

Notes on African plants

VARIOUS AUTHORS

ASTERACEAE

A NEW SPECIES OF *PTEROTHRIX* (GNAPHALIEAE) FROM THE NORTHERN CAPE*Pterothrix tecta* Brusse, sp. nov.

Frutex clonalis usque ad 400 mm altus et 3,5 m latus, aromaticus. *Caules principales* tortiles, atrocinerei, usque ad 40 mm diametro, infra in arena infossi. *Rami secundarii* usque ad 5 mm crassi, cortice tenui, aureo-badio vel badio vel passim rubescenti, longistrorsum fissurato, glabri vel aureo-pelliculato. *Rami tertiarii* robusti, primum lutei et albo-tomentosi dein aurei, glabri et pelliculati. *Folia* alterna, sessilia, linearia, 1–11 × 0,7–2,2 mm, ad basin latissima, primum ascendente dein patentia, marginibus involutis. *Pagina superior* canaliculata, albo-lanuginosa. *Pagina inferior* glabrescens, praesertim ad basin folliculata; costa praecipue ad basin prominente. Apex obtusus, mucrone minimo, inconspicuo. *Capitula* solitaria, terminalia, sessilia, discoidea, cylindrica, 7–8 × 2,5–3,5 mm, 11–13-flora. *Bractee involucri* 8–10-seriatae, interiores exterioribus longiores, apicibus pellucidis, aeneis, cucullatis. *Bractee intimae* glabrae, lanceolatae, 6 × 0,8–1,0 mm. *Bractee aliae* ovatae, 1,5–6,0 × 1,5–2,0 mm, stereomis integris, ad apices versus cum areolis conspicue albo-tomentosis (ut in *Amphiglossa tomentosa* (Thunb.) Harv.). *Receptaculum* favosum, nudum. *Flores* omnes hermaphroditi, omnes fertiles, circa 7 mm longi. *Corolla* desuper alba vel lilacina, circa 5,5 mm longa, apicem versus quinquelobata; tubus cylindricus, 5 mm longus, vertice purpurascens, infime pallide virescens; lobi deltoidei, 0,5–0,7 mm longi, acuti, patentes. *Stamina* quinque; filamentum 1,30–2,55 × 0,08–0,17 mm; collum filamenti 0,26–0,47 mm longum, ad basin 0,08–0,11 mm latum, cellulis 9–11-seriatis; thecae 1,37–2,00 mm longae; appendix apicalis lanceolata, 0,27–0,43 × 0,11–0,17 mm, apice obtuso; caudae 0,40–0,68 mm longae, infra pubescentes (Figura 4); pollen spinulosum, 21–29 µm diametro, 3-colporatum. *Stylus* 3,5–4,5 × 0,12–0,20 mm, ad apicem versus biramosus, ramis 0,87–1,22 mm longis, truncatis. *Stylopodium* 0,19–0,37 mm latum. *Nectarium* 0,20–0,29 mm altum, 0,25–0,31 mm latum. *Ovarium* 1,0–1,8 mm longum, glabrum, cremeum, quinquecostatum; apex annulo incrassato. *Setae pappi* liberae, plumosae, sed ad basin hamatae, 3,5–4,5 mm longae.

TYPUS.—Cape Province, 2822 (Glen Lyon): Hay District, Witsand, some 70 km SW of Postmasburg. Farm Witsands 250. Approximately 2 km W of Doornaar homestead. White Kalahari Sand outlier, just W of the Langeberg. Clump-forming shrub, up to 400 mm tall, and up to 3,5 m wide. Florets white or pale mauve from above. Involucral bracts a golden colour. Main stems gnarled, dark grey, up to 40 mm diam., buried in sand below. Bark poorly developed. Leaves with camphor odour when crushed. Occurs in sparsely grassy dune shrubland, with *Lopholaena cneorifolia* and *Crotalaria virgultalis*, in

locally level place on E slope, near summit of rocky hill, overlain with white dune sand. Locally common. Alt. 1 230 m (-CB). *F. Brusse* 5629, 26.11.1989 (PRE, holo.; AD, B, BAF, BH, BM, BOL, BR, BRI, C, CAN, CANB, COI, E, EA, G, GH, GRA, HBG, J, K, L, LD, LG, LISU, LMA, M, MEL, MO, NBG, NH, NSW, NU, O, P, R, S, SRGH, U, UC, UPS, US, W, WAG, WIND, Z, iso.). Figure 1.

