

## Notes on African plants

VARIOUS AUTHORS

## ASTERACEAE

A NEW SPECIES OF *INEZIA* (ANTHEMIDEAE) FROM THE NORTH-EASTERN TRANSVAAL*Inezia speciosa* Brusse, sp. nov.

Herba perennis, erecta, usque ad 450 mm alta (Figure 1). *Caulis principalis* simplex vel ad basim biramosus, erectus, 2–4 mm crassus, in scapum productus, hirsutus, parce foliatus, ad subbasim multiramosus. *Caules secundarii* subbasales, multi, simplices vel subsimplices, dense foliati, hirsuti, ascendentes, subaeque alti terminantes. *Folia* usque ad 20 mm longa, sat dense hirsuta, superioribus simplicibus, inferioribus imparipinnatisectis, usque ad trijugatis, segmentis principalibus cuneatis vel linearibus, segmentis terminalibus lineari-lanceolatis, marginibus involutis, apicibus glabris, scleroticis, saepe fuscis. *Folia axillaria* in axillis foliorum pinnatisectorum vulgaria, simplicia, filiformia vel lineari-lanceolata, uni- vel bigeminata, pari secundo semper breviora. *Inflorescentia* simplex. *Scapus* solitarius, ex caule principali productus, hirsutus, perparce foliatus. *Capitulum* solitarium, radiatum, ligulis exclusis usque ad 25 mm diametro, plus quam 100-florum. *Bractee involucri* 3–4-seriatae, subaequales, anguste-lanceolatae, externe rufae hirsutae, interne glabrae, 1–1,5 mm latae, 6–9 mm longae, exteriores interioribus angustiores. *Receptaculum* nudum. *Flores ligulati* circa 25–30, feminei sed steriles. *Ligulae* albae, quam bracteas multo longiores, simplices vel profunde trilobatae, parce pubescentes, glandibus bicellulosis superficialibus; cellulae paginae superioris breviter botuliformes, radiatim leviter striatae; tubus brevis, circa 1 mm longus. *Androecium* nullum. *Stylus* 1,7–1,8 × 0,16–0,23 mm, ad apicem versus biramosus, ramis 0,46–0,54 mm longis, truncatis, base parum dilatata. *Nectarium* nullum. *Ovarium* non bene evolutum, glandibus bicellulosis, superficialibus. *Ovulum* redactum. *Pappus* nullus. *Flores disci* hermaphroditi, fertiles, plus quam 100, 4,2–5,7 mm longi. *Corolla* lutea, 2,5–3,0 mm longa, glandibus bicellulosis superficialibus, anguste infundibuliformis vel cylindrica, tetrlobata; lobi 0,4–0,5 mm longi, quum maturi patens; margines incrassati, cellulis elongatis protrudentibus, parietibus crassis et longitudine striatis; cellulae paginae interioris transverse striatae. *Stamina* quaternaria, tubo corollae supra basin sed infra medium affixa. *Filamentum* breve, 0,44–0,55 mm longum; collum filamenti 0,29–0,33 × 0,10–0,11 mm; cellulae in sectione longitudinali 6–8-seriatae; thecae 0,96–1,11 mm longae; appendix apicalis oblonga, obtusa vel truncata, 0,15–0,20 × 0,19–0,23 mm; caudae 0,04–0,10 mm longae. *Stylus* circa 2,6 × 0,19–0,21 mm, ad apicem versus biramosus, ramis 0,63–0,66 mm longis, truncatis. *Stylopodium* 0,34–0,46 mm latum, 0,17 × 0,23 mm altum, cellulae parietibus valde incrassatis. *Nectarium* 0,29–0,32 mm latum, 0,10–0,11 mm altum, sub stylo-

podio. *Ovarium* 1,7–2,7 mm longum, tetracostatum, ubi maturum complanatum, alis marginalibus angustis sed sursum latoribus, glandibus superficialibus, bicellulosis vel breviter biseriatis (usque ad tres cellulae altis). *Pappus* nullus.

