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Short communication

A new species of *Lichtensteinia* (Apiaceae)

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Abstract

Lichtensteinia globosa B.-E. Van Wyk & P.M. Tilney, a distinct new species from the Cedarberg Mountains in the Western Cape Province of South Africa, is described. The new species is related to *Lichtensteinia interrupta* (= *L. kolbeana*) but differs in having tuberculate (pustulate), globose fruits (fruits smooth in all other species and strongly dorsally compressed in all except *L. obscura* and *L. interrupta*). It is geographically isolated from *L. interrupta*, which has a wide distribution in the southern and eastern coastal parts of South Africa. The new species has serrate–aristate leaf margins and pustulate fruits which appear to further reduce the taxonomic distance between *Lichtensteinia* and the subfamily Saniculoideae, where bristly or even spiny leaf margins and tuberculate fruits are common. Furthermore, *Lichtensteinia* species also have crystals right around the pericarp, rounded cotyledons, large rib oil ducts and a complete absence of vittae, all of which are typical of the Saniculoideae.

Keywords: Apiaceae; *Lichtensteinia*; New species; South Africa

1. Introduction

A taxonomic study of the South African endemic genus *Lichtensteinia* Cham. & Schltdl. has resulted in new insights into morphological variation in the genus and has revealed the presence of a distinct new species. It is interesting to note that Goldblatt and Manning (2000) included the species in their conspectus of Cape plants as *Lichtensteinia* sp. 1. They mentioned the "subglobose, 2-lobed" fruits but did not refer to the main diagnostic pustulate fruit surface. The aim of this short paper is to formally describe and name the new species and to discuss and illustrate its diagnostic characters.

The genus *Lichtensteinia* is of particular interest in the context of generic and subfamilial relationships in the Apiaceae (Burtt, 1991). Whereas the genus is traditionally placed in the subfamily Apioideae on account of its umbellate and pedicellate flowers, it shares important characters with the subfamily Saniculoideae: rounded cotyledons, simple leaves with hairy or bristly marginal teeth, large rib oil ducts in the fruits, a complete absence of vittae (one of the defining characters of the subfamily Apioideae) and the presence of crystals right around the pericarp. The tuberculate fruit surface of the new species adds yet another potential link to the Saniculoideae.

2. Species treatment

Lichtensteinia globosa B.-E. Van Wyk & P.M. Tilney sp. nov., *L. interruptae* foliis basalibus rosulatis brevibus tripinnatifidis floribusque albis similis, sed a speciebis omnibus *Lichtensteiniae* fructibus globosis egregiis in superficie tuberculatis differt.

Type.—South Africa, Western Cape Province, Citrusdal district, Elandskloof Pass (-CA), 14 January 2003, *Van Wyk & Tilney 4107* (NBG!, holo.; PRE!, iso.).

Acaulescent, perennial herb; rosulate, ±100–150 mm in diameter, up to 0.8 m long (including the inflorescence). Rhizome inconspicuous; roots numerous, slightly fleshy, ±3 mm in diameter; core tough, fibrous; lateral roots numerous, short, ±perpendicular. Leaves hysteranthous, small, up to 80 mm long, pinnately trifoliate; lamina broadly ovate-deltoid, pinnatisect, 45–50×45–55 mm, margin serrate, serrations protracted into hair-like trichomes; petioles short, up to 40 mm long, bases fibrous, persistent. Inflorescence scape up to 0.7 m long, lateral branches 3 or 4; terminal umbel with (2-) 4 rays, bisexual; lateral umbels with 1–4 rays, usually male; rays subequal in length (but not markedly so);

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Fig. 1. Holotype of *Lichtensteinia globosa* [*Van Wyk & Tilney 4107* (NBG)].

flowers (3-) 8–10 (-11) per umbellule; pedicels of female flowers 3–12 mm long, pedicels of male flowers 2–5 mm long. Bracts persistent; scape bracts linear, acuminate, up to 8 mm long; lateral branch bracts sheathing, lanceolate to narrowly lanceolate, up to 25 × 12 mm, persistent. Bracteoles up to 3 × 1.5 mm, narrowly lanceolate; acuminate. Calyx lobes prominent, ovate; acuminate. Petals white, broadly ovate, 3–4 × 1.0–1.5 mm; adaxially webbed; apex very long, narrowed, inflexed. Stamens 5; filaments curved inwards. Styles erect, divergent, ±1.5 mm long; female stylopodium narrowly cuneate, ±1 mm long, persistent; male stylopodium broadly cuneate. Fruits 2–3 × 3–4 mm (excluding stylopodium), globose, didymous in lateral view, not dorsally compressed; ribs blunt, pustulate (especially between the ribs); ribs round in transverse section, rib oil ducts very large, unequal, visible as broad dark lines on mature fruits; vittae absent. (Figs. 1 and 2).