Clonal shrub up to 400 mm tall and 3,5 m across, aromatic. *Main stems* gnarled, dark grey, up to 40 mm diam., buried in sand below. *Secondary branches* up to 5 mm thick, bark thin, golden chestnut brown to reddish-brown to reddish in places, longitudinally fissured, glabrous or with golden flakes. *Tertiary branches* robust, yellow and white-tomentose when young, golden-yellow, glabrous and peeling when older. *Leaves* alternate, sessile, linear, 1–11 × 0,7–2,2 mm, broadest at base, ascending but spreading in upper half, margins involute. Upper surface canaliculate, white-woolly. Lower surface

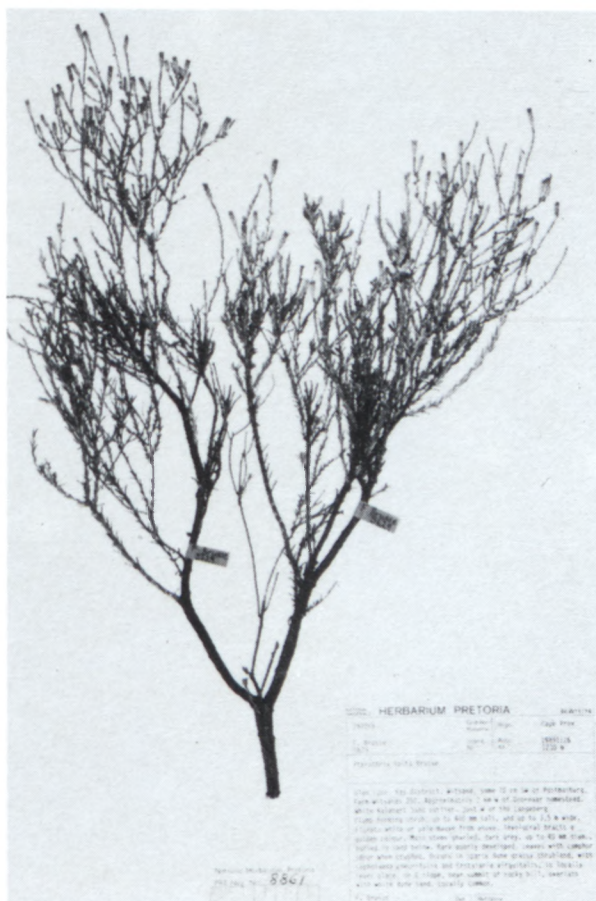


FIGURE 1.—*Pterothrix tecta* Brusse, habit. *F. Brusse* 5629, holotype.



FIGURE 2. — *Pterothrix tecta* Brusse, flowering twigs at the type locality, with the tomentose patches on the involucral bracts clearly visible, F. Brusse 5629.

glabrous, epidermis sloughing-off and folliculate especially at base; midrib raised particularly at base. Apex obtuse, mucro very small, inconspicuous. *Flower heads* solitary, terminal, sessile, discoid, cylindrical, $7-8 \times 2,5-3,5$ mm, 11-13-flowered. *Involucral bracts* 8-10-seriate, becoming progressively longer inwards, tips galeate (hooded), pellucid, bronze. Innermost bracts glabrous, lanceolate, $6 \times 0,8-1,0$ mm. Remaining bracts ovate, $1,5-6,0 \times 1,5-2,0$ mm, stereomes entire, with conspicuous white-tomentose patches at apices (as in *Amphiglossa tomentosa* (Thunb.) Harv.). *Receptacle* honey-combed, nude. *Florets* all hermaphrodite and fertile, about 7 mm long. *Corolla* white or pale mauve from above, about 5,5 mm long, five-lobed towards apex; tube cylindrical, 5 mm long, purplish above becoming pale greenish below; lobes deltoid, $0,5-0,7$ mm long, acute, spreading. *Stamens* five; filament $1,30-2,55 \times 0,08-0,17$ mm; filament collar $0,26-0,47$ mm long, $0,08-0,11$ mm wide at base, 7-11 cells across; thecae $1,37-2,00$ mm long; apical appendage lanceolate, $0,27-0,43 \times 0,11-0,17$ mm, apex obtuse; tails $0,40-0,68$ mm long, pubescent below, well exceeding filament collar base (Figure 4); pollen spinulose, $21-29 \mu\text{m}$ diam., 3-colporate. *Style* $3,5-4,5 \times 0,12-0,20$ mm, two-branched towards apex,

