Notes RBG Edinb. 43(3):467–475 (1986)

A REVISION OF THE GENUS AFROTYSONIA RAUSCHERT (BORAGINACEAE)

R. R. MILL*

ABSTRACT. The genus *Afrotysonia* Rauschert (syn.: *Tysonia* H. Bolus non Fontaine: Boraginaceae, tribe *Cynoglosseae*) is revised. One new species, *A. pilosicaulis* R. Mill, is described from Tanzania; this represents a considerable northward extension of the known range of the genus. Two other species occur in Transkei and Natal; the new combination *A. glochidiata* (R. Mill) R. Mill is made for one of these. Brief notes on palynology are given and the affinities of the genus with other members of the tribe are discussed.

INTRODUCTION

The genus *Tysonia* (Boraginaceae subfamily Boraginoideae, tribe *Cynoglosseae*) was first described by H. Bolus (1890). Shortly after the publication of *Index Nominum Genericorum*, Rauschert (1982) pointed out that Bolus's generic name was a later homonym of *Tysonia* Fontaine, published in 1889 for a genus of fossil Bennettitales. Rauschert renamed Bolus's genus *Afrotysonia* and made the new combination *A. africana* (H. Bolus) Rauschert for the type species.

Afrotysonia is here considered to comprise three species, with a disjunct distribution in southern and tropical east Africa. Two species, *A. africana* (H. Bolus) Rauschert and *A. glochidiata* (R. Mill) R. Mill (p. 470) occur in Transkei and Natal, while a third, new, species—*A. pilosicaulis* R. Mill (p. 472)—is endemic to southern Tanzania.

The salient features of *Tysonia* Bolus, as given in the original description, were: its tall habit with very large basal leaves and large, many-flowered paniculate inflorescence; subrotate corolla with subpatent to reflexed lobes; versatile anthers exserted from the corolla tube on long filaments; long, exserted faucal scales; well-developed nectaries at the base of the corolla tube; and relatively large nutlets (1 × 1·5cm) lacking glochids but with a broad rugulose cartilaginous wing. Bolus related his new genus to *Caccinia* Savi, *Solenanthus* Ledeb. and *Rindera* Pallas, and also noted certain parallels with the New Zealand species *Myosotidium hortensia* (Decne.) Baill.

Brand (1921, p. 89 f. 11) included *Tysonia* Bolus in his treatment of the *Cynoglosseae*. Although in most aspects his account and illustration could refer to Bolus's plant, his description of the nutlets differs considerably. These were said to be broadly ovate, c.7mm long, and densely glochidiate (cf. his fig. 11e, f). Johnston (1924, p. 72) commented that 'the plant described and figured by Brand ... is obviously quite different from *T. africana* in fruiting structures, having the depressed ... densely glochidiate wingless nutlets of a *Cynoglossum*'. However, as the genus was unrepresented in the Gray Herbarium, he was unable to assess the status

*c/o Royal Botanic Garden, Inverleith Row, Edinburgh EH3 5LR.

of Brand's plant. Since then, doubt has been cast by the authors of some African floras (e.g. Dyer, 1975) as to whether the fruit figured by Bolus and contained in the capsules on the type sheet actually belonged to *Tysonia*—Dyer considered it to be that of a species of *Trichodesma* R. Br.

In the course of field work in Natal and Transkei in the southern summer of 1978, Prof. O. M. Hilliard and Mr B. L. Burtt were able to find *T. africana* at two sites, one in Natal, the other in Transkei, overlooking Tyson's type locality of Clydesdale. An account of the search is given by Hilliard & Burtt (1979). The Clydesdale plants were neither flowering nor fruiting, but a single fruiting specimen was collected from near Ixopo, Natal. Living material is now in cultivation at Edinburgh, and herbarium material is at E and NU. The nutlets are similar in morphology to those on the type sheet of *T. africana*, possessing a broad wing with undulate margin, and lacking glochids. Thus, previous doubts as to the authenticity of the nutlets on the type specimen are dispelled.

