The genus *Kleinia* (*Compositae*) in North Africa and the Canary Islands

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Summary. Two endemic species of *Kleinia* from Morocco and the Canary Islands respectively are discussed and descriptions provided.

Introduction

The present paper is the second in a proposed series of regional accounts of this confused and difficult group. It deals with the Moroccan *K. anteuphorbium* (L.) Haw., and *K. neriifolia* Haw. from the Canary Islands, and I am indebted to Dr A. Santos Guerra of Tenerife for kindly supplying me with live material of both the species under discussion in this paper. All the material cited has been seen.

K. anteuphorbium (L.) Haw. is a plant which has been familiar to botanists and horticulturists since the sixteenth century. Dodonaeus recorded that it was brought to Europe in 1570 and by 1596 Gerard was growing it in England. It proved to be a shy-flowering species, as Dillenius noted in 1732 (Hort. Elth. 63: t. 55) and it was not until 1874 that Thomas Hanbury induced it to flower in his garden near Mentone, sending live material that same year to J. D. Hooker at Kew, to be figured in Curtis's Botanical Magazine.

The misconception that *K. anteuphorbium* is a South African species dates back to Linnaeus (1753: 834) where under *Cacalia anteuphorbium* he stated '*Habitat in* Aethiopia' (see W. T. Stearn in Sp. Plant., Ray Soc. edition: 143 (1957)). Willdenow (1804: 1726) also recorded it as a South African species ('*Habitat ad* Cap. b. Spei') as did Harvey and Sonder (1864–65: 319), adding that the species is cultivated in Europe. De Candolle (1838: 338) went one step further and recognised two distinct species, *K. anteuphorbium* from 'Cap. b. Spei' and *K. pteroneura* from Mogador, Morocco.

Given that all these authors were referring to the same taxon, the reference of *K. anteuphorbium* to Ethiopia and to South Africa must be considered erroneous, as there is no doubt that both names under discussion refer to the Moroccan plant, while the live material collected recently in Morocco confirms the presence there of a single endemic taxon.

The discrepancies between the two plants, as described by J. D. Hooker in Curtis's Botanical Magazine (1872: tab. 5945; 1874: tab. 6099) at first seem to support the existence of two distinct taxa. The differences are mainly in the illustrations which show different vegetative stages and dissimilar inflorescences. If, however, one takes into consideration a note and an illustration by Thomas Hanbury's brother Daniel, dated 1874, addressed to Daniel Oliver, and preserved at Kew, it is possible to account for these differences.

As is apparent from his note, Hanbury suspected that *K. anteuphorbium* and *K. pteroneura* are one and the same species, and his pencil sketch of *K. anteuphorbium* confirms that suspicion, matching well with the Fitch illustration

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prepared for J. D. Hooker's (1872) account of *K. pteroneura*.

Hanbury further wrote: 'I am quite willing to get the flowers of the *Kleinia*, if there are still any to be had. I did not understand they were wanted, for I thought that the wet specimen and the dry and the drawing were all that would be required.'

This suggests that possibly Fitch had to prepare his illustration of *K. anteuphorbium* (Bot. Mag. t. 6099; 1874) from poor or over-mature flowering material and well grown leafy shoots. If this was the case, the discrepancies between his two plates are explained.

There being no other evidence to support the retention of two species, the taxon discussed here must be referred to *K. anteuphorbium* (L.) Haw. and *K. pteroneura* DC. reduced to synonymy.

K. neriifolia is another species of *Kleinia* which has been known to growers for many years. Haworth (1812: 312) stated that it was already in cultivation in 1732, and certainly Linnaeus knew it, including it in his Species Plantarum under *Cacalia*, together with 3 other species. Miller also discussed the species in his Gardeners Dictionary.