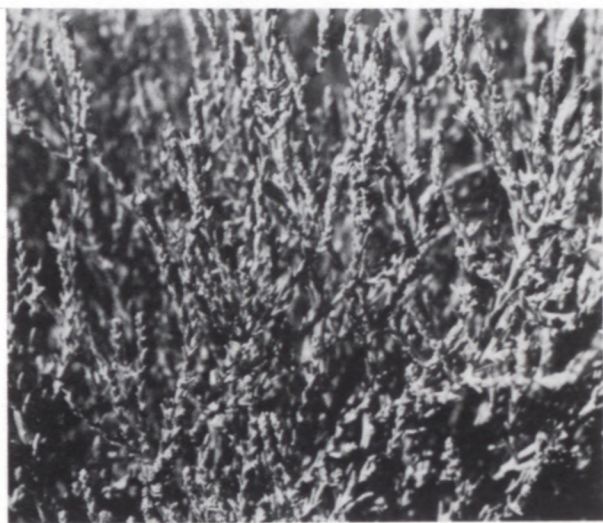


FIGURE 3. — *Pterothrix tecta* Brusse, close-up of some flower heads at the type locality, with the conspicuous white tomentose patches on the involucral bracts clearly visible, F. Brusse 5629.



FIGURE 4. — *Pterothrix tecta* Brusse, photomicrograph of the pubescent anther tails, extending well beyond the filament collar base, I.A.W. MacDonald 76/43, paratype. Bar = 0,3 mm.

branches $0,87-1,22$ mm long, truncate. *Stylopodium* $0,19-0,37$ mm wide. *Nectary* $0,20-0,29 \times 0,25-0,31$ mm, 5-buttressed like a *Diosma* fruit. *Ovary* $1,0-1,8$ mm long, glabrous, cream, 5-ribbed, apex with thickened ring. *Pappus* bristles free, plumose, but base barbed; $3,5-4,5$ mm long.

The present new species belongs to the genus *Pterothrix*, but this genus is closely related to the genus *Amphiglossa*, and a problem of generic assignment thus arose. However, the two genera can be distinguished by the following key:

- Heads homogamous, composed entirely of bisexual disc florets. Anther tails pubescent below, or tipped with well developed tail antlers *Pterothrix* DC.
- Heads heterogamous, composed of marginal, female ray florets and bisexual disc florets. Anther tails glabrous or simple, without well developed tail antlers *Amphiglossa* DC.

Pterothrix tecta resembles *Amphiglossa tomentosa* (Thunb.) Harv. in the almost identical complement of involucral bracts; all except the innermost row, possess

a very conspicuous median patch of white tomentum (Figures 2 & 3). However, *A. tomentosa* is a true *Amphiglossa*, with a few ray florets present in each head, and with glabrous anther tails, that extend for only a short distance beyond the base of the filament collar. *P. tecta*, on the other hand, lacks any female or ray florets, and the anther tails are pubescent below, with well developed tail antlers, that extend well beyond the filament collar base (Figure 4). *A. tomentosa* is a plant with wiry twigs, whereas *P. tecta* is one with comparatively robust twigs.

The authentic material of *Pterothrix flaccida* Schltr. *nom. nud.* (Hutchinson 1917) has the same conspicuous tomentose patches on the bracts, has heads that clearly contain a few ray florets each, and has anther tails that are glabrous. The material is therefore clearly assignable to *Amphiglossa tomentosa* (Thunb.) Harv., and the name *P. flaccida* Schltr. *nom. nud.*, should not be validated.

Pterothrix tecta is distinct from all the other species in *Pterothrix*, by the broader involucre bracts, each with a

conspicuous white-tomentose patch. The other species all have lanceolate involucre bracts, which are glabrous or irregularly tomentose. *P. tecta* is also distinct from all other species of *Pterothrix* in possessing anther tails that extend well beyond the filament collar base (Figure 4), whereas those of all other species only just exceed the base of the filament collar, exemplified by the widespread and common *P. spinescens* DC. (Figure 5).

The following key serves to distinguish all the presently known narrow-leaved species of *Pterothrix*—*P. cymbifolia* Harv. is the only broad-leaved species known (Harvey 1865):

- 1a Anther tails well exceeding filament collar base. Except for the innermost row, involucre bracts about 2 mm broad, each with a conspicuous median white-tomentose patch (as in *Amphiglossa tomentosa*). Florets 11–13 per head *P. tecta* Brusse
- 1b Anther tails only just exceeding filament collar base. Involucre bracts lanceolate, all about 1 mm broad, glabrous or irregularly tomentose. Florets less than 10 per head:
 - 2a Stylopodium bulbous, clearly off-set from style. Leaves fascicled *P. perotrichoides* (DC.) Harv.
 - 2b Stylopodium not clearly off-set from style, running into style imperceptibly. Leaves alternate, not fascicled:
 - 3a Plant spiny. Capitula with 4–7 florets each .. *P. spinescens* DC.
 - 3b Plant not spiny. Capitula with 3 florets each .. *P. thuja* Merxm.