3. Diagnostic characters and relationships

The characteristic appearance of *L. globosa* is shown in Fig. 1. This species is distinguished by having peculiar protuberances (pustules) on the surfaces of the globose fruits (Fig. 2). Rounded fruits are also found in *L. obscura* (Spreng.) Koso-Pol. and *L. interrupta* (Thunb.) Sond. but in these two species the surfaces are smooth. The new species is very similar to *L. interrupta* (= *L. kolbeana* L. Bol.), the only other white-flowered species in the genus, in having a basal rosette of short, tripinnatisect leaves. However, the leaf margins resemble those of *L. lacera* Cham. & Schltdl. and *L. trifida* Cham. & Schltdl. in having protracted teeth but differ in being serrate rather than dentate and in being completely glabrous (fine hairs are present and usually abundant on leaves of *L. lacera* and *L. trifida*). The new species again shows the need for a careful assessment of the generic position of *Lichtensteinia*, as fruit protuberances can now be added to several other characters that point to a relationship with the subfamily Saniculoideae (large rib oil ducts, absence of vittae, rounded cotyledons and crystals of the saniculoid pattern (numerous druses in the pericarp including the commissure)).

4. Distribution and habitat

L. globosa is known from only a few localities in the central Cedarberg Mountains of the Western Cape Province of South Africa (Fig. 3).

5. Flowering time and phenology

The recorded flowering time is November to March. Goldblatt and Manning (2000) give the flowering time as

