

# The Identity of *Albuca bifolia* (Hyacinthaceae), and the Description of Two Related New Species, *A. anisocrispa* and *A. pseudobifolia*, from Eastern Cape, South Africa

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Communicating Editor: Molly Nepokroeff

**Abstract**—Until now, *Albuca bifolia* Baker was poorly known. Plants fitting the original description of *A. bifolia* were found at the type locality near Grahamstown, South Africa, during extensive field work for a revision of the genus *Albuca* L. Here we provide new data and a detailed morphological description for this species. Furthermore two new species, *Albuca anisocrispa* sp. nov. and *A. pseudobifolia* sp. nov., both closely related to *A. bifolia*, are described here on the basis of floral, vegetative, ecological, and chorological data. Both new species are described in detail, and affinities and divergences with close allies are discussed.

**Keywords**—Albany Centre of Endemism, *Albuca*, Eastern Cape, ecology, Ornithogaloideae, South Africa, taxonomy.

Recent phylogenetic studies in the family Hyacinthaceae, subfamily Ornithogaloideae, support the monophyly of *Albuca* L. as traditionally circumscribed, based on nuclear and plastid DNA sequences. *Albuca* comprises 60–130 species (Martínez-Azorín et al. 2011a), with the highest diversity of *Albuca* s. s. occurring in southern Africa, with about 75 species. However, taxa belonging to *A.* subg. *Pallastema* (Salisb.) Baker can be found in eastern and central Africa, extending north to Ethiopia, Saudi Arabia and Chad (cf., Martínez-Azorín et al. 2011a). The only comprehensive revision of *Albuca* is that of Baker (1897, 1898), who focused on South African and tropical African taxa. Recent accounts (cf., Müller-Doblies 1994, 1995, 2006; Manning and Goldblatt 2009) have expanded our knowledge of groups with nodding-flowers, namely *A.* subg. *Albuca* and *A.* subg. *Falconera* (Salisb.) Baker. However, information on groups with erect-flowers, e.g. *A.* subg. *Mitrotrepalum* U. Müller-Doblies (= *A.* sect. *Branciona* (Salisb.) J. C. Manning & Goldblatt), has remained almost unchanged from the late 19th century, and the taxonomic revision of this group is the focus of our current research.

Within the context of a taxonomic revision of *Albuca*, we herein clarify the status of *A. bifolia* Baker. This species was described by Baker (1904) from specimens collected by M. Daly & M. Sole in Grahamstown, in the Eastern Cape Province of South Africa. The protologue states: “Bulbus globosus, 1 poll. diam., tunicis albis membranaceis. Folia 2 lanceolata suberecta plana glabra 3–4 poll. longa 4–5 lin. lata. Pedunculus gracilis 4–5 poll. longus, racemes biflorus, pedicellis brevibus, ascendentibus, bracteis ovatis. Perianthium campanulatum 6–9 lin. longum, segmentis oblongis obtusis sordide luteis late viridi carinatis. Stamina fertilia 3, stylus brevis prismaticus. Grahamstown, alt. 2,000 pedes, Miss M. Daly et Miss M. Sole, No. 306, Oct. 1902.” In summary, *A. bifolia* was characterized by the two flat, suberect leaves, ca. 8–10 × 0.9–1.1 cm, flowers erect, with yellow and green tepals, and only three fertile anthers. Later, Schonland (1907) cited this taxon also from Grahamstown as: “Oct. – Grt. (Currie’s Kloof [now called Gowies Kloof]).” This species has been rarely collected and seldom cited. Only Manning and Goldblatt (2003) report it as present in the Eastern Cape, but without any further detail. No other information appears to be available on this poorly studied taxon. We have recently found plants fitting the original description of *A. bifolia* at the type locality near Grahamstown and now provide additional

morphological and ecological information on this species. Furthermore, additional populations from the Eastern Cape, at first sight similar to *A. bifolia*, show a peculiar syndrome of characters that have not been previously reported in the group. Based on our observations, and following the morphological characters that have been used to accept different taxa in the genus, e.g. color and morphology of tepals, number of fertile anthers, morphology of gynoeceum, and morphology of leaves and bulbs (Baker 1897, 1898; Müller-Doblies 1994, 1995, 2006), we here describe two new species, *A. anisocrispa* Mart.-Azorín & M. B. Crespo and *A. pseudobifolia* Mart.-Azorín & M. B. Crespo, that widen the knowledge of this poorly known group.

## MATERIALS AND METHODS

A detailed morphological study of wild living plants of *Albuca bifolia* and related taxa (10 of *A. bifolia*, 21 of *A. anisocrispa*, and 25 of *A. pseudobifolia*) as well as herbarium specimens, was undertaken. Morphological studies included both qualitative and quantitative features of bulbs, leaves, flowers, fruits, and seeds, as have been described in detail for other related groups in the Ornithogaloideae by Martínez-Azorín et al. (2007, 2010). Herbarium specimens from the following herbaria were studied: BOL, BNRH, GRA, J, K, KEI, KMG, NBG, NH, NU, PEU, PRE, PUC, UFH, and WIND (acronyms according to Thiers 2011). Authors of cited taxa follow IPNI (2011).

