Studies in the Compositae of the Arabian Peninsula and Socotra — 3. Pluchea aromatica from Socotra is actually a species of Pulicaria (Inuleae)

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Studies in the *Compositae* of the Arabian Peninsula and Socotra – 3. *Pluchea aromatica* from Socotra is actually a species of *Pulicaria (Inuleae)*

Abstract

King-Jones [née Hunger], S. & Kilian, N.: Studies in the *Compositae* of the Arabian Peninsula and Socotra – 3. *Pluchea aromatica* from Socotra is actually a species of *Pulicaria (Inuleae)*. – Willdenowia 29: 197-202. 1999 – ISSN 0511-9618.

An endemic shrub from Socotra, only known from a few late 19th century collections and hitherto misplaced in *Pluchea (Plucheeae)* is studied with respect to, in particular, flower, achene and pappus morphology. The species is placed in *Pulicaria* and the new combination *Pulicaria aromatica* is made.

Pluchea aromatica, which was characterized by Isaac Balfour (1888: 126) as "a very beautiful, small, and strongly aromatic shrub of the higher parts of the Haghier hills" is known from only five collections, made during four expeditions to Socotra between 1880 and 1899. In spite of extensive collecting activities on Socotra over the last years, the species has not been recollected. This is rather surprising, as it was collected in the late 19th century not only at higher altitudes of the Haghier Mountains but also on its foothills not far from the main settlement of the island. It was even known locally by a vernacular Socotri name, reported independently from two of its collectors.

Balfour had already expressed some uncertainty about the placement of this species in *Pluchea.* In the course of a revision of *Pluchea* in the Old World and Australia by the senior author (Hunger 1996, 1997, King-Jones in prep.) it became obvious that the species is not only misplaced in *Pluchea* but is not even a member of the *Plucheeae.* The achene epidermis with one elongate oxalate crystal in each cell (Fig. 3d-e) and the sweeping hairs not reaching below the bifurcation of the style (Fig. 3b) are features not found in the *Plucheeae* but place the species in the *Inuleae* s.str. (Anderberg 1991, 1994).

The pappus of the species was described by Balfour as uniseriate. However, the flat bristles are not inserted at the margin of the achene apex but further inside towards the centre, as it is the case in the *Inuleae* genera with a double pappus. Closer examination of the achene apex reveals that outside the series of bristles a very inconspicuous rim is present (Fig. 2b-c), which we consider to represent a strongly reduced outer pappus. Such a reduction of a scaly pappus is already

Fig. 1. *Pulicaria aromatica* – type sheet at Kew, with the lectotype *Balfour 465* and the paralectotype *Schweinfurth 631*.

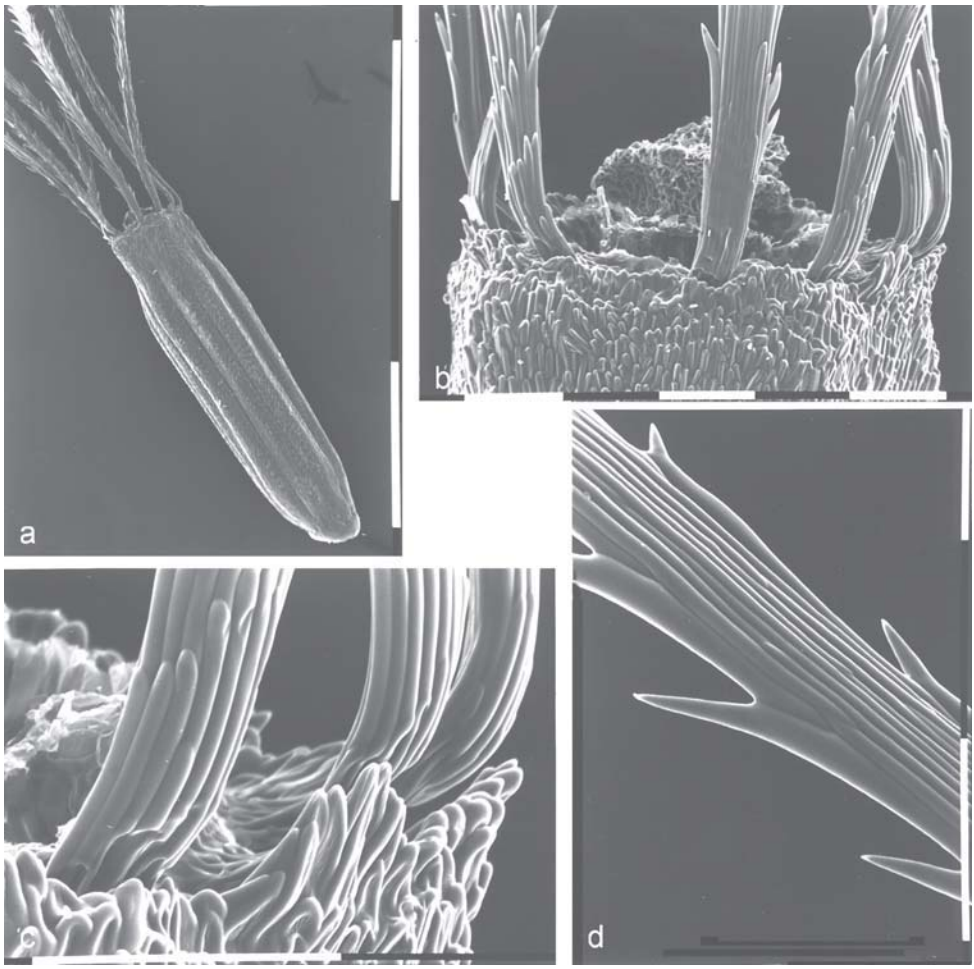

Fig. 2. *Pulicaria aromatica*, SEM micrographs of achene and pappus – a: overview; b: achene apex with pappus; c: the rim representing a reduced outer pappus; d: bristle of the inner pappus, middle third. – Scale: a = 1 mm, b-d = 0.1 mm; from *Paulay* (WU).

known, e.g., within *Anisopappus,* which is a genus with a uniseriate pappus, from *A. latifolius* (S. Moore) B. L. Burtt (Ortiz & al. 1996, Eldenäs & Anderberg 1996).

A double pappus is characteristic of only a few epaleate genera of the *Inuleae,* viz. *Allagopappus, Chiliadenus, Iphiona, Jasonia, Pegolettia, Perralderia* and *Pulicaria* (incl. *Sclerostephane*) (Anderberg 1991, 1994). In its combination of pappus characteristics and other features (e.g., shrubby habit, subimbricate, hemispherical involucre, long and branched basal anther appendages, straight corolla epidermis cell walls, weakly ribbed, glabrous achenes) Balfour's species fully agrees with *Pulicaria*. This genus includes several other species with homogamous capitula, and the outer, coