually, rarely straight; upper lip usually 4-lobed, shorter than the lower boat-shaped entire lip. **Stamens** 4, rarely 2 abortive; filaments free or variously fused near the base, arising at corolla mouth, declinate in lower lip; anthers circular to oblong, medifixed, 1-locular. **Ovary** deeply 4-lobed; style gynobasic, declinate with stamens in lower corolla lip; stigma shortly bifid. **Fruit** a nutlet, oblong to ovoid, smooth or slightly granular.

References: Codd (1985), Retief (2000), Forster & Van Jaarsveld (2002).

Plectranthus is an Old World genus of c. 350 species, c. 70 of which have succulent stems, leaves, roots or a combination thereof (Forster & Van Jaarsveld, 2002). Historically, the tuberous roots of some species have been cultivated and eaten as a starch staple: *Plectranthus esculentus* is the most prominent example (Crouch & Styles, 2010). Many non-succulent or fleshy species are commonly cultivated as garden subjects, and a few of the succulent species are in general cultivation. Various regional species are used in traditional medicine, and at times used as herbs to flavour foods [e.g. soup mint, *P. amboinicus* (Lour.) Spreng.] (Codd, 1985). One species, *P. unguentarius* Codd is even used by the Himba of Namibia as a deodorant in their red ochre body lotion (Van Jaarsveld, 2006).

Both succulent *Plectranthus* species naturalised in southern Africa belong to the subgenus *Calceolanthus*. Members of this subgenus are characterised by the pubescence of their inner calyx.

Key to all *Plectranthus* species of subgenus *Calceolanthus* native [*P. neochilus* Schltr., *P. caninus* Roth, *P. tetensis* (Bak.) Agnew, *P. pentheri* (Gürke) Van Jaarsv. & T.J.Edwards] or naturalised in southern Africa [from Van Jaarsveld (2006)]:

1. Bracts rounded; stems procumbent (***Plectranthus tetensis***)
- 1'. Bracts acute, forming imbricate coma; stems decumbent or erect 2
2. Branches decumbent or erect to 50 cm high; leaves medium-sized 3
- 2'. Branches erect, 0.9–4 m high; leaves large
..... 1. ***Plectranthus barbatus* var. *grandis***
3. Roots distinctly tuberous (***Plectranthus pentheri***)
- 3'. Roots not tuberous 4
4. Plants annual; corolla less than 1 cm long (***Plectranthus caninus***)
- 4'. Plants perennial; corolla longer than 1 cm 5
5. Corolla 1–2 cm long (***Plectranthus neochilus***)
- 5'. Corolla 2–2.5 cm long 2. ***Plectranthus ornatus***

**1. *Plectranthus barbatus* Andrews var. *grandis* (L.H.Cramer)
Lukhoba & A.J.Paton**

In: *Kew Bull.* 58: 915 (2003).

=*Coleus grandis* L.H.Cramer
=*Coleus kilimandschari* Gürke
=*Plectranthus grandis* (L.H.Cramer) R.H.Willemse

Common names: woolly plectranthus, bearded spurflower (English); baardspoorsalie (Afrikaans).

Aromatic, perennial sub-shrub or succulent shrub 0.9–4 m tall. **Stems** erect or

ascending, fleshy, creeping at base, purplish above, pubescent to villous with glandular hairs, shiny glandular hairs and red sessile glands. **Leaves** spreading to ascending, succulent, soft, velvety, sometimes folded along midrib on drying; petiole 3–50 mm long; blade broadly ovate, widest near base, 1.5–20 × 0.8–11 cm, base subcordate to broadly cuneate, sharply cuneate at petiole, apex acute to rounded, margins serrate or crenate, densely hairy to woolly with reddish sessile glands. **Inflorescence** with glandular, sticky axis, lax with 10–14-flowered verticils; cymes sessile, 5(–7)-flowered; bracts ovate to lanceolate, apiculate, 2–20 mm long, cucullate, enclosing buds, falling as buds start to develop; pedicels 3–7 mm long. **Calyx** (at flowering) 3–4 mm long, sparsely pubescent to villous with red and yellowish sessile glands, purplish; at fruiting 6–10 mm long, shortly tubular, slightly curved, densely hairy in throat. **Corolla** (7–)12–26 mm long, pale blue, blue or purple, with scattered red glands or hairs on lobes; tube sigmoid, dorsally gibbous to saccate at second bend, 5–12 mm long; upper lip 4-lobed, reflexed against tube, much shorter than lower lip; lower lip ascending to horizontal, deeply cucullate, enclosing stamens, 8–10 mm long. **Stamens** fused. **Nutlets** broadly ovate, slightly flattened, 1.5–2 mm long, pale or dark brown to black, smooth, with dark gland dots, producing copious speckled mucilage when wet. **Distribution:** S, SA. (Fig. 316).