There is much variation in stem and leaf colouration. One form from Lanzarote (cultivated by Clive Innes, Holly Gate Nurseries, Ashington, Sussex) has very white stems, while the variegated form (cv. 'Candystick') introduced and grown by Gordon D. Rowley at Reading, Berks., has highly-coloured pink and purple stems which become yellowish with age. Wild-collected seedlings from Tenerife (*S. Andrews & A. Santos-Guerra* nos. 493, 496) are darker in colouration, with purplish-green stems, while the undersurface of the leaves is purple.

K. neriifolia is not easy to propagate vegetatively. Cuttings are often slow to root, although they will sometimes root and grow steadily within a few weeks, especially if taken from young stems. One cutting from a mature stem of the Lanzarote plant, mentioned above, existed for more than 6 months without producing roots, despite every inducement, yet during that time it produced several tufts of young leaves from its reserves! Seedlings of this species establish much more readily than cuttings, in cultivation.

G. Kunkel (1980: 349), has published a '*forma nova*' (f. *ovalifolia*) of *K. neriifolia* from Lanzarote and La Gomera, based on the extreme breadth of the leaves, (up to 4 cm.). He admits that leaf characters alone are not a satisfactory distinction, but states that these broad-leaved plants remain morphologically constant over a number of years.

The material I have seen from Lanzarote did not have excessively broad leaves, and bearing in mind the variability of the leaf morphology of the genus as a whole I prefer to regard *K. neriifolia* as one polymorphic species, assigning no taxonomic rank below species.

An account characterizing the genus *Kleinia* will shortly be published by C. Jeffrey (Notes on Compositae, IV, The Senecioneae in East Tropical Africa, Kew Bull. 41(4) 1986).

Kleinia anteuphorbium (*L.*) *Haw.*, Syn. Pl. Succ. 314 (1812); DC., Prodr., 6: 338 (1838); A. Berger in Monatss. Kakteenk., 14–15: 11 (fig.), 37 (1904–05). Type: 'Habitat in Aethiopia', Herb. Cliff. (BM*).

*I have been unable to trace the type specimens of *K. anteuphorbium* and *K. neriifolia* in the Clifford herbarium housed at the British Museum (Nat. Hist.).