I have also examined numerous sheets at E and K which differ from the type in their usually more elliptic basal leaves with denser, softer, greyish indumentum, and smaller flowers with shorter calyx lobes and usually shorter style. Nutlets are present on two of these sheets—they are densely glochidiate, c.7mm when mature, and resemble those illustrated by Brand. Thus, it is certain that two distinct taxa are indeed present in southern Africa. In 1979, I gave the name *T. glochidiata* R. Mill to Brand's plant with glochidiate nutlets (Mill in Hilliard & Burtt, 1979).

There is at K material of a third taxon which clearly belongs to *Afrotysonia*. Collected some 2450km farther north in Tanzania, these specimens differ from the two southern African species by their stems being quite densely adpressed-pilose in the upper part, campanulate corollas with longer tube and scarcely reflexed lobes, hardly exserted anthers, short style ± equalling the corolla but not exserted, and absence of secondary branches in the more leafy inflorescence. I consider them to represent a third species, here described as *Afrotysonia pilosicaulis* R. Mill, which is markedly disjunct in its distribution, representing a considerable extension of the known range of the genus.

Systematic Treatment

Afrotysonia Rauschert in Taxon 31:558 (1982).

Syn.: *Tysonia* H. Bolus in Hooker's Ic. Pl. 20: t. 1942 (1890) non *Tysonia* Fontaine (1889) nec F. Muell. (1906).

Type species: *Afrotysonia africana* (H. Bolus) Rauschert.

Perennial, erect tall herbs. *Rootstock* horizontal or subvertical, clothed with old petiolar remnants. *Stems* single, unbranched in vegetative part, finely striate, terete. *Basal leaves* long-petiolate; lamina broadly ovate or elliptic to elliptic-lanceolate, prominently veined, minutely puberulent to strigillose, hairs adpressed. *Lower cauline leaves* long-petiolate, upper sessile; lamina elliptic, narrowly elliptic or narrowly lanceolate, base attenuate to cuneate, apex acute to acuminate, sometimes with a mucro; lower surface ± densely puberulent to strigillose, more sparsely strigillose above, either all hairs lacking tuberculate bases or some arising from

multicellular tubercles. *Inflorescence* a large, ± lax, branched panicle, with or without secondary branches, bracteate; either all bracts reduced or lower ones leaf-like. *Cymes* 8–15-flowered, simple or branched, pedunculate; peduncles with 1–2 (second-order) bracts shorter than those on the inflorescence branches (first-order bracts). *Pedicels* ebracteolate, elongating considerably in fruit, with sparse to ± dense, adpressed hairs. *Calyx* divided nearly to base into 5 equal, lanceolate lobes, persistent but scarcely accrescent in fruit, shorter than pedicels. *Corolla* white (sometimes tinged mauve) to dull yellow, campanulate or subrotate; limb lobed ± to throat, lobes patent to subreflexed, ovate, obtuse, sometimes rather fleshy. *Faucal scales* exserted from corolla throat, trapeziform, oblong-triangular or semilunar, apex usually emarginate, with or without marginal papillae. *Filaments* inserted in middle of corolla tube well below faucal scales, ± exserted from corolla, surpassing scales, dilated at base. *Anthers* oblong to ovoid, almost medifixed, versatile. *Nectary scales* c.10, situated at extreme base of corolla tube, each with 2 divergent horns. *Ovary* on thick, semiglobose receptacle, indistinctly 4-lobed at apex; style filiform, subequalling stamens or slightly shorter; stigma small, capitate. *Nutlets* 1–4, attached to gynobase by apical, triangular to lanceolate scar, all equal or one much larger than others; either depressed, wingless and densely glochidiate, or strongly laterally compressed, lacking glochids but with broad, cartilaginous ± undulate wing. '*Seed* erect, affixed below apex of nutlet, exalbuminous, ovate, compressed; testa conspicuously veined, veins curved; cotyledons cuneate-obovate, plano-convex, much larger than the very short radicle' (Bolus, 1890).