## RESULTS AND DISCUSSION

After studying living plants of *Albuca bifolia* at the type locality near Grahamstown, we can now expand the original description and circumscribe the species. During the course of fieldwork for a comprehensive revision of *Albuca* (cf. Martínez-Azorín et al. 2011b, c, d), a number of plants closely related to *A. bifolia* sensu Baker (1904) were found in the Eastern Cape. Two new species, *A. anisocrispa* (Fig. 1; Table 1) and *A. pseudobifolia* (Fig. 2; Table 1) are described herewith to accommodate these distinct plants.

The known distributions of *Albuca bifolia*, *A. anisocrispa*, and *A. pseudobifolia* are highly localized within the Albany Centre of Floristic Endemism (Van Wyk and Smith 2001) that falls within the Maputaland-Pondoland-Albany Hotspot (Steenkamp et al. 2004). These species, together with *A. bifoliata* R. A. Dyer, *A. crudenii* Archibald, *A. macowanii* Baker, and *A. annulata* Mart.-Azorín & M. B. Crespo (Martínez-Azorín et al. 2011d) are rare and highly restricted. We find that the eastern part of

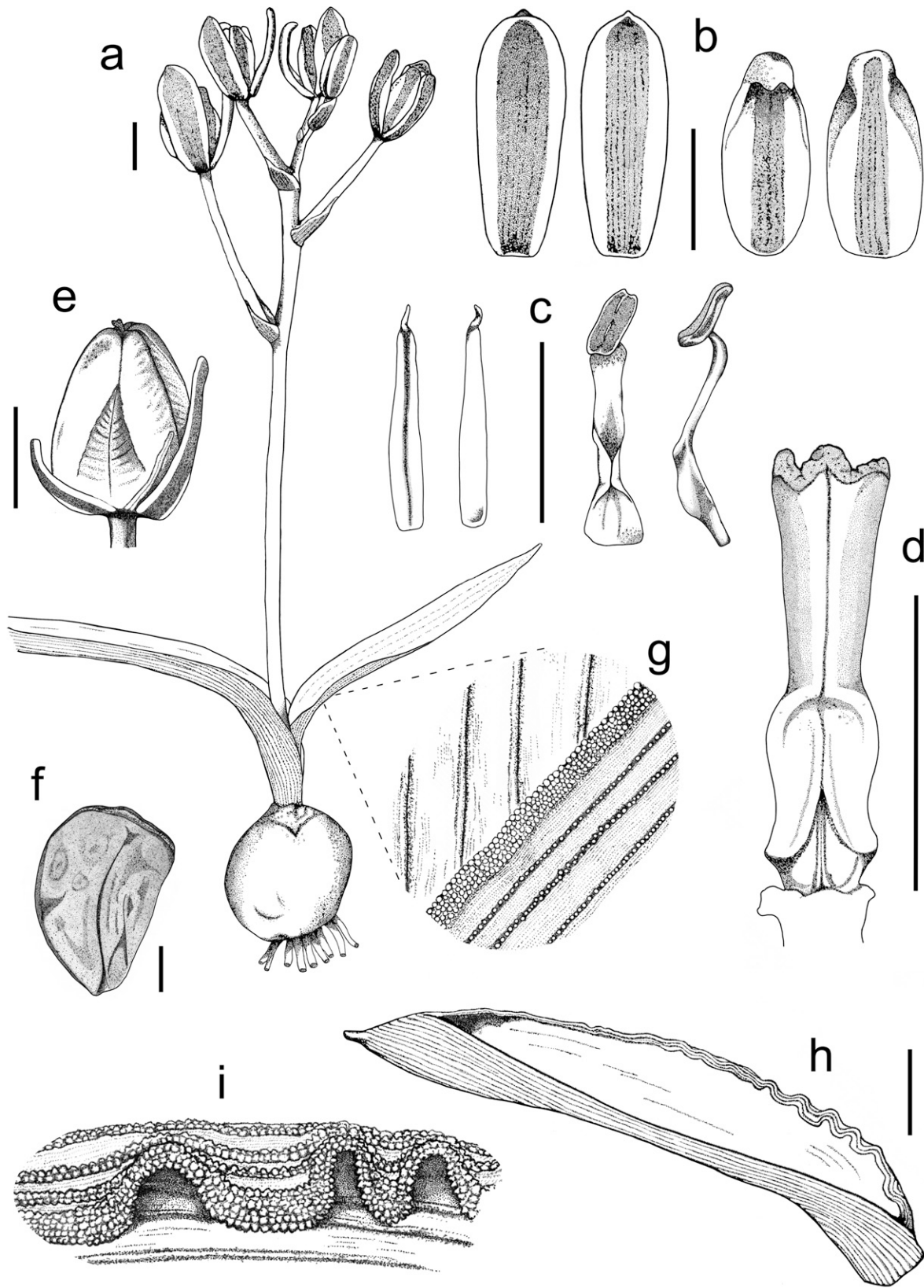


FIG. 1. *Albuca bifolia* Baker (a-g) and *A. anisocrispa* Mart.-Azorín & M. B. Crespo (h-i). A. General view. B. Tepals, left outers and right inners. C. Stamen, left outers and right inners. D. Gynoecium. E. Capsule. F. Seed. G. Detail of the leaf, adaxial side left and abaxial side and margin right. H. Leaf. I. Detail of the leaf margin. Scales a-e, h: 1 cm; f: 1mm.