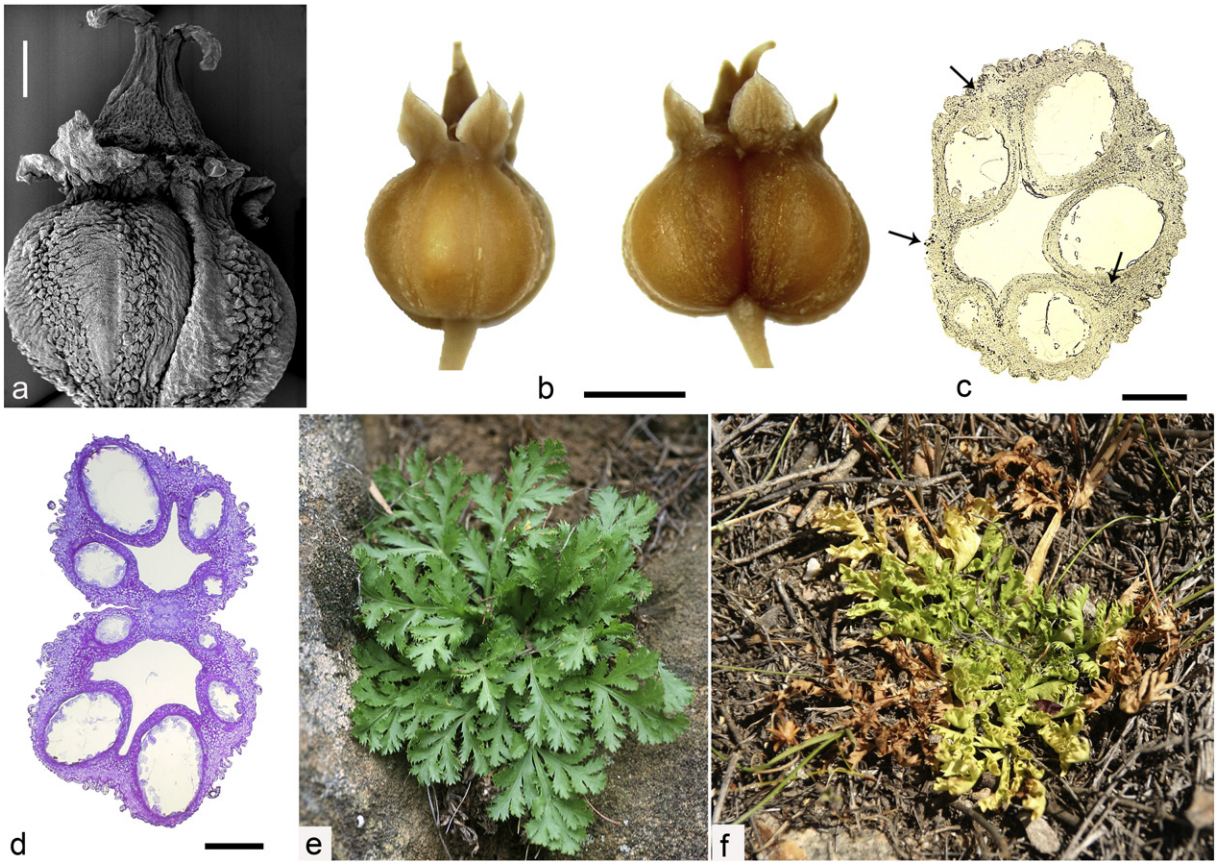

Fig. 2. Leaves and fruits of *Lichtensteinia globosa*: (a) SEM photograph of a fruit showing the large stylopodium and the characteristic pustulate surface structure (between the ribs); (b), fruits in dorsal (left) and lateral (right) view, showing the globose and didymous shape (pustules not clearly visible); (c), unstained transverse section of a mericarp, showing the widespread distribution of druse crystals in the pericarp (visible as dark spots, a few indicated by arrows); (d), transverse section of fruit, showing the large rib oil ducts and epidermal protrusions; (e), leaf rosette in the vegetative phase (April–October); (f), leaf rosette starting to wither (November). Voucher specimens: (a) *Van Wyk et al. 4066* (JRAU); (b; d–f) *Van Wyk & Tilney 4107* (NBG, PRE); (c) Magee & Boatwright 33 (JRAU). Scale bars: (a, c, d) 0.5 mm; (b) 2 mm.

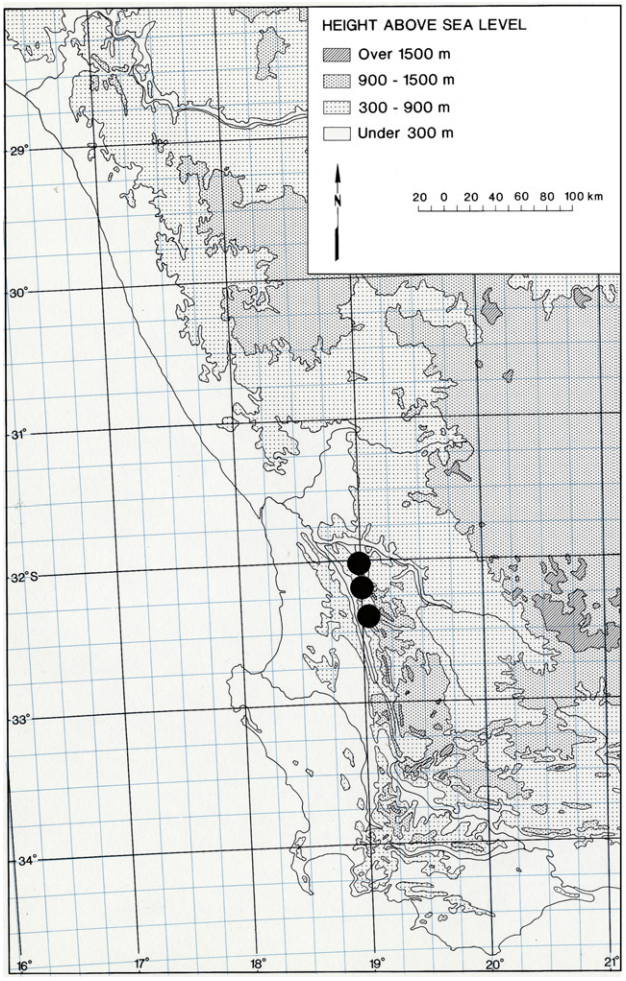

Fig. 3. The known geographical distribution of *Lichtensteinia globosa*.

being from November to January. The leaves start to dry out and die during November, so that flowering and fruiting specimens are either leafless or have some dry leaf remains.

5.1. Additional specimens examined

-3219 (Wuppertal): Clanwilliam, between Kliphuis and Dwarsrivier on path from Amon se Poort (-AA), 2 March 2001, *Van Wyk et al. 4066* (JRAU); Clanwilliam, top of Pakhuis Pass (-AA), 7 December 2004, *Magee & Boatwright 33* (JRAU); Top of Cedarberg Pass (-AC), 10 February 1978, *Hugo 1058* (NBG); Clanwilliam district, Nieuwoudt Pass (-AC), 9 December 1950, *Esterhuysen 17960* (BOL, PRE); Clanwilliam district, Middelberg, SW slopes (-CA), December 1939, *Esterhuysen 2484, 2489* (BOL); Cedarberg, Middelberg (-CA), 13 December 1941, *Compton 12696* (NBG).

Unknown locality: 3 March 1980, *Hugo 2351* (NBG, PRE).

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