In southern Africa, plants flower (Fig. 317) during summer but peak in autumn (Van Jaarsveld, 2006).

Given the wide variety of names that have been applied to the two varieties of *Plectranthus barbatus*, and the relatively recent resolution of its taxonomy, it is difficult to unequivocally attribute historical traditional usage accounts to particular varieties. Accordingly, in reviewing the ethnobotany of the *Plectranthus* species of East Africa, Likhoba *et al.* (2006) reported on the collective literature that has referred to *P. barbatus*, under all synonyms. The species in its broadest sense is evidently extremely well utilised medicinally across its range by a variety of ethnic groups; readers are referred to the review of Likhoba *et al.* (2006) and references cited within for further information. Given the range of medicinal applications it is likely that dispersal of this species is in part synanthropic, evidenced by its current anthropogenic tendency (Fig. 318).

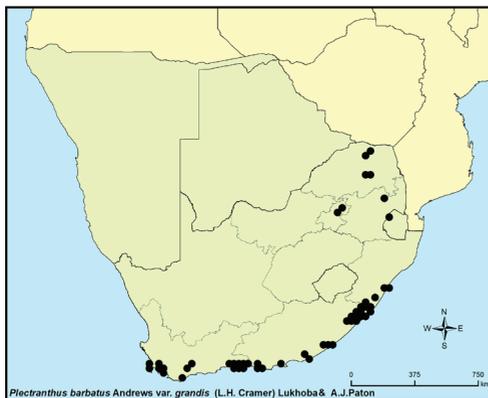


Fig. 316. Distribution map of *Plectranthus barbatus* Andrews var. *grandis* (L.H.Cramer) Likhoba & A.J.Paton.



Fig. 317. Flowers of *Plectranthus barbatus* Andrews var. *grandis* (L.H.Cramer) Lukhoba & A.J.Paton. (Picture by Neil R. Crouch)

Plectranthus barbatus var. *grandis* (Fig. 319) has for long been historically confused both with the typical variety (also present in East Africa), which is an altogether smaller plant with elliptic leaves, and with *P. comosus* Sims from Asia. This is reflected in the literature, particularly that pertaining to horticulture (e.g. Forster, 1997), fieldguides (Agnew, 1974) and even accounts of the taxon as an alien invader (Wells *et al.*, 1986; Henderson, 2001). However, this taxonomic issue has been resolved by Lukhoba and Paton (2003) following the earlier research of Cramer (1978) and Ryding (1999). The native range of *P. barbatus* var. *grandis* is imprecisely known as it has been widely disseminated by humans. Its origin appears to be East Africa, but it is cultivated elsewhere in Africa as well as in India and Sri Lanka. It is, however, a common garden subject and is widely cultivated in rural areas as a fast-growing but drought-tolerant hedging plant, which is the reason for its spread in South Africa.

Plectranthus barbatus var. *grandis* can be distinguished from other South African species by its size, large leaves and sticky inflorescences. The indigenous *P. ecklonii* Benth. attains a similar height but is a smaller-leaved and shade-loving species that has flowers with straight rather than sigmoid tubes.

The species was first identified as a local problem plant by Wells *et al.* (1986) who described it as a competitive species of moist terrestrial zones. Henderson (2001) further noted its invasion of roadsides, rocky sites and forest margins (Fig. 320). As *Plectranthus barbatus* var. *grandis* has in the past mistakenly been referred to as *P. comosus*, it is the latter taxon that has accordingly been declared a category 3 invader. Trade in this species, including the variegated cultivar 'Vicki', is not permitted.