1. Upper part of stem and branches of inflorescence rather densely adpressed-pilose; corolla campanulate; anthers scarcely exserted from corolla tube; faucal scales 0·6–1·1(–1·5) × 1·5–2·2(–2·5)mm, semilunar or compressed-trapeziform . . . . . **3. pilosicaulis**

\+ Upper part of stem and branches of inflorescence sparingly pilose to subglabrous; corolla subrotate or very shortly campanulate; anthers distinctly exserted from corolla tube; faucal scales 1·5–2·5 × 1–1·5mm, trapeziform to oblong-triangular 2

2. Mature nutlets 8–11 × 9–15mm, with broad marginal wing; corolla 7–9mm . . . . . **1. africana**

\+ Mature nutlets 7–9 × 8–10mm, lacking wing, densely glochidiate; corolla 4–6·5mm . . . . . **2. glochidiata**

1. Afrotysonia africana (H. Bolus) Rauschert in Taxon 31:558 (1982).
Syn.: *Tysonia africana* H. Bolus in Hooker's Ic. Pl. 20: t. 1942 (1890).

Perennial. *Stems* 80–120cm, glabrous below, very sparingly adpressed-pubescent above and in inflorescence with white setiform hairs. *Basal leaves* broadly ovate or broadly elliptic, with petiole to 30cm; lamina 22–27 × (10–)13·5–18cm, base obtuse to truncate, then abruptly cuneate or attenuate into petiole, apex acuminate or acute; lower surface somewhat sparingly puberulent, hairs very short, etuberculate; upper surface strigillose. *Cauline leaves* broadly elliptic, 22–23·5 × 6–6·5cm, upper surface sparingly retrorsely puberulent, hairs arising from small hyaline tubercles,

lower surface sparingly and evenly antrorsely puberulent with minute hairs arising from calcarescent bases. *First-order bracts* to 50 × 6mm, narrowly lanceolate, strigillose, arising just below distal end of peduncle or about halfway; *second-order bracts* similar, 10–20 × 1–1·5mm. *Peduncles* 1–2cm. *Pedicels* 8–25mm at anthesis, elongating to 20–35mm in fruit. *Calyx lobes* 3–4mm at anthesis, not elongating in fruit, obtuse, sparingly setulose outside from tuberculate bases and with ciliate margin and apex. *Corolla* white or yellowish, sometimes with mauvish tinge, 7–9mm; tube 3–4mm; limb 4–5mm. *Faucal scales* c.2 × 1·5mm. *Filaments* 5–6mm, inserted 0·5–1mm below faucal scales. *Anthers* oblong-ovoid, 1·1–1·2 × 0·5mm. *Style* 6·5–8·5mm. *Nutlets* 8–11 × 9–15mm, often solitary by abortion, subdisciform, strongly laterally compressed, with broad, cartilaginous, rugulose, undulate, reddish-brown wing and orbicular, flattened-convex, paler brown disc; glochids entirely absent. *Fl.* Dec.–Jan. Hillsides near streams, c.915m.

Type: [Transkei, Umzimkulu] juxta rivulos circa Clydesdale, Griqualand Orientalis (Kaffrariae provincia), alt. c.3000ped., fl. Dec., *W. Tyson* 2117 (holo. K).

TRANSKEI. Umzimkulu distr., farm 'Ebuta', slopes below Mt Malowe overlooking Clydesdale, 17 i 1978, foot of steep bank in tall grass, dark green radical leaves, *Hilliard & Burtt* 11219 (E, NU—n.v.).

NATAL. Ixopo distr., Sutton Estates, grass slope, leaves dark green, 16 i 1978, *Hilliard, Burtt & Shirley* 11210 (E, NU—n.v.); ibidem, xii 1976, *Shirley* s.n. (NU—n.v.).

Only known from the above localities. All other specimens seen which are labelled '*Tysonia africana*' belong to *A. glochidiata*.

2. Afrotysonia glochidiata (R. Mill) R. Mill, **comb. nov.**

Syn.: *Tysonia glochidiata* R. Mill apud Hilliard & Burtt in Notes RBG Edinb. 37:289 (1979).