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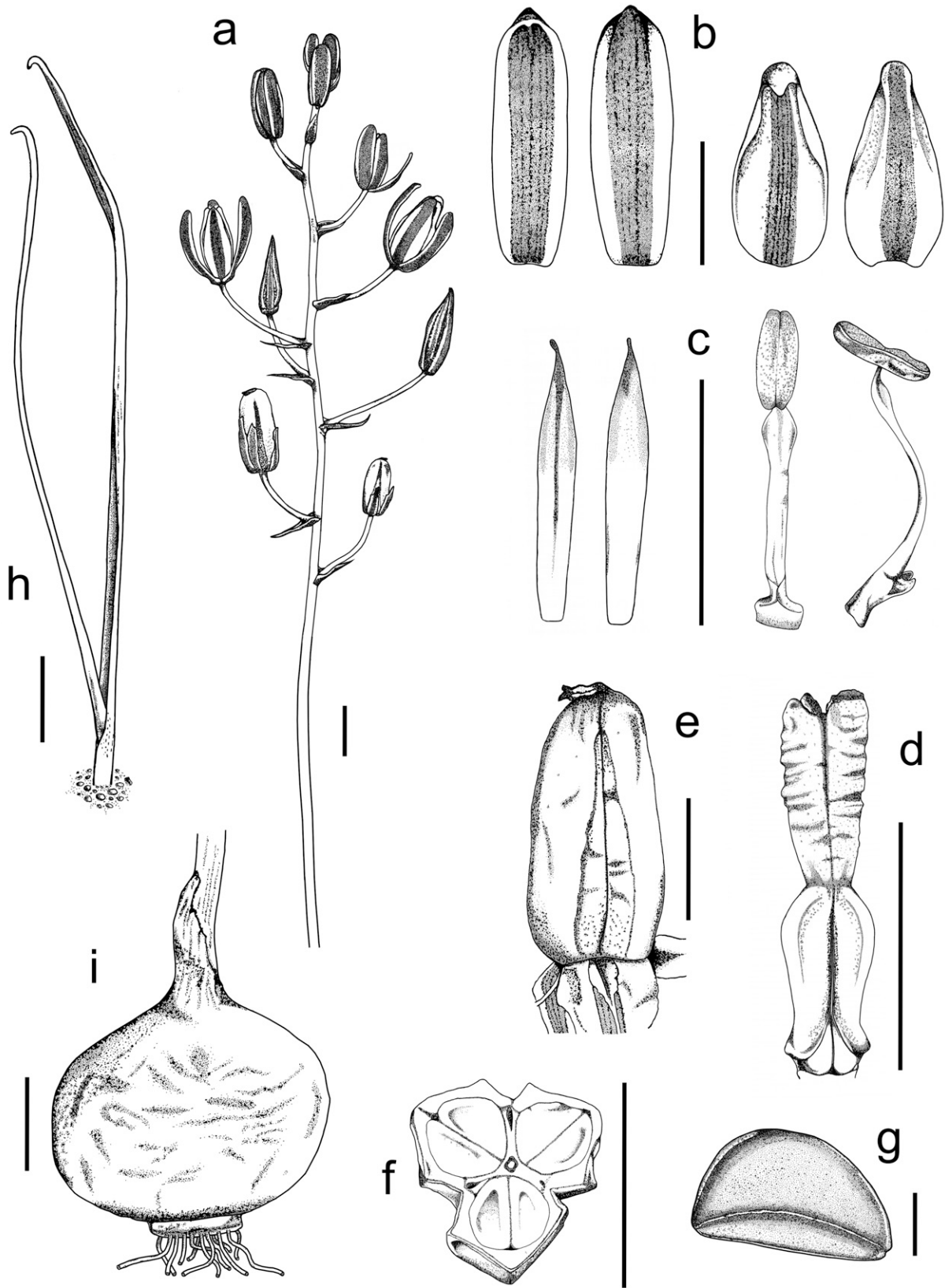


FIG. 2. *Albuca pseudobifolia* Mart.-Azorín & M. B. Crespo. A. Inflorescence. B. Tepals, left outers and right inners. C. Stamen, left outers and right inners. D. Gynoecium. E. Capsule, lateral view. F. Capsule, transversal section. G. Seed. H. Leaves. I. Bulb. Scales a-f, h-i: 1 cm; g: 1mm.

the Eastern Cape, and specially the Albany Centre of Endemism (Van Wyk and Smith 2001), is thus one of the most diverse areas for erect-flowered *Albuca* species, with about 20 taxa recorded from this region.

#### TAXONOMIC TREATMENT

*ALBUCA BIFOLIA* Baker, Rec. Albany Mus. 1:89 (1904)—HOLOTYPE: SOUTH AFRICA. Eastern Cape. Grahamstown, first Oct 1902, M. Daly & M. Sole 306 (GRA! [photo], on loan to U. & D. Müller-Doblies since 12/10/1979).