Fig. 318. *Plectranthus barbatus* Andrews var. *grandis* (L.H.Cramer) Lukhoba & A.J.Paton near a village. (Picture by Geoff R. Nichols)



Fig. 319. *Plectranthus barbatus* Andrews var. *grandis* (L.H.Cramer) Lukhoba & A.J.Paton. (Picture by Geoff R. Nichols)



Fig. 320. *Plectranthus barbatus* Andrews var. *grandis* (L.H.Cramer) Lukhoba & A.J.Paton invasion. (Picture by Neil R. Crouch)

2. *Plectranthus ornatus* Codd

In: *Bothalia* 11: 393 (1975).

=*Coleus comosus* Hochst. ex Gürke

Common names: ornamental spurflower (English); skutblaarsalie, tuinspoorsalie (Afrikaans).

Perennial, decumbent, succulent herb, branching freely at base, up to 30 cm tall. **Leaves** succulent; petiole 2–10 mm long; blade broadly obovate, 20–30 × 15–25 mm, base wedge-shaped, apex obtuse, margin finely crenate-dentate in the upper half, finely to densely downy, lower surface with orange gland-dots, strongly veined below. **Inflorescence** a terminal dense spike-like raceme, 4–9 cm long; bracts large, forming a 4-angled apical cap, greenish white to purple, tipped with dark purple, soon deciduous. **Flowers** in 3-flowered sessile cymes, forming 6-flowered verticils; verticils crowded; pedicels erect. **Calyx** 2-lipped, 6 mm long in fruit, red gland-dotted, densely villous inside. **Corolla** 2–2.5 cm long, bluish mauve, with purple mottling on the upper lip; tube slightly deflexed and expanding towards the throat; upper lip c. 6 mm long, lower lip boat-shaped, 1.2–1.5 cm long, sometimes bifurcate at the apex. **Stamens** 1.2–1.4 cm long, united at the base for 3–4 mm. **Nutlets** 2 mm long, dark brown. **Distribution:** SA. (Fig. 321).

Reference: Van Jaarsveld (2000).

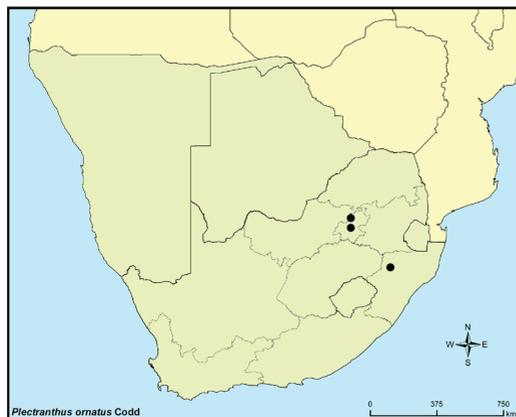


Fig. 321. Distribution map of *Plectranthus ornatus* Codd.

Plectranthus ornatus (Fig. 322) is often confused with the indigenous *Plectranthus neochilus* but may be distinguished on account of its shorter, more compact inflorescence (Fig. 323) and its longer corolla (those of *P. neochilus* attain lengths of only 1.2–2 cm), especially the longer upper lip; the lower lip is additionally often split longitudinally at the apex (Codd, 1975). Both species possess leaves that are unpleasantly scented. *P. caninus* is also closely related to *P. comosus* but has much shorter and less showy corollas (8–10 mm long), and is an annual rather than a perennial (Codd, 1975).

Plectranthus ornatus is native to East Africa including Tanzania and Ethiopia (Codd, 1975), and was introduced for its showy flowers as a horticultural subject

to South Africa, where it subsequently naturalised. It may often be found growing in sites where garden refuse has been dumped, usually close to habitation. It has been encountered fully naturalised away from habitation in remote rural regions such as the lower Thugela Valley.



Fig. 322. *Plectranthus ornatus* Codd. (Picture by Neil R. Crouch)



Fig. 323. Inflorescences of *Plectranthus ornatus* Codd. (Picture by Neil R. Crouch)

MONTIACEAE Raf.