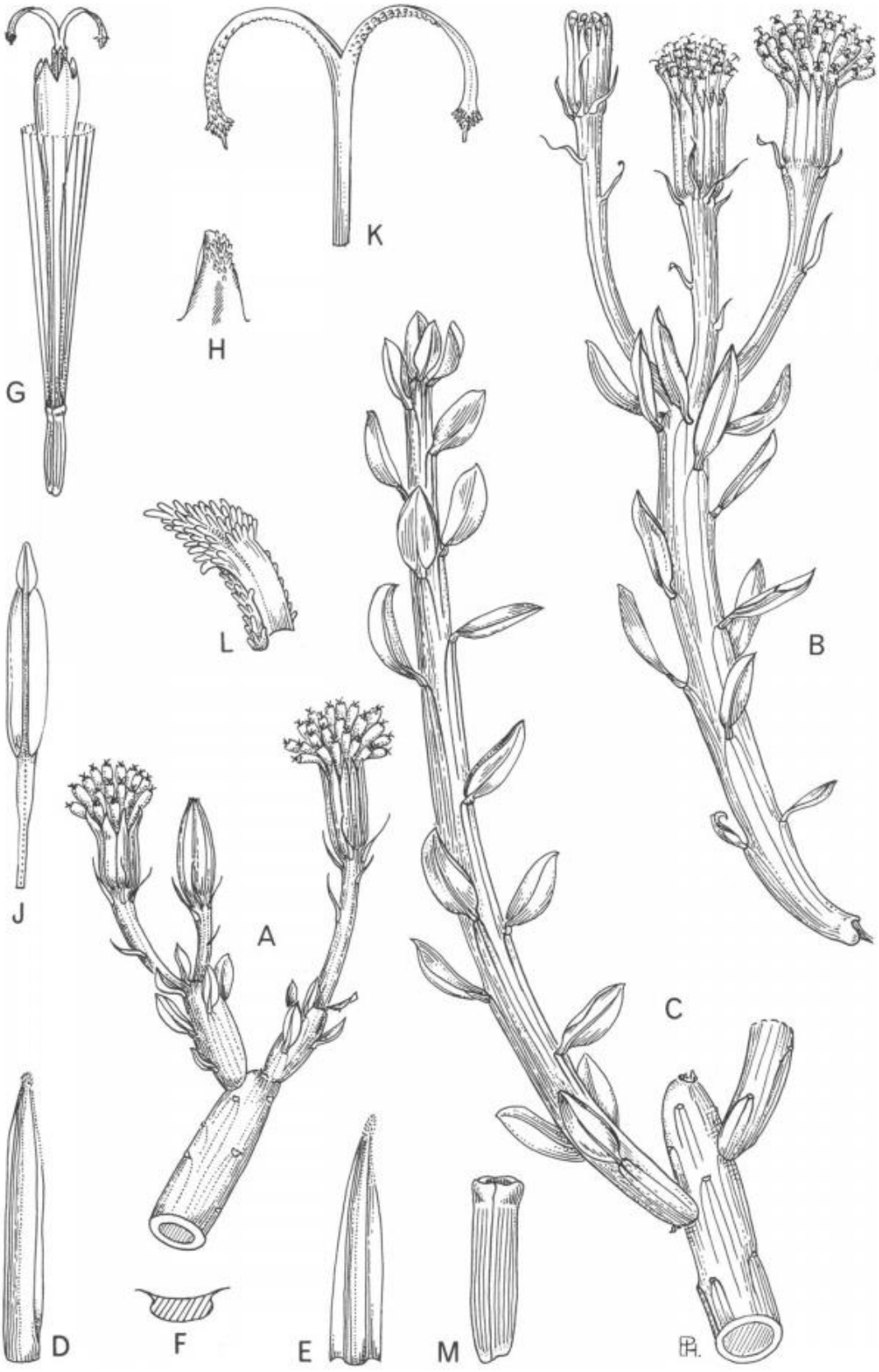

FIG. 1. *Kleinia anteuphorbium*. **A–C** habit × ⅔; **D–E** phyllaries × 2; **F** phyllary, t.s. (diagrammatic); **G** floret × 3; **H** floret lobe (much enlarged); **J** stamen × 8; **K** style arms × 8; **L** stigmatic appendage (much enlarged); **M** achene (immature) × 6. **A–M** from *A. N. Rodd* 2155. Drawn by author.

Cacalia anteuphorbium L., Sp. Pl., 834 (1753).
Kleinia pteroneura DC., Prodr., 6: 338 (1838). Type: 'ad Mogador Africa occid. legit. cl. Broussonet'.
Senecio pteroneurus (DC.) Sch. Bip. in Flora 28: 499 (1845).
Senecio anteuphorbium (L.) Sch. Bip. in Flora 28: 500 (1845); Hook.f. in Bot. Mag. 100: tab. 6099 (1874).
Senecio pteroneura (DC.) Hook.f. in Bot. Mag. 98: tab. 5945 (1872).