Deciduous bulbous plants up to 30 cm tall. Bulb mostly solitary, or rarely proliferous and forming small clumps, hypogaeal, ovoid to spherical, 2–3.5 × 1.5–4 cm, with soft membranous outer tunics that are pale and fleshy; tunics fleshy, whitish, all reaching the top of the bulb, concentrically arranged. Roots fleshy, narrow, white, up to 90 × 2 mm. Leaves 1–3(–4), lanceolate-oblong, flat or somewhat incurved-canalculated, vaginate and convolute at the base, 8–15(–20) × 0.6–1.6 cm, firm, straight and disposed at a 40–50° angle to the ground, sometimes glaucous, with papillate prominent longitudinal nerves on the abaxial side, and straight and densely papillate margins. Inflorescence an erect corymb with 3–9(–13) flowers, 3–12 cm long; lowermost pedicels (2–)3–6 cm long, erect-patent, shortening from the base to the apex, finally with 0.5–1 cm long; peduncle 6–12(–17) cm long, erect; bracts ovate-lanceolate to triangular, acuminate, 12–20 × 7–10 mm, green with white membranous margins, withering soon and becoming papery white with reddish nerves, much shorter than pedicels at least in the lower part of the inflorescence. Flowers erect; tepals yellow with a green median stripe 2–3 mm wide; outer tepals oblong, 15–23 × 6–8 mm, with apex flat or slightly cucullate; inner tepals ovate-oblong, 13–17 × 5–7 mm, with pointed and strongly cucullate apex with a triangular structure going downwards. Stamen dimorphic; outer anthers absent or small and sterile, up to 1 mm long, inner anthers bigger and fertile, 3–5 mm long; outer filaments narrowly oblong, 9–13 × 1.5–2 mm, slightly canalculated, not pinched down; inner filaments linear oblong, 9–12 × 2–2.5 mm, wider and pinched in the lower half. Ovary oblong to obovate, green, up to 6–7.5 × 3–3.5 mm, stipitate, with prominent paraseptal crests that are divergent in the lower part and form three prominent ridges; style subobpyramidal or clavate, trigonous, 6–9 × 3–3.5 mm, green with a yellow central longitudinal band; stigma yellow, trigonous and glandulous. Capsule ovate to oblong-ovate, 14–18 × 10–15 mm, trigonous to subspherical in section, pale-brown when mature; valves splitting in the upper quarter. Seeds flat, ca. 4–5 × 2.5–3.5 mm, dark brown to black, flattened and semidiscoidal, biseriate and horizontally stacked in each locule. Figure. 1.

**Flowering Time**—This species flowers from July to September extending to early October, rarely in March; fruits appear from late September to October, and seeds are released towards the end of October–November.

**Habitat**—*Albuca bifolia* grows singly or rarely in small clumps in sandy soils in Albany Coastal Belt, Bhisho Thornveld, and Kowie Thicket (Mucina and Rutherford 2006), from near sea level up to ca. 650 m altitude in the vicinity of Grahamstown.

**Distribution**—This species is found from Grahamstown to Addo, in Albany Thicket and Savanna Biomes (Mucina and Rutherford 2006) (Fig. 3). The species is endemic to

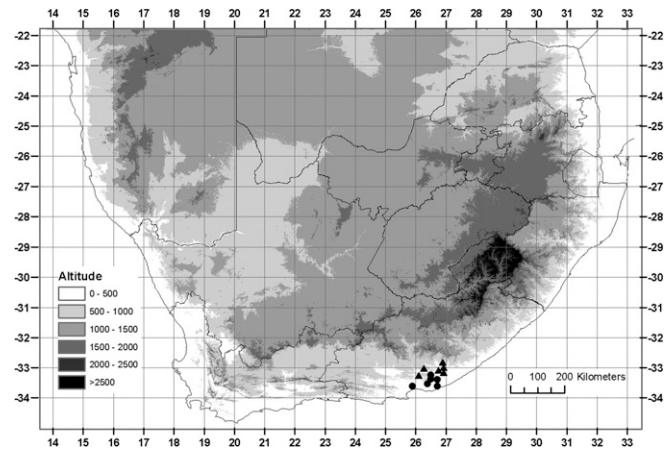


FIG. 3. Known distribution of *Albuca bifolia* Baker (Circles) and *A. anisocrispa* Mart.-Azorin & M. B. Crespo (Triangles). Axes show longitude and latitude in degrees.

the Albany Centre of Floristic Endemism (Van Wyk and Smith 2001).

**Diagnostic Characters and Relationships**—*Albuca bifolia* is easily identified by the presence of two leaves (sometimes from one to four), that are lanceolate-oblong, wide, flat or somewhat incurved-canalculated, vaginate and convolute at the base, firm and disposed at a 40–50° angle to the ground, finely longitudinally striate, with prominent longitudinal nerves that are papillate on the abaxial side, and straight and densely papillate margins; the flowers are erect with yellow and green tepals; and the inner stamen is sterile (Fig. 1; Table 1). Surprisingly Baker (loc. cit.) described the leaves as glabrous, probably highlighting the fact that they were neither hairy nor glandulous, but neglected to mention the papillae that are only visible under magnification. No other *Albuca* with this combination of characters has been described to date.