(Rock purslane family; *Klip-porseleinfamilie*)

by

M. Walters and E. Figueiredo

Annual to perennial herbs, rarely subshrubs or semi-aquatic, with or without stems, with or without thickened roots or stems. **Leaves** spiral, frequently rosulate, often succulent, sometimes amplexicaul, usually glabrous with naked leaf axils. **Inflorescence** terminal or lateral, often a cyme, frequently scorpioid or with solitary, axillary flowers. **Flowers** sessile or pedicellate, usually bisexual (both bisexual and unisexual in *Hectorella*), actinomorphic. **Sepals** 2–9, often dry and persistent in fruit. **Petals** 4–5 or up to 19 (*Lewisia*), usually free but sometimes basally connate. **Stamens** as many as petals or numerous (to 100). **Ovary** superior, 1-locular with 2–8 united carpels. **Fruits** 2–3-valved capsules, valves persistent (rarely deciduous) or basally circumscissile, or 1-seeded utricles, dehiscent or not, or 1–2-seeded indehiscent capsules disintegrating with time, sometimes with deciduous calyptra. **Seed** often minutely papillate, with strophiole or elaiosome or not, rarely with thin, fleshy chartaceous aril.

References: Nyffeler & Egli (2010).

This family (excluding the genera *Hectorella* Hook.f. and *Lyallia* Hook.f.) was until recently considered part of the Portulacaceae, which has been split into four families namely the Portulacaceae, Anacampserotaceae (a newly created family), Montiaceae and Talinaceae (both family names long disused) (Nyffeler & Egli, 2010; Ocampo & Columbus, 2010). The Montiaceae now includes 15 genera and c. 225 species (Nyffeler & Egli, 2010). In southern Africa it is represented by a single exotic genus (*Calandrinia* Kunth) and one species (*Germishuizen et al.*, 2006; Klopper *et al.*, 2006).

The Montiaceae is distributed worldwide but most notably in North and South America (mainly in the west) northern Asia to northern Europe, Australia and New Zealand (Nyffeler & Egli, 2010) with some species naturalised elsewhere.

Many of the species in this family are used by humans, for both medicinal purposes and as a source of food. The Native Americans for instance use species of *Lewisia* Pursh to treat pleurisy and diabetes while some species of *Claytonia* L. are used as an anti-convulsive and to treat rheumatic pains (Moerman, 2009). In southern Africa no local usage, medicinal or otherwise, has been recorded.

Only one species of Montiaceae is reported as naturalised in southern Africa.

***Calandrinia* Kunth**

Annual or perennial herbs with prostrate to erect stems, simple to branched from the base with glabrous nodes, rarely with tuberous taproots, with unicellular trichomes. **Leaves** alternate, often with the appearance of rosettes, slightly to markedly

amplexicaul; blade linear to oblanceolate, or ovate to spatulate, flattened, glabrous or sparsely covered with unicellular hairs, without stipules. **Inflorescence** with solitary flowers in basal leaf axils or an elongate raceme, bracteate; bracts leaflike, narrowing towards the base of the flowers. **Flowers** bisexual, long pedicellate. **Sepals** 2, often unequal, ovate, distinctly angled or keeled, green, persistent in fruit, glabrous or with unicellular hairs. **Petals** 5–7, usually deep red-purple or rarely white. **Stamens** 3–15, usually opposite petals, free, inserted. **Ovary** with 6—many ovules; style 1; stigmas 3. **Fruit** a 3-valved capsule longitudinally dehiscent from the top, valves persistent and reflexed after dehiscence, margins involute. **Seeds** 10–20, ellipsoid, reticulate or tuberculate, shiny black.

References: Jordaan (2000a), Kelley (2003).

Calandrinia has 14 species native to Australia and North and South America (Jordaan, 2000a) with most of the diversity found in western South America (Kelley, 2003). Several species are cultivated elsewhere as ornamental plants and some of them are edible (Mabberley, 2008).

***Calandrinia ciliata* (Ruiz & Pav.) DC.**

In: *Prodromus Systematis Naturalis Regni Vegetabilis* 3: 359 (1828c).