Erect, shrubby, glabrous perennial, often growing through surrounding vegetation, 1–2·5 m (4–8 ft) in height; stems laxly branched, branches usually much elongated, fleshy, terete, occasionally somewhat angled, smooth, 1–2 cm diam., smelling of turpentine when bruised, pale green with 3 deeper green lines running down stem from each node, minutely, copiously white-punctate; young stems paler green and white-glaucous. Leaves held ± erect, flat, fleshy, deciduous, glaucous at first, spaced along young stems and confined to them, very shortly petiolate, oblong-linear or elliptic to lanceolate, 2–4 cm long, 1–1·5 cm wide, acute to obtuse, mucronate, entire, usually with a median groove on both surfaces, sometimes flat beneath; leaf-scars distinct but not conspicuous. Inflorescence scapose on short lateral or terminal shoots from mature stem; scape stout, unbranched, but with more than one peduncle arising from each stem-tip, up to 6 cm long, somewhat angled, swollen beneath capitulum to ± 4 mm diam., bearing 2–6 linear, filiform bracts 5–10(–13) mm long, clustered at base of capitulum or spaced along scape; capitula solitary, terminal, homogamous, about 2 cm diam., the florets spreading at first, becoming erect with age, 30–50 per capitulum. Involucre cylindrical, slightly widened and often stained red at base; phyllaries 10–12(–15), linear, 16–19 mm long, 2–4 mm wide, acuminate and minutely pubescent at apex, usually with 3 inconspicuous veins, margins imbricate, scarious. Receptacle faveolate. Florets greenish white, fading to pinkish or yellowish white, ♂, fragrant, smelling of almond paste, exceeding involucre, each floret the shape of a crocus flower, 17 mm long, lobes erect, 1–1·25 mm long, thickened and minutely papillose at tip. Anthers exserted, 4 mm long, including linear collar (1–1·25 mm long) and lanceolate appendage (1 mm long). Style slender, gradually tapering downwards, stigmatic arms 3 mm long, appendage shortly conical, 0·5 mm long, papillose with some larger papillae at base and apex. Achene (immature), glabrous, ribbed. Pappus hairs indistinctly scabrid, of one thickness, 12–16 mm long.

Distribution. A Moroccan coastal endemic, occurring on dry, rocky calcareous or sandy slopes where, together with *Euphorbia* sp., it forms impenetrable thickets. It is used as an antidote to the *Euphorbia* latex. It is also frequently cultivated.

Morocco: Cap Juby (27° N lat.), March 1891, comm. *Stafford Allen & Sons* s.n. (K). Cap Safi, in rup. calc. arid., 8 May 1926, *H. Lindberg* 1898 (K). Sud-Ouest: Falaises maritimes calc. du Cap Cantin, 25 Dec. 1937, *J. Gattefossé* 1258 (K). Ex arenosis prope Mogador, June 1871, *J. Ball* s.n. (K). Mogador, April-May 1871, *Dr Hooker* s.n. (K). Mogador, Feb. 1934, *A. W. Trethewy* 68 (K). C. 10 km N of Cap Rhir, between Essaouira and Agadir, on coast. Common on rocky limestone hillside in shrub community dominated by stunted *Argania*. Erect to c. 1·5 m, branches mostly quite erect to c. 15 mm diam., glaucous, 25 April 1972, *A. N. Rodd* 2155 (K).

St Lager (1880: 128) made the combination *Kleinia anteuphorbia*, mistakenly altering the ending of the specific epithet to agree with *Kleinia*. This is incorrect as '*anteuphorbium*' is not an adjective, but is based on an old generic name.

Kleinia neriifolia *Haw.*, Syn. Pl. Succ., 312 (1812); DC., Prodr., 6: 338 (1838); A. Berger in Monatss. Kakteenk., 14–15: 37 (1904–05).

Cacalia kleinia L., Sp. Pl., 834 (1753). Type: 'Habitat in Canariis, forte etjam in India', Herb. Cliff. (BM).
Senecio kleinia (L.) Less. in Linnaea, 6: 252 (1831); Sch. Bip. in Webb & Berth., Phyt. Canar., 2: 321 (c. 1836).
Senecio neriifolius (Haw.) Baill., Hist. Plant., 8: 308 (1882).
Kleinia neriifolia Haw. forma *ovalifolia* G. Kunkel in Vieraea 8(2): 349 (1980).