**Etymology**—Named after the characteristically 2-leaved plants (*bi* = two; *folia* = leaves).

**Observations**—The holotype of *A. bifolia* (Daly & Sole 306 GRA) together with 189 herbarium specimens of *Albuca* from GRA were sent on loan to U. & D. Müller-Doblies in Germany in 1979. After many efforts we have not succeeded in repatriating this type, though we were able to examine a photograph of the specimen forwarded by U. Müller-Doblies. It includes a single plant showing two leaves and a subcorymbose inflorescence with three flowers of which only the lowermost remains, which fits Baker's concept of this species perfectly, and also matches living plants we have studied from the surroundings of Grahamstown. Therefore no doubt exists about application of that name in the sense it is accepted in the present study.

**Other Representative Specimens Examined**—SOUTH AFRICA. Eastern Cape, Grahamstown, Gowie's Kloof, 1,900–2,000 ft., 09/1931, J. Rennie & B. Rennie 134 (GRA); Eastern Cape, Grahamstown, Gowie's Kloof, 09/1947, Hill s. n. (GRA); Eastern Cape, Grahamstown, Indian Residential area, valley extending to Brakfontein Farm, 673 m, 33°15'20"S, 26°30'20"E, 29/03/1993, A. P. Dold 307 (GRA); Eastern Cape, c. 1 mile West of Blaauwkrantz Str., 1,400 ft., 13/08/1956, A. R. H. Martin s. n. (GRA); Eastern Cape, Grahamstown, between the Golf course and the Airport, 638 m, 25/08/2010 (fl. ex hort. 13/09/2010), 33°17'26"S 26°30'15"E, M. Martínez-Azorin & A. P. Dold MMA203 (GRA); Eastern Cape, Grahamstown, East facing slopes of Hill 60, 12/09/1950, D. B. Hill 1485 (GRA); Eastern Cape, Grahamstown, Hill 60, Cory Circle, fl. ex hort. 09/09/2010, V. R. Clark s. n. (GRA); Eastern Cape, SW of Grahamstown, Thomas Baines Nature Reserve, 306 m, 22/09/2010, 33°24'35"S 26°30'11"E, M. Martínez-Azorin & M. B. Crespo MMA242 (GRA); Eastern Cape, between Grahamstown and

TABLE 1. Main diagnostic characters between *A. bifolia*, *A. anisocrispa*, and *A. pseudobifolia*.

	<i>A. bifolia</i>	<i>A. anisocrispa</i>	<i>A. pseudobifolia</i>
Bulb	Outer tunics membranous, pale colored	Outer tunics membranous, pale colored	Outer tunics somewhat leathery, dull white
Leaves	1–3(–4) Lanceolate-oblong Wide, flat or canaliculated  With papillate prominent longitudinal nerves on the abaxial side, and densely papillate margins Margins straight  Present and green in flower	1–2(–3) Lanceolate-oblong Wide, flat or canaliculated  With papillate prominent longitudinal nerves on the abaxial side, and densely papillate margins Mostly undulate only in the inner margin of the convolute leaves Present and green in flower	2–4(–5) Linear-lanceolate Narrow, canaliculated with terete apex Smooth Margins straight  Absent or mostly withered in flower
Inflorescence	Corymb	Corymb or subcorymb	Raceme
Tepals	Yellow and green	White and green	Yellow and green
Style	Green with a central yellow longitudinal band	Green with a central yellow longitudinal band	Yellow
Capsule	Ovate	Ovate	Narrow and long oblong
Seeds	ca. 4–5 × 2.5–3.5 mm	ca. 4–5 × 2.5–3.5 mm	ca. 3 × 1.5–2 mm
Flowering time	July to September and beginning of October	August to September	Late October, November and December

Port Alfred, Bloukrans, 200 m, 01/08/2010 (fl. ex hort. 09/09/2010), 33°23'37"S 26°42'20"E, *M. Martínez-Azorín & A. Martínez-Soler MMA195* (GRA); Eastern Cape, Bathurst, Hopewell Farm, 287 m, 07/07/1947, *R. H. Compton 19693* (NBG); Eastern Cape, Alexandria, De Bega Heights, 800 ft., 14/08/1952, *E. E. A. Archibald 4405* (GRA); Eastern Cape, Alexandria, Kenkelbosch, 500 ft., 02/09/1953, *E. E. A. Archibald 5993* (GRA).

***Albuca anisocrispa*** Mart.-Azorín & M.B. Crespo, sp. nov. —  
HOLOTYPE: SOUTH AFRICA. Eastern Cape, near Fish River bridge on N2, c. 1.5 km on road to Pikoli, 105 m, 27/08/2010, 33°13'50"S, 26°59'44"E, *M. Martínez-Azorín & A. P. Dold MMA206* (GRA).