Like *P. spinescens*, *P. tecta* is aromatic, and gives off a camphor odour when the leaves are crushed.

Pterothrix tecta grows in clones up to 3,5 m across, but only grows up to 400 mm above the sand level (Figure 6). The clones may constitute single plants with most of the large stems buried in sand. The species was not found in pure sand areas but only in sand fills between sandstone outcrops. This may indicate that this plant may be rooted in rocky soil, with the main stems buried in the loose white sand, and the aerial shoots visible above the soil level as in Figure 6. However, no excavation was carried out to confirm this. The plant was not found in rocky places without sand, or where the sand fill was not substantial. The species occurred on the east side of Witsand, in level sand fills on east slopes near the summits of these rocky hills covered in white sand. These places were actually gently sloped in a westerly direction, not level (Figure 6).

Attempts to find this plant at other sand dune-covered rocky hills nearby, namely at Prynnsberg (north of Kheis

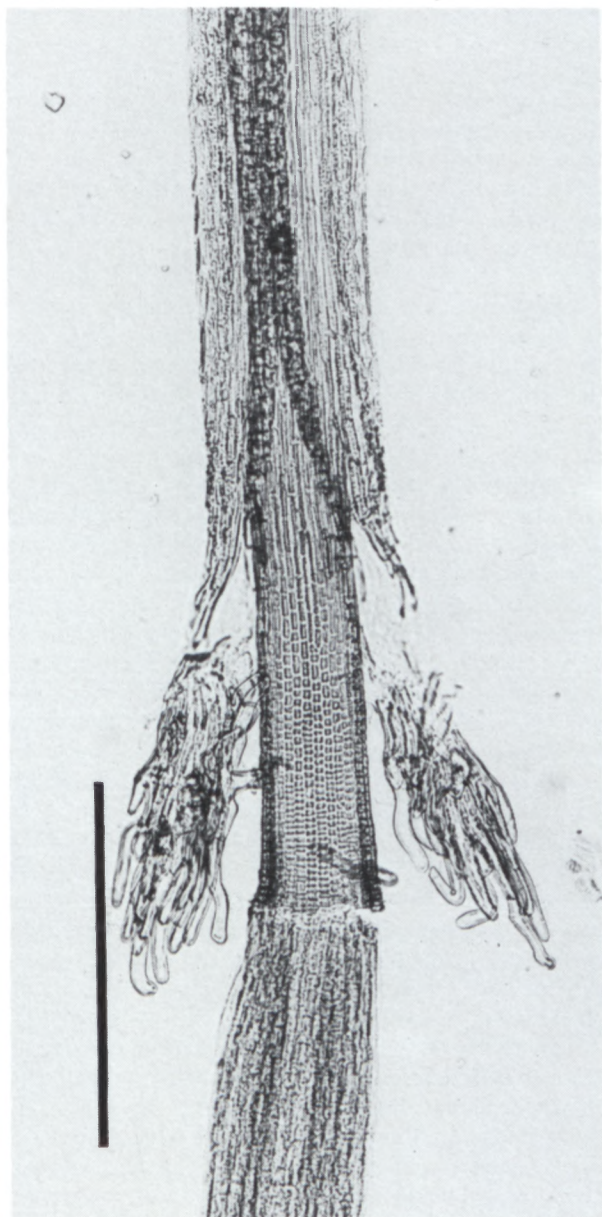


FIGURE 5.—*Pterothrix spinescens* DC., photomicrograph of the pubescent anther tails, only slightly exceeding the filament collar base, H.G. Flanagan 1454 (PRE). Bar = 0,3 mm.



FIGURE 6.—*Pterothrix tecta* Brusse, a clone of plants, looking eastward with the Langeberg in the distance, F. Brusse 5629.

on the Orange River) and Donkieberg, on the Farm Waterford (on the main Griquatown–Groblershoop road) proved fruitless. These latter dunes were composed of red sand, unlike that of Witsand. It therefore seems likely that this new species occurs only at Witsand, some 70 km south-west of Postmasburg.

CAPE PROVINCE. —2822 (Glen Lyon): Witsand, Hay. 28°32'S : 22°28'E. On white sand dunes. A common bush with dull yellow/brown flowers (–CB). *I.A.W. MacDonald* 76/43, 26.11.1976 (KMG, PRE).

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