=*Calandrinia ciliata* (Ruiz & Pav.) DC. var. *menziesii* (Hook.) J.F.Macbr.

=*Talinum ciliatum* Ruiz & Pav.

Common names: desert rock purslane, fringed redmaids, red maids/redmaids (English).

Annual herb up to 3–40 cm high, with prostrate to ascending stems, nearly glabrous to somewhat ciliate. **Leaves** linear to narrowly oblanceolate, up to 1–10 cm long, fleshy, glabrous or with elongate, unicellular hairs. **Inflorescence** racemose with leafy bracts. **Flowers** pedicellate; pedicel 0.4–2.5 cm long. **Sepals** keeled, 2.5–8 mm long, often ciliate on midrib and margins. **Petals** 5, 4–15 mm long, white, pink, red or purple. **Stamens** 3–15, c. $\frac{2}{3}$ the length of the petals. **Fruit** a capsule ovoid, 4–5 mm long, slightly larger than the calyx. **Seeds** 10–20, 1–2.5 mm wide, finely reticulate. **Distribution:** SA. (Fig. 324)



Fig. 324. Distribution map of *Calandrinia ciliata* (Ruiz & Pav.) DC.

References: Shreve & Wiggins (1964), Kelley (2003).

This is an ornamental species much cultivated for the solitary, attractive flowers, which can be pink, red, purple or white (Fig. 325). It shows great variation in vegetative characters, especially in size.

Calandrinia ciliata was introduced to southern Africa as an ornamental plant and it has become naturalised in the Western Cape, South Africa (Germishuizen *et al.*, 2006). In its native habitat it prefers open grassy areas and meadows at lower elevations, often occurring in cultivated fields or orchards (Thomas, 1991; Vizgirdas & Rey-Vizgirdas, 2009).

Native Americans prized the seed of this plant which they dried over coals, ground and pressed into cakes for eating. They also ate the roots and young stems and leaves (Vizgirdas & Rey-Vizgirdas, 2009). While the leaves and young shoots can be eaten, it should be done in moderation because of their high oxalic acid content (Cribb & Cribb, 1981). No use has been reported from southern Africa.



Fig. 325. *Calandrinia ciliata* (Ruiz & Pav.) DC. A. Habit; B. Flower. (Pictures by Lynn Watson)

PHYTOLACCACEAE R.Br.

(Pokeweed family; *Bobbejaandruif-familie*)

by

E. Figueiredo

Herbs, shrubs, lianas, rarely trees, annual or perennial, mostly glabrous. **Leaves** alternate, simple, entire, often undulate, usually petiolate; stipules absent or very small. **Inflorescence** an axillary, terminal or leaf-opposed raceme, spike, panicle or dichasium. **Flowers** small, usually bisexual, when unisexual then plants dioecious, sometimes dimorphic, actinomorphic, rarely zygomorphic. **Sepals** 4–5(–8), free or united at base, imbricate, usually persistent, often unequal, greenish to whitish. **Petals** absent. **Stamens** 4–many, inserted on a hypogynous fleshy disk, free, in 1–2 whorls; filaments usually persistent, free or united at base; anther 2-loculed, dorsifixed, dehiscent longitudinally. **Ovary** superior, globose, consisting of 1–18 carpels, free or more or less united; styles as many as the carpels, usually free; stigma linear or capitate; ovule solitary in each carpel, campylotropous. **Fruit** mostly a lobed berry or drupe, carpels often separating, rarely a capsule, depressed-globose, fleshy. **Seed** lenticular or subreniform, sometimes arillate, testa thick or thin, perisperm abundant to absent.

References: Polhill (1971), Stannard (1988), Egli (2002c), Mabberley (2008).

The Phytolaccaceae consists of 18 genera and c. 70 species that occur widespread in tropical and temperate regions, especially in the neotropics (Egli, 2002c). The delimitation of the family is a matter of debate with different concepts being presently followed (Nienaber & Thieret, 2004). The family includes a few widespread species that are planted as ornamentals (such as *Phytolacca dioica* L.) or for their medicinal use (such as *P. americana* L.). Some species are dye-producing, others are used as pot-herbs (Mabberley, 2008). The genera *Hillieria* Vell., *Phytolacca* L. and *Rivina* L. have been recorded in southern Africa; of these only *Rivina* does not have indigenous representatives (Germishuizen *et al.*, 2006). The genus *Lophiocarpus* Turcz., also recorded in southern Africa (Germishuizen *et al.*, 2006), is often placed in its own family, Lophiocarpaceae.