*Ab Albuca bifolia* similis, sed foliis plerumque latioribus (ad 23 mm) margine interiore crispato (exteriore integro), floribus albo-viridibus, et stigmatate latiore 3.5–4 mm sat distincta (Fig. 1; Table 1).

Deciduous bulbous plants up to 25 cm tall. Bulb solitary, hypogean, ovoid to spherical, 2–3.5 × 1.5–3.5 cm, with soft membranous outer tunics that are pale and fleshy; tunics fleshy, whitish, all reaching the top of the bulb, concentrically arranged. Roots fleshy, narrow, white, up to 50 × 2 mm. Leaves 1–2(–3), lanceolate-oblong, flat and somewhat incurved-canaliculated, vaginate at the base, commonly undulate in the inner margin of the convolute leaves, (5–)7–18 × (0.6–)1–2.3 cm, firm, suberect and disposed at a 40–50° angle to the ground, usually glaucous, with papillate prominent longitudinal nerves on the abaxial side, and densely papillate margins. Inflorescence an erect corymb or subcorymb, with 3–8 flowers, 3–9 cm long, rarely with two inflorescences per bulb; lowermost pedicels (1–)3–5 cm long, erect-patent, shortening from the base to the apex, finally with 0.5–1 cm long; peduncle (3–)6–17 cm long, erect; bracts ovate-lanceolate to triangular, acuminate, 11–16(–20) × 6–8 mm, green with white membranous margins, withering soon and becoming papery white with reddish nerves, much shorter than pedicels at least in the lower part of the inflorescence. Flowers erect; tepals white with a green median stripe 2–3 mm wide; outer tepals oblong, 19–21 × 5–7 mm, with apex flat or slightly cucullate; inner tepals ovate-oblong, 15–16 × 5–6.5 mm, with pointed and strongly cucullate apex with a triangular structure going downwards. Stamen dimorphic; outer anthers absent or small and sterile, up to 1 mm long, inner anthers bigger and fertile, 3–5 mm long; outer filaments narrowly

oblong, 11–12 × 1.8–2 mm, slightly canaliculated, not pinched down; inner filaments linear oblong, 11.5–12.5 × 2.2–2.5 mm, wider and pinched in the lower half. Ovary oblong to obovate, green, 6–7 × 3.5–4 mm, stipitate, with prominent paraseptal crests that are divergent in the lower part and forming three prominent ridges; style subobpyramidal or clavate, trigonous, 7–8.5 × 3.5–4 mm, stigma yellow, trigonous and glandulous. Capsule ovate to oblong-ovate, 15–18 × 11–12 mm, trigonous to subspherical in section, pale-brown when mature; valves splitting in the upper quarter. Seeds flat, ca. 4–5 × 2.5–3.5 mm, dark brown to black, flattened and semidiscoidal, biseriata and horizontally stacked in each locule. Figure 1.

**Flowering Time**—This species flowers from August to September; fruits appear from late September to October, and seeds are released towards the end of October–November.

**Habitat**—*Albuca anisocrispa* grows singly in sandy soils in Albany Broken Veld, Bhishe Thornveld, Great Fish Noorsveld, and Great Fish Thicket (Mucina and Rutherford 2006), from 100–400 m altitude.

**Distribution**—This species is found from Alicedale to the Great Fish River Valley and Alice (Fig. 3).

**Diagnostic Characters and Relationships**—*Albuca anisocrispa* is easily identified by the single or two leaves, rarely three, lanceolate-oblong, flat and canaliculated, vaginate at the base, commonly finely undulate only in the inner margin of the convolute leaves, suberect, with papillate prominent longitudinal nerves, and densely papillate margins; the flowers are erect with white and green tepals; and the inner stamen are sterile (Fig. 1; Table 1). These plants share some general characters with *A. bifolia*, although the unequally undulate leaves, the white and green tepals and the different ecology allow their easy differentiation (Table 1).

**Etymology**—Named after the unequally and minutely undulate leaves, only present in the inner margins of the convolute leaf (*aniso* = differently; *crispa*: undulate; it refers to margin of the canaliculated leaves, only the inner one crispate).

**Other Representative Specimens Examined**—SOUTH AFRICA. Eastern Cape, Alicedale, East of village near the railway crossing to Burchell Game Reserve, 288 m, 14/09/2010, 33°18'51"S, 26°06'01"E, *M. Martínez-Azorín & A. Martínez-Soler MMA227* (GRA); Eastern Cape, Coniston, Pigott Bridge, 339 m, 03/03/2010, 33°05'41"S, 26°26'59"E, *M. Martínez-Azorín, A. Martínez-Soler et al. MMA156* (GRA); Eastern Cape, Qamnyana village, between Breakfast Vlei and Committes Drift, 411 m,

27/08/2010, 33°07'00"S, 26°55'45"E, M. Martínez-Azorín & A. P. Dold MMA209 (GRA); *ibid.*, M. Martínez-Azorín & A. P. Dold MMA239 (GRA); Eastern Cape, near Fish River bridge on N2, c. 1.3 km on road to Pikoli, 103 m, 10/07/2011 (only leaves), 33°13'49"S 26°59'43"E, M. Martínez-Azorín & A. P. Dold MMA1036 (GRA); Eastern Cape, Victoria East, Alice, Fort Hare, on Bastion S.W., 24/09/1935, M. H. Giffen 629 (GRA); Eastern Cape, Victoria East, Alice, Sandile's Kop, M. H. Giffen 617 (GRA); Eastern Cape, Victoria East, farm Bloemfontein 20 m. from Alice, 23/09/1935, M. H. Giffen 642 (GRA).