TYPE.—Transvaal, 2329 (Pietersburg): Iron Crown Mountain near Haenertsburg, grassy slopes, alt. 5 500' (–DD). *L. E. Codd* 9440, 24.1.1956 (PRE, holo.; K, MO, iso.). Figure 1.

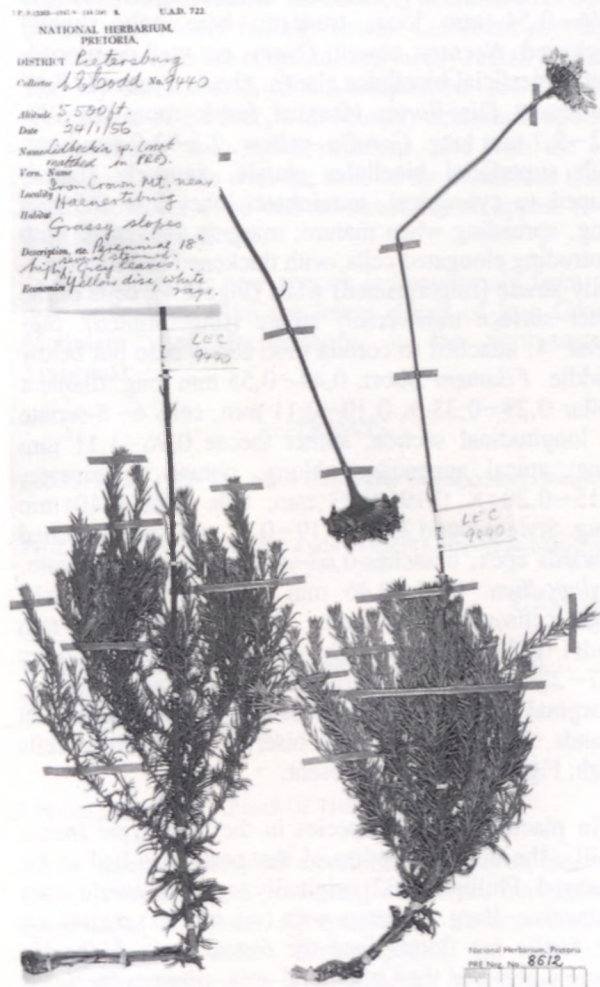


FIGURE 1.—*Inezia speciosa* Brusse, habit. *L. E. Codd* 9440, holotype.

Erect perennial herb, up to 450 mm high. *Main stem* simple to two-branched at base, erect, 2–4 mm thick, produced into scape, hirsute, sparsely leafy, subbasally many-branched (without the main stem branching).



*Secondary branches* subbasal, numerous, simple to subsimple, densely leafy, hirsute, ascending, terminating at subequal height. *Leaves* up to 20 mm long, moderately densely hirsute, the upper (younger) simple, the lower (older) imparipinnatisect, up to trijugate, main segments cuneate to linear, terminal segments linear-lanceolate; margins involute; apices glabrous, sclerotic, often brown. *Axillary leaves* common in axils of pinnatisect leaves, simple, filiform to linear-lanceolate, one- or two-paired, the second (younger) pair always shorter. *Inflouescence* simple. *Scape* solitary, produced from main stem, hirsute, very sparsely leafy. *Head* solitary, radiate, up to 25 mm diam. excluding rays, more than 100-flowered. *Involucral bracts* 3–4-seriate, subequal, narrowly lanceolate, rufous hirsute on outer surface, glabrous on inner surface, 1–1,5 mm wide, 6–9 mm long, the outer narrower than the inner. *Receptacle* nude. *Ray florets* 25–30, female but sterile. *Rays* white, much longer than bracts, simple to deeply trilobate, sparsely pubescent, with superficial bicellular glands (Figure 2); cells of the upper surface shortly (dumpy) botuliform, radially lightly striate (fingerprinted); tube short, about 1 mm long. *Androecium* absent. *Style* 1,7–1,8 × 0,16–0,23 mm, two-branched towards apex; branches 0,46–0,54 mm long, truncate; base only slightly thickened. *Nectary* absent. *Ovary* not well developed, with superficial bicellular glands. *Ovule* reduced. *Pappus* absent. *Disc florets* bisexual, fertile, more than 100, 4,2–5,7 mm long. *Corolla* yellow, 2,5–3,0 mm long, with superficial bicellular glands, narrowly funnel-shaped to cylindrical, tetralobate; lobes 0,4–0,5 mm long, spreading when mature; margins thickened, with protruding elongated cells, with thickened and longitudinally striate (fingerprinted) walls (Figure 4); cells of the inner surface transversely striate (fingerprinted). *Stamens* 4, attached to corolla tube above base but below middle. *Filament* short, 0,44–0,55 mm long; filament collar 0,29–0,33 × 0,10–0,11 mm, cells 6–8-seriate in longitudinal section; anther thecae 0,96–1,11 mm long; apical appendage oblong, obtuse to truncate, 0,15–0,20 × 0,19–0,23 mm; tails 0,04–0,10 mm long. *Style* around 2,6 × 0,19–0,21 mm, two-branched towards apex, branches 0,63–0,66 mm long, truncate. *Stylopodium* 0,34–0,46 mm wide, 0,17–0,23 mm high; cells with thick walls. *Nectary* 0,29–0,32 mm wide, 0,10–0,11 mm high, under stylopodium. *Ovary* 1,7–2,7 mm long, four-ribbed, flattened when mature, marginal wings narrow but broadened above, superficial glands, bicellular to shortly biserial (up to three cells high; Figure 3). *Pappus* absent.