T. africana sensu Brand in A. Engler, Pflanzenreich 78 (IV. 252):89, t. 11 (1921) p.p. et auct. mult. non Bolus (1890).

Perennial. *Rhizome* horizontal, thick, blackish. *Stems* 70–150cm, with similar indumentum to *T. africana*. *Basal leaves* long-petiolate, petiole 26–30cm; lamina elliptic, broadly elliptic or more rarely broadly ovate, 14·5–23(–27) × 6·5–13cm, base gradually cuneate, apex acute or acuminate, sometimes with c.1mm mucro; lower surface very densely retrorsely strigillose, upper surface somewhat more sparsely scabrid-setulose. *Cauline leaves* narrowly elliptic to narrowly lanceolate, median 10–20 × 1·3–5cm, base attenuate, apex acuminate; upper surface antrorsely or ± patent-strigillose, hairs usually arising from small tubercles, larger setiform hairs (c.1%) always arising from large tuberculate bases surrounded by 1(–2) rows of suborbicular subsidiary cells; lower surface densely retrorsely strigillose. *Inflorescence* a spreading panicle, ± pagoda-shaped when young but rapidly accrescent into a rather untidy, irregularly dichotomously branched arrangement. *First-order bracts* 13–70 × 1–10mm, strigillose, hairs arising from tuberculate bases; *second-order bracts* much smaller, 1–2(–3) per peduncle. *Branches* 5–16(–18)cm, elongating in fruit to 20cm or more. *Peduncles* 1·5–7cm. *Pedicels* at anthesis 5–20mm, elongating to

15–60mm in fruit. *Calyx lobes* dull red with greyish indumentum, 2·5–4mm, ovate. *Corolla* white, creamy or yellow, sometimes with mauvish tube, 4–6·5(–7)mm; tube 1–3(–3·5)mm, lobes 2·5–4mm, reflexed. *Faucal scales* 1·5–2·5 × 1–1·2(–1·5)mm, exserted, oblong-trapeziform, emarginate at apex. *Filaments* elongating serially, 5–6mm, inserted 0·5–1mm below faucal scales. *Anthers* 0·8–1·1mm; pollen yellow. *Nutlets* 7–9 × 8–10mm at maturity, 1–4, depressed-ovoid, wingless, densely glochidiate. *Fl.* Dec.–Apr. Forest margin scrub, grass-veld, moist depressions and gullies, often by streams, 1070–2225m.

Type: Natal, Alfred District, Weza, Zuurberg, 1585m, in forest margin scrub, corolla lobes creamy, tube mauvish, 3 iii 1974, *Hilliard* 5487 (holo. E; iso. K, NU—n.v.).

TRANSKEI. Baziya Mt, road from Forest Station to Mpolompo valley, damp bank, c.3500ft, 11 ii 1981, *Hilliard & Burtt* 13947 (E).

NATAL. Foot of Drakensberg, 9 i 1886, *Wood* 3557 (K). Polela distr., Polela, side of hill, 5000–6000ft, 6 iv 1892, *I. Medley Wood* 973 (E); 'Sunset' farm, Marwaga, M'vushwane, 6000ft, 13 i 1978, *M. A. Rennie* 891 (E, NU—n.v.). Lion's River (Mpendhle) distr., Vergelegen Nature Reserve, Mahlengubo R valley, 1 i 1978, *Hilliard & Burtt* 11158 (E, NU—n.v.); Mulangane ridge, above Carter's Nek, 7000–7300ft, in damp stream valley, rootstock spreading horizontally, calyx dull red, corolla white with palest yellow fornices, stamens yellow, elongating in succession, 5 ii 1984, *Hilliard & Burtt* 17600 (E); Loteni R valley, damp rough grassland, 5900ft, 13 i 1982, *Hilliard & Burtt* 15115 (E). Estcourt distr., Giant's Castle Game Reserve, damp grassland, 10 ii 1964, *M. McKeown* 88 (E, NU—n.v.); ibidem, common in grassland, 13 ii 1964, *M. McKeown* 107 (E, NU—n.v.); ibidem, 3 ii 1966, *Trauseld* 562 (E). Bergville distr., National Park, Mahai R, fls. white, 4700ft, 4 xii 1928, *E. E. Galpin* 9737 (K); Cathedral Peak Forest Research Station, frequent in *Yunnera–Euphorbia–Asparagus* associes in moist gully, flowers pinkish-white, 6350ft, 31 i 1951, *D. J. B. Killick* 1360 (K); National Park, foot of E facing cliffs below Dooley, low fruit set, 6200ft, 17 ii 1984, *Hilliard & Burtt* 17659 (E). Underberg distr., Cathkin Peak, grassland, 6 i 1968, *R. G. Strey* 7819 (K). Klip River distr., Van Reenen, 1525m, 22 i 1908, *Wood* 10742 (NU—n.v.).