***Albuca pseudobifolia* Mart.-Azorín & M. B. Crespo, sp. nov.**  
—HOLOTYPE: SOUTH AFRICA. Eastern Cape, Fish River bridge on N2, turn off to Pikoli, 60 m, 20/11/2009, 33°14'07"S, 26°59'48"E, M. Martínez-Azorín, A. P. Dold & A. Martínez-Soler MMA23 (GRA).

Planta ex *A. subg. Mitrotepalo*, ad *Albucam bifoliam* aemulans sed valde differt et facile distinguitur. Bulbus unicus vel raro aggregatus, hypogaeus, tunicis externis parce coriaceis, albidis. Folia 2–4(–5), lineari-lanceolata, canaliculata, laevia, margines integris, interiore ad apicem teretiusculo, per anthesim omnia destituta vel pro parte maxima emarcida. Floris erectis. Segmenta perianthii oblonga, sordide lutea, late viridi-vittata; interna vix minima, apice cucullata. Stamina dimorpha: interiora 3 fertilia, exteriora 3 antheras destituta vel eas minusculas sterilesque. Stylus perfecte luteus. Fructus anguste et longe oblongus. Semina minima (Fig. 2; Table 1).

Deciduous bulbous plants up to 40 cm tall. Bulb solitary or rarely forming small clumps comprising up to 10 adjacent plants, hypogaeal, ovoid to spherical, 2–4 × 2.2–3.5 cm, with dull white somewhat leathery outer tunics; inner tunics fleshy, whitish, all reaching the top of the bulb, concentrically arranged. Roots fleshy, narrow, white, up to 50 × 2 mm. Leaves 2–4(–5), linear-lanceolate, 12–35 × 0.2–1(–1.3) cm, much longer than wide, straight, suberect or inclined, glabrous, smooth, the lowermost canaliculated and enclosing the rest of leaves in the lower part (ca. 1–2 cm), the uppermost being canaliculated at the base and terete in the apical portion. Inflorescence an erect raceme longer than wide, with (3)–5–14(–19) flowers, 4–19(–26) cm long; lowermost pedicels (2.2)–3–4.5(–5.5) cm long, erect-patent, shortening from the base to the apex, finally with 0.5–1.5 cm long; peduncle (8)–15–25 cm long, erect; bracts ovate-lanceolate to triangular, acuminate, 9–25 × 6–9 mm, green with white membranous margins, withering soon and becoming papery white with reddish nerves, much shorter than pedicels at least in the lower part of the inflorescence. Flowers erect; tepals yellow with a green median stripe 2–3 mm wide; outer tepals oblong, 17–25 × 5–7 mm, with apex flat or slightly cucullate; inner tepals ovate-oblong, 15–18 × 5.5–7.5 mm, with pointed and strongly cucullate apex with a triangular structure going downwards. Stamen dimorphic; outer anthers absent or small and sterile, up to 1 mm long, inner anthers bigger and fertile, 3–5 mm long; outer filaments narrowly oblong, 11–12.5 × 1.5–1.8 mm, slightly canaliculated, not pinched down, sometimes with yellowish or greenish spots in the middle; inner filaments linear oblong, 10–13.5 × 2.5–3 mm, wider and pinched in the lower half. Ovary oblong to obovate, green, 6–6.5 × 3.2–3.5 mm, stipitate, with prominent paraseptal crests that are divergent in the lower part and forming three prominent ridges; style subobpyramidal or clavate, trigonous, 7–8.5 × 3.2–3.5 mm, stigma yellow, trigonous and glandulous. Capsule narrow and long oblong, 15–21.5 × 6–11 mm, trigonous to subspherical in section, pale-brown when mature; valves splitting in the upper quarter. Seeds flat, ca. 3 × 1.5–2 mm, dark brown to black, flattened and

semidiscoidal, biseriate and horizontally stacked in each locule. Figure 2.

**Flowering Time**—This species flowers from the end of October to December; fruits appear from late November to December, and seeds are released towards the end of December–January. Only one collection of *A. pseudobifolia* from Kenton-on-Sea, E. E. A. Archibald 4520b (GRA), is reported to flower in late August. However, the collection S. M. Johnson 1074 (GRA), from the same place and collected two years later, flowered in late October, a more normal flowering time for this species. This exceptionally early flowering time in *A. pseudobifolia* must be confirmed in future studies.

**Habitat**—*Albuca pseudobifolia* grows in sandy soils in Great Fish Thicket and Bhisho Thornveld (Mucina and Rutherford 2006), from 300–600 m altitude.