In placing this new species in the monotypic *Inezia* Phill., the circumscription of the genus has had to be changed. Phillips (1932) originally separated *Inezia* from *Lidbeckia* Berg. (a genus with two species) mainly on the fertile ray florets, and the distribution—*Lidbeckia* being a genus of the Cape floral area, whereas *Inezia* is a genus of mountainous grassland in the eastern Transvaal and Swaziland. However, this new species breaks this distinction down, because it has ray florets with ovules of similar reduction to *Lidbeckia quinqueloba* (L.f.) Cass. In any case, the ray florets of the only hitherto known species of *Inezia*, *I. integrifolia*, are not perfectly fertile, the ovules being slightly degenerate, but nevertheless present. *I. speciosa* has an even more reduced ovule in the ray achenes. The type of *Lidbeckia*,

*L. pectinata* Berg., has ray florets which are completely sterile, with no style and the achene severely reduced, with no ovule present. *Lidbeckia quinqueloba* (L.f.) Cass., on the other hand, has the style developed, with two unequal branches with rounded, rather than truncate apices. A rudimentary ovule is also discernible in the achene. All four species have the achene surfaces with broad bicellular glands (Figure 2) which sometimes become three-tiered (Figure 3). These are also present on the rays, but are more sparse here. The degree of reduction of the ray floret no longer seems to hold well as a distinguishing character between these two genera.