Unlike the very local *A. africana*, *A. glochidiata* appears to be widespread and quite common in suitable habitats in the Upper Drakensberg of Natal, with an isolated population in Transkei. Practically all material labelled '*Tysonia africana*' in herbaria actually belongs to *A. glochidiata* and it is this species, not true *A. africana*, which has been illustrated and described in most recent works on the Drakensberg flora. The specimen cited under '*Tysonia africana*' in Ross, *Flora of Natal* (1973, p. 255)—*Wood* 3557—is not that species, but is *A. glochidiata*. One cannot tell from his list whether Ross saw Tyson's type of *A. africana*, or whether '*T. africana* sensu Ross' refers to both taxa.

A. glochidiata can normally be distinguished even in the vegetative state from *A. africana*, its basal leaves being greyish, especially beneath, on account of the dense indumentum, not dark green as in the latter species. The inflorescence is also normally more branched. Pearse (1978, pp. 162

& 163, f. 1 & 5, sub *T. africana*) gives a delightfully graphic description, saying that 'the effect is that of a white, diaphanous cloud against the landscape'. However, the wingless, glochidiate nutlets afford the easiest character for distinguishing the two species.

The specimen from Mt Baziya in Transkei differs in some respects from Natal material. There are at least 2 and frequently 3 second-order bracts per peduncle, instead of the usual 1(–2). The corolla is slightly larger (to 7mm) and subcampanulate (not subrotate), the tube being 3–3·5mm, subequalling or slightly longer than the lobes. The anthers are ovoid and fractionally shorter (0·7–0·8mm) than is normal in the species, and the style can reach 8mm at anthesis. Further collections, to include fruiting material, from this locality are needed before an assessment of the taxonomic status of this plant can be made.

3. Afrotysonia pilosicaulis R. Mill, **sp. nov.**

Species aequatoria, a duabus speciebus generis austroafricanis valde disjuncta, ambabus caule in parte superiore dense brevipiloso, inflorescentia non dichotome ramosa, corolla breviter campanulata, filamentis vix exsertis differt.

Perennis. *Caudex* brevis, crassus, subverticalis, nigrescens. *Caulis* (pars inferior ignota) saltem 35cm altus, dense foliatus, densiuscule breviter adpresse pilosus; pili leniter setiformes, 0·9–1·5mm longi, retrorsi. *Folia basalia* atrovirentia, ad basem in petiolum laminae subaequalem attenuata; lamina lanceolata-elliptica ad ovato-elliptica, hieme 9–12 × c.3cm, densissime adpresse hispido-setulosa setulis flavovirentibus, aestate ad c.18 × 5cm expansa, superne sparse setulosa, inferno densiore setulosa. *Folia caulina* mediana sessilia, elliptica vel lanceolata-ovata, ad anthesin c.12–13 × 4cm, indumento eis aestate basalibus simili. *Inflorescentia* panicula terminalis, dense foliata, ramis omnibus bractea foliiformi subtentis. *Bracteae* inferiores 8–11 × 2·5–4cm, superiores in axe principali diminutae; bracteae ordinis secundarii reductae, lineari-lanceolatae. *Rami* inflorescentiae simplices, 6–30cm (superiores quam inferiores multo breviores), in parte superiore 3–6 pedunculos ad anthesin 2–4cm longos emittentes; et rami et pedunculi ut in caule densiuscule adpresse pilosi. *Pedicelli* 6–9mm, dense adpresse pilosi. *Lobi calycis* 3–5mm, acuti, canescenti-pilosi. *Corolla* alba, breviter campanulata, 7–9mm, tubo 5·5–6mm, lobis 2·5–3·5mm, late oblongo-ovatis, patentibus vel vix reflexis, emarginatis, crassiusculis. *Fornices* exserti, albi, (0·6–)0·9–1·5 × 2–2·2(–2·5)mm, semilunares aut compresso-trapeziformes. *Filamenta* 2·5–3mm, in medio tubi inserta, vix exserta. *Antherae* flavescentes, c.1–1·3 × 0·4–0·5mm, paulo exsertae. *Stylus* ad anthesin 4–6mm, tubo subaequalis vel interdum vix exsertus, post anthesin paulo accrescens. *Ovulae* immaturae (post anthesin) verruculae. *Nuculae* ignotae. *Fl.* Mar. Very rough grassland, 2100–2400m.