**Distribution**—This species is known from Paterson in the West to Pigott bridge, North of Grahamstown, in the North, Kenton-on-Sea in the South, and the Great Fish River bridge on the N2 in the East (Fig. 4).

**Diagnostic Characters and Relationship**—*Albuca pseudobifolia* shares with *A. bifolia* the erect flowers with yellow and green tepals, and the outer stamen without anthers or small and sterile ones, but it can be easily differentiated by the bulb with slightly leathery dull white outer tunics; the leaves linear-lanceolate, up to 30 times longer than wide, glabrous, smooth, and absent or mostly withered when the flowers are present, the narrower capsule, the smaller seeds, and the different flowering time (Fig. 2; Table 1). The only species of *Albuca* described with erect yellow flowers, sterile outer stamens and long, narrow leaves is *A. rupestris* Hilliard & B. L. Burt, however, *A. rupestris* is confined to high altitude and wet habitats in the Drakensberg, and it can be differentiated by the 6–10 narrow leaves or the bulb with membranous outer tunics, among other character (cf. Hilliard and Burt 1985).

**Etymology**—Named after resemblance with *A. bifolia* (*pseudo* = resembling, false; *bifolia* = two-leaved, as in *A. bifolia*).

**Observations**—The fact that the leaves are usually absent in flower, an important character for species identification in the group, could explain why *A. pseudobifolia* has remained undescribed until now. This species was first collected by E. E. A. Archibald in 1952 from Kenton-on-Sea. She first related those plants to *Albuca canadensis* (L.) F. M. Leight. (= *A. major* L.; = *A. minor* L.), though later she named her

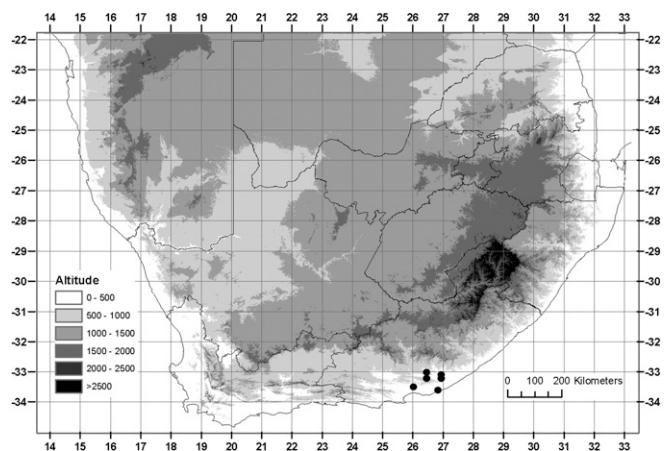


FIG. 4. Known distribution of *Albuca pseudobifolia* Mart.-Azorín & M. B. Crespo. Axes show longitude and latitude in degrees.

collection *Archibald 6068* (GRA) as '*A. lutea* Archibald sp. nov.' (on the voucher), a name that Lamarck (1783) had applied explicitly to both *Albuca major* L. and *A. minor* L., therefore being illegitimate.

**Other Representative Specimens Examined**—SOUTH AFRICA. Eastern Cape, Alexandria, Bushman's river mouth, 150 ft., 28/08/1952, E. E. A. *Archibald 4520b* (GRA); Eastern Cape, Alexandria, Bushman's river mouth, grassy dune valley, 50 ft., 21/10/1954, S. M. *Johnson 1074* (GRA); Eastern Cape, Alexandria, 5.5 miles from Sandflats, 150 ft., 27/11/1955, E. E. A. *Archibald 6068* (GRA); Eastern Cape, North of Grahamstown, Table Hill Farm, 585 m, 02/12/2009, 33°15'13"S 26°26'48"E, M. *Martínez-Azorín & A. P. Dold MMA62* (GRA); *ibid.*, M. *Martínez-Azorín & A. P. Dold MMA84* (GRA); Eastern Cape, North West of Grahamstown, c. 700 m East of Pigott bridge, near turn off to Coniston, 338 m, 19/06/2011 (fl. ex hort. 01/11/2011), 33°05'41"S 26°26'59"E, M. *Martínez-Azorín & A. Martínez-Soler MMA614* (GRA); Eastern Cape, near Fish River bridge on N2, c. 1.3 km on road to Pikoli, 103 m, 10/07/2011 (only leaves), 33°13'49"S 26°59'43"E, M. *Martínez-Azorín & A. Martínez-Soler MMA621* (GRA); *ibid.* (in flower), 26/10/2011, M. *Martínez-Azorín & A. P. Dold MMA1035* (GRA); Eastern Cape, KwaNdlambe, c. 10 km NW of Fish River bridge on N2, 96 m, 26/10/2011 (in flower), 33°09'59"S 26°58'11"E, M. *Martínez-Azorín & A. P. Dold MMA1037* (GRA).

**ACKNOWLEDGMENTS.** This work was partly supported by Fundación Ramón Areces (Spain) and Universidad de Alicante (Spain). We thank the curators of the herbaria who provided access to specimens examined, and the Cacadu Department of Economic Development and Environment Affairs for permission to collect herbarium specimens. Ryan Daniels is also thanked for his help with the drawings of the species.

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