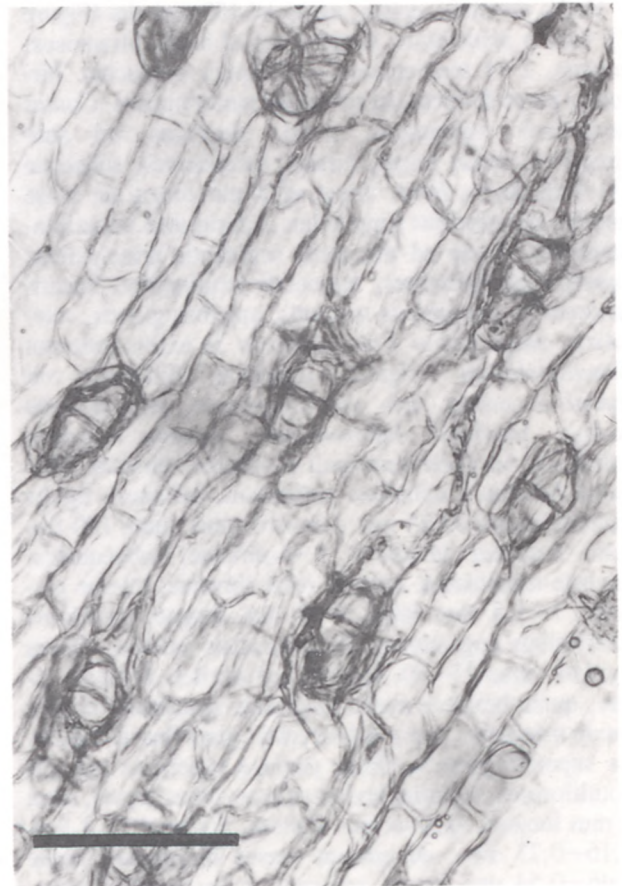


FIGURE 2.—*Inezia speciosa* Brusse, photomicrograph of the bicellular glands. L. E. Codd 9440, holotype. Bar = 0,10 mm.



FIGURE 3.—*Inezia speciosa* Brusse, photomicrograph of the three-tiered biserial glands. L. E. Codd 9440, holotype. Bar = 0,10 mm.



versus biramosus, ramis 0,5–0,7 mm longis, truncatis. *Stylopodium* 0,24–0,42 mm latum, cellulis non vel leviter incrassatis. *Nectarium* sub stylopodio, 0,27–0,42 mm latum, 0,14–0,20 mm altum. *Ovarium* 1,0–2,5 mm longum, decacostatum, glandibus bicellulosis superficialibus numerosis (Figure 6); apex annulo incrassato, laevis vel decadentatus.

TYPE.—Transvaal, 2429 (Zebediela): 18 km from the main Pietersburg-Tzaneen road near Boyne to Wolkberg Estates. One km from the turn-off to Frosch Farm to Wolkberg Estates. On highest point on road. Erect to reclining, 0,5–0,85 m tall, silvery subshrub, with yellow flower heads, growing as isolated plants in grassland or open woodland, near low rock outcrops. On rolling dolomite hill at NW base of prominent NE-SW running dolomite ridge. Crushed leaves without strong odour. Soil a brown loam. Not seen on dolomite ridge, but fairly common on rolling hill below (–BB). *F. Brusse* 5567, 30.05.1988 (PRE, holo.; B, BM, BR, C, E, GRA, K, LD, M, MEL, MO, NBG, P, S, UPS, US, WAG, iso.). Figure 5.



FIGURE 5.—*Phymaspermum argenteum* Brusse, habit. *F. Brusse* 5567, holotype.

Subshrub to 850 mm high, arising from a woody perennial bulb-shaped caudex, 40–50 mm diam., just below soil level. *Stems* simple at base to branched above, 2–8 mm diam., densely leafy except towards

base, sparsely to densely tomentose. *Leaves* up to 25 mm long, imparipinnatisect to simple, non- to trijugate, segments filiform or linear, about 1 mm wide, lower segments longer than upper segments, silvery-hirsute, tips glabrous, sclerotic. *Inflorescence* terminal, corymbose, heads numerous, peduncles small-leafy. *Heads* discoid, cylindrical, 4–7 × 2–3 mm, 10–17-flowered. *Involucral bracts* 3–4-seriate, inner ones longer than outer ones, lanceolate, inner bracts 5–6 × 1 mm, concave, margins and apices scarious. *Receptacle* nude. *Flowers* all fertile, all hermaphrodite, 4,5–6,0 mm long. *Corolla* yellow, 3,0–3,5 mm long, narrowly cylindrical below, campanulate above, five-lobed, lobes 0,4–0,8 mm long, glandular pilose, glands biseriate. *Filament* short, 0,65–1,00 mm long; filament collar 0,24–0,37 × 0,09–0,14 mm below; cells 7–10 seriate in longitudinal section; thecae 0,93–1,15 mm long; apical appendage lanceolate, 0,23–0,37 × 0,13–0,16 mm; tails up to 0,17 mm long (Figure 7). *Style* 2,4–2,7 × 0,13–0,24 mm, two-branched towards apex, branches 0,5–0,7 mm long, truncate. *Stylopodium* 0,24–0,42 mm wide, cells not to only slightly thickened. *Nectary* below stylopodium, 0,27–0,42 mm wide, 0,14–0,20 mm high. *Ovary* 1,0–2,5 mm long, ten-ribbed, superficial bicellular glands numerous (between ribs; Figure 6); apex with thickened rim, smooth to ten-toothed.