Type: Tanzania: Ufipa distr., Sumbawanga, Mbesi forest, in very rough grassland, stem leaves broad, calyx greyish, hairy, flowers white, 2400m, 13 iii 1957, *H. M. Richards* 8679 (holo. K).

TANZANIA. Ufipa distr., Sumbawanga, Malonji farm land, among rough grass, leaves only, 2100m, 19 vii 1962, *H. M. Richards* 16809 (K).

This new species is known to me only from the above two gatherings. Both are incomplete and fruiting material would be desirable in order that the description may be completed.

The discovery of a species of *Afrotysonia* in tropical east Africa is extremely interesting phytogeographically. The localities in the vicinity of Sumbawanga are in SW Tanzania, on the mountain range between Lake Tanganyika and the saline Lake Rukwa. Brenan (1978) comments on the richness of the Tanzanian flora and its high endemism. Quézel (1978, fig. 11) indicates that the localities are on a migration route which existed in the Pliocene and Pleistocene between N Africa, the Rift Valley lake system, and the Drakensberg and Cape. Thus, *A. pilosicaulis* may be a relict species. Do other undescribed species of *Afrotysonia* exist on intervening mountain ranges? This question deserves investigation.

PALYNOLOGY

METHOD

Pollen was not acetolysed; instead, a procedure similar to that adopted by Barbier & Mathez (1973) was followed. Dehiscent anthers from herbarium material were boiled for 15–30sec and macerated in a drop of glycerin. The pollen preparation was stained with safranin made up in 70% alcohol. Samples of 10 grains in equatorial view and 10 lying in polar view were scored for the following characters: P (length of polar axis), E (equatorial diameter), B (maximum breadth), D (polar diameter), P/E and P/B ratios, and C (an index of equatorial constriction, equivalent to E/B $\times$ 100).

DESCRIPTION

A. glochidiata (*Wood* 973, *Trauseld* 562, *McKeown* 107, *Hilliard* 5487):

Pollen oblong, with or without equatorial constriction, any constriction being moderate to very weak (C = 97–89); heterocolpate, tricolporate, tripseudocolporate. *Amb* hexagonal, appearing circular, goniotreme. P = (12·5–)14·7(–16·9)μm, E = (6·5–)8·8(–10·0)μm, B = (7·8–)9·7(–11·3)μm, D = (8·2–)10·3(–12·5)μm. P/E = (1·48–)1·66(–1·73); P/B = (1·43–)1·50(–1·55) (pollen prolate). *Ectoapertures* narrowly rhombic colpi, $\pm$ bordered by granules and $\pm$ indistinct furrow; endoaperture a lalongate endocolpus. *Pseudocolpi* narrowly oblong-rhombic. *Sexine* granular to finely reticulate, the texture rendering observation of colpi difficult. NPC = 345.

In shape, the pollen of *A. glochidiata* (the only species palynologically examined) is somewhat similar to that found in *Paracynoglossum* M. Popov but can be distinguished by its larger size. The pollen is totally unlike that of any species of *Caccinia, Rindera* or *Solenanthus*—the genera to which Bolus related *A. africana*. Within *A. glochidiata*, variation is relatively small, especially with regard to the P/E and P/B ratios. The pollen of the type specimen (*Hilliard* 5487) from Alfred distr. and the *Wood* specimen from Polela distr. is smaller than that of the two specimens from Estcourt distr., but the difference is probably not taxonomically significant.