Erect, ± branched, fleshy, glabrous perennial to 2(–3) m (6–8 ft) in height, unbranched when young. Stems white, green or purplish, variably glaucous, terete, 1–3 cm diam., with prominent, circular leaf-scars, from which 1–3 deep green lines extend down stem; young stems fleshy, older stems with internal, ± horny, transverse plates. Leaves congested at stem tips, green, glaucous, often the undersurface stained purple, flat, fleshy, oleander-like, narrowly linear at first, becoming linear-lanceolate, sometimes oblanceolate, 6·5–12(–22) × 1–2(–4) cm, decurrent, usually distinctly petiolate, midrib grooved above, keeled beneath. Inflorescence corymbose-paniculate, with many short branches, each somewhat swollen beneath capitulum, bracteate, bracts 2–3, filiform, (3–)5(–8) mm long. Capitulum solitary, terminal, homogamous, 2–3 cm long, ± 1 cm in diameter; calyculae 2–3, filiform, 2–3 mm long. Involucre narrow, campanulate, somewhat constricted above, phyllaries ± 5, linear, 1·2–1·5(–1·7) cm × ± 2 mm, with at least 3 inconspicuous veins, margins imbricate, entire, scarious. Receptacle flat, 2 mm diam., faveolate. Florets white, 5–6 per capitulum, hermaphrodite, fragrant, smelling of hyacinths, or with a faint acid scent, 1·6–1·9 cm long, somewhat constricted at 5-lobed apex, lobes erect, ± 2 mm long, with thickened margins. Anthers 4 mm long (excluding collar), exserted, collar long and narrow ± 1·75 mm long or about 5 × as long as wide, tapering upwards, appendage lanceolate, ± 1 mm long. Style slender, bifid, arms 4 mm long, stigmatic appendage short, conical, papillose, with a fringe of longer papillae around base of appendage, sometimes a median tuft of long papillae also present. Achene (immature), cylindrical, ribbed, glabrous, (3–)9 × 1·5 mm. Pappus of copious scabrid hairs uniform in thickness, 13–15(–20) mm long. Chromosome number 2n = c. 20.

Distribution. Coastal areas of the Canary Islands, where it grows with *Euphorbia canariensis* L. on the seashore, amongst rocks and on steep, sunny slopes; 120–850 m (400–2500 ft); fl. and fr. (March–) June–Oct.(–Dec.). It is frequently cultivated and is popular as a house-plant.

Tenerife: 'Maritime rocks. A plant with thick, terete stems candelabra like covered with scars of old leaves. Leaves in fascicles at extrem. of branches. Grows to same height and intermixed with Euph. Canariensis. Involucre fleshy green', Nov. 1839 *J. D. Hooker* 65 (K). Puerto del Orotava, in glareosis, 15 June 1855, *E. Bourgeau* s.n. (K). Guimar, March 1933, *A. W. Trethewy* 76 (K).

Palma: *Bourgeau* s.n. (K). Cave on north side of Barranco del Carmen, 1 June 1913, *T. A. Sprague & J. Hutchinson* 184 (K).

FIG. 2. *Kleinia neriifolia*. **A** habit × ⅔; **B** seedling × 1; **C** phyllary × 4; **D** phyllaries t.s. (diagrammatic); **E** pappus hair, tip (much enlarged); **F** floret × 3; **G** stamen × 8; **H** stamen collar (much enlarged); **J** style arms × 8; **K, L** stigmatic appendages (much enlarged); **M** achene (immature) × 4. **A & F** from *Kunkel* s.n.; **B** from *S. Andrews & A. Santos Guerra* 493; **C, G, J, M** from *E. Bourgeau* 1394; **E, H, K, L** from *Prior* s.n. Drawn by author.

GRAN CANARIA: 31 Dec. 1887, *O. Kuntze* s.n. (K). Tafira, 300 m, *G. Kunkel* s.n. (K).

One sheet of *K. neriifolia*, preserved in Kew herbarium is annotated: 'rarely in flower this season [Aug.]'. It has young inflorescences and young leaves congested at the stem tips, and looks very different from the 'palm tree' habit usually associated with this species.

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