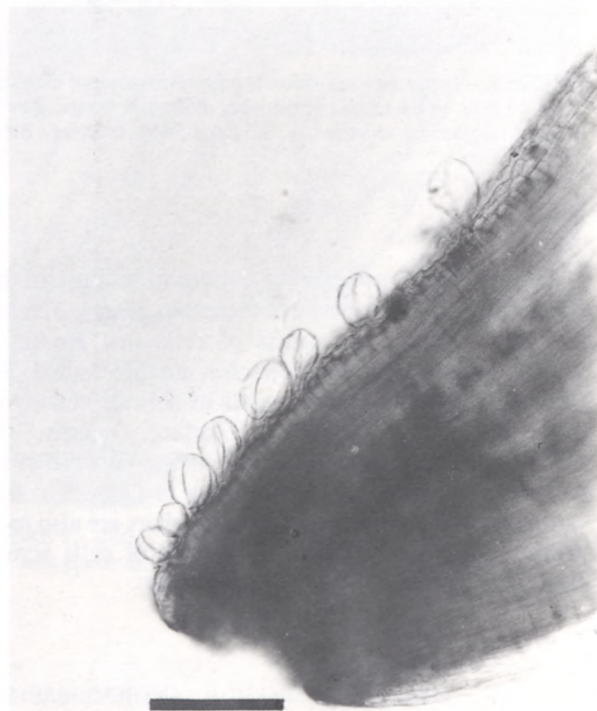


FIGURE 6.—*Phymaspermum argenteum* Brusse, photomicrograph showing the bicellular glands on the achene surface. *D. R. J. van Vuuren* 1533, paratype. Bar = 0,10 mm.

This new species of *Phymaspermum* superficially resembles *Phymaspermum acerosum* (DC.) Källersjö, except for the dense silvery hairiness of the leaves. The leaves of *P. acerosum* are normally almost hairless when mature. The hairs, mainly on the undersurface, are not visible to the unaided eye and are longer than those of *P. argenteum*. The inflorescences of the two species are quite similar, but the heads contain more flowers in *P. argenteum* (10–17) than in *P. acerosum* (4–9; Hilliard 1977).





FIGURE 7.—*Phymaspermum argenteum* Brusse, photomicrograph showing the anther tails. D. R. J. van Vuuren 1533, paratype. Bar = 0,10 mm.

The anther tails of *Phymaspermum argenteum* are longer (Figure 7) than those of *P. acerosum*, which are quite short, and the anther bases could be described as

being merely acute. However, this would be misleading in this case as the cellular structure at the base seems quite similar, and the cells of the tails of *P. argenteum*, are more elongated than those of *P. acerosum*.

*Phymaspermum acerosum* is one of the three problem species in this genus, in that the achenes lack all traces of superficial bicellular glands (Källersjö 1985), but *P. argenteum* is typical, with abundant superficial bicellular glands, between the blunt ribs on the achene (Figure 6).

*P. argenteum* is not a very conspicuous plant and does not grow much taller than 0,85 m. *P. acerosum*, on the other hand, can grow up to two metres (2 m) tall, and is a large and conspicuous plant of higher altitudes.

*Phymaspermum acerosum* grows in acidic soils, and has not been recorded from alkaline soils. *P. argenteum*, however, grows in alkaline soils in dolomite areas of the eastern Transvaal, and so far has only been recorded from the dolomitic regions of the Wolkberg.

TRANSVAAL.—2429 (Zebediela): erect semiwoody herb from stout rootstock. Viscous. Heads yellow. Dolomite formation, Wolkberg Plateaux 14 m. SE of Boyne (—BB). D. R. J. van Vuuren 1533, 3.6.1962 (PRE, K). Wolkberg Estates. Wooded grassland on mountain slope. Gentle. E aspect. Gritty sandy soil. Herb forming isolated stands. Rare. Alt. 1 600 m (—BB). S. P. Fourie 2759 (ex TPA Nature Cons. Herbarium 633988), 1982.05.26 (PRE).

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