Affinities with Other Genera

There are no relations whatever with any of the genera which Bolus suggested as congeners. *Solenanthus*, although having versatile anthers, differs markedly in palynology and floral morphology, having ovoid to spheroidal pollen and deeply included faucal scales. *Rindera* differs in habit, inflorescence, floral morphology and very markedly in palynology. *Caccinia* is unrelated to any genus of *Cynoglosseae* and has been removed from that tribe to the tribe *Trichodesmeae* Zak. (cf. Riedl, 1967, and other recent authors).

The present research indicates that the genus is most nearly allied to *Paracynoglossum* M. Popov, but that the affinity is not a close one. The cauline leaves are basically similar to those of African species of *Paracynoglossum* but the basal ones are markedly different. *A. glochidiata* has nutlets similar to some species of *Cynoglossum* L., although *A. africana*, with its specialized winged nutlets lacking glochids and often solitary by abortion, is very different. Indeed, if the traditional weighting of the nutlet wing character were applied to *Afrotysonia*, two separate genera would have to be recognized for *A. africana* and *A. glochidiata*! Since they, and *A. pilosicaulis* whose nutlets are unknown, agree in all other essential characters—having similar white corollas with reflexed lobes and exserted stamens, a large diffusely branched panicle with a peculiar arrangement of first- and second-order bracts, and large, long-petiolate leaves—such a treatment would be taxonomically absurd, totally obscuring the very close affinities between them. *Afrotysonia* as here defined is a very distinct, natural genus of somewhat isolated taxonomic position within the tribe. The white or creamy corolla with well-developed basal nectaries, patent to subreflexed lobes to serve as a landing platform, and exserted style and stamens, suggest adaptation to a lepidopteran pollinator, possibly relatively short-tongued moths. Field studies to confirm this hypothesis are desirable.

Acknowledgements

The author wishes to thank the Regius Keeper of the Royal Botanic Garden, Edinburgh, for generously providing research facilities, and the Director of the Royal Botanic Gardens, Kew, for the loan of herbarium material. I am particularly indebted to Mr B. L. Burtt and his co-collectors for their interest; their numerous collections of *A. africana* and *A. glochidiata* have considerably enhanced our knowledge of the genus.

References

Barbier, E. & Mathez, J. (1973). Contribution à l'étude des Cynoglossées (Boraginacées): Pardoglossum, genre nouveau du bassin mediterranéen occidental. *Candollea* 28:281–323.

Bolus, H. (1890). Tysonia africana, Bolus. *Hooker's Ic. Pl.* 20: t. 1942.

Brand, A. (1921). Borraginaceae–Borraginoideae–Cynoglosseae. In Engler, A., *Das Pflanzenreich* Heft 97 (IV. 252).

Brenan, J. P. M. (1978). Some aspects of the phytogeography of tropical Africa. *Ann. Missouri Bot. Gard.* 65:437–478.

DYER, R. A. (1975). *The genera of Southern African flowering plants,* vol. 1: Dicotyledons. Pretoria.

HILLIARD, O. M. & BURTT, B. L. (1979). Notes on some plants of southern Africa chiefly from Natal: VIII. *Notes RBG Edinb.* 37:285–325.

JOHNSTON, I. M. (1924). Studies in the Boraginaceae 3. The Old World genera of the Boraginoideae. *Contr. Gray Herb. Harvard Univ.* 73:42–73.

PEARSE, R. O. (1978). *Mountain splendour... the wild flowers of the Drakensberg*. Cape Town.

QUÉZEL, P. (1978). Analysis of the flora of Mediterranean and Saharan Africa. *Ann. Missouri Bot. Gard.* 65:479–534.

RAUSCHERT, S. (1982). Nomina nova generica et combinationes novae spermatophytorum et pteridophytorum. *Taxon* 31:554–563.

RIEDL, H. (1967). Boraginaceae. In RECHINGER fil., K. H. (ed.), *Flora Iranica* 48. Graz.

ROSS, J. H. (1973). *Flora of Natal* (*Bot. Survey Memoir* no. 39). Pretoria.