Only one species from the genus *Phytolacca* is considered succulent (Egli, 2002c).

***Phytolacca* L.**

Herbs, shrubs or rarely trees (sometimes with fat-trunk), erect, rarely scandent; stems and branches terete, sulcate or angular, glabrous or pubescent when young. **Leaves** alternate, petiolate, rarely sessile; blade ovate, elliptic, or lanceolate, apex acute or obtuse. **Inflorescence** mostly a spike or raceme, terminal or leaf-opposed. **Flowers** pedicellate or sessile, uni- or bisexual. **Sepals** 5–8, oblong to ovate, subequal, apex obtuse, free, persistent, spreading or reflexed. **Stamens** 5–30, inserted at the base of the sepals, included or exerted, sometimes in 1–2 whorls;

filaments sometimes united at base. **Ovary** subglobose, with 5–16 carpels, distinct or united proximally; styles as many as carpels, free or united at base; stigma 1 per carpel. **Fruit** a fleshy berry, oblate, with the stigma persistent at apex, or a group of achenes. **Seeds** 6–16 per berry or 1 per achene, reniform, compressed, black.

References: Polhill (1971), Stannard (1988), Eggli (2002c), Dequan & Larsen (2003), Nienaber & Thieret (2004).

Phytolacca is a genus with c. 25 species (Mabberley, 2008) mostly native to South America, with several species naturalised elsewhere. Some species are cultivated for the attractiveness of their red to black berries in elongated racemes, while others are used as vegetables or medicinally. Some species are poisonous. Five species have been recorded in southern Africa with three of them being introduced (Germishuizen *et al.*, 2006).

***Phytolacca dioica* L.**

In: *Species Plantarum* (ed. 2) 1: 632 (1762).

Common names: belhambra, ombu, pokeberry tree (English); belambra(-boom), belombra(-), belhambra(-), belhamel(-), bobbejaandruifboom (Afrikaans); belle ombre (French); bella sombra (Spanish); ombú, umbú (Spanish, South America); bella umbra, mzimuka, mzimuka-omhlophe (unrecorded language).

Fast growing, soft-wooded, deciduous, unisexual trees up to 25 m high, with a massive trunk, erect, stout, swollen at the base, up to 4 m in diameter and spreading above ground, bark grey to pale-brown, and rounded crown. **Leaves** alternate, spirally arranged, simple, crowded in terminal whorls; petiole up to 7 cm long, pinkish; blade ovate, up to c. 15 × 6 cm, acute, bright green, margin appearing white, glabrous. **Inflorescence** a raceme up to 15 cm long, semi-erect to drooping. **Flowers** small, with sepals 2–3 mm long, white to creamy-yellow, male and female flowers occurring in separate trees. **Male flowers:** stamens 20–30; aborted carpels 2–4. **Female flowers:** carpels 10–12; staminodes 10. **Fruit** consisting of fused berries, up to 1 cm in diameter, yellowish-white to green, turning black. **Seed** small, shiny, grey-black. **Distribution:** B, N, S, SA. (Fig. 326)

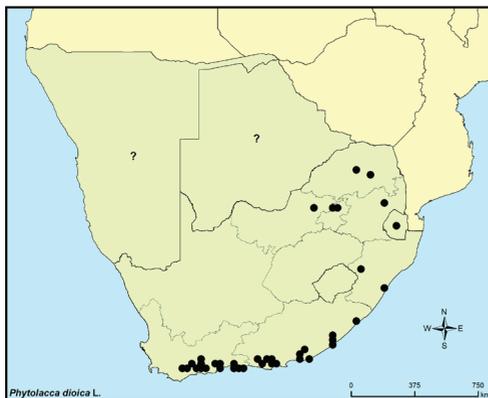


Fig. 326. Distribution map of *Phytolacca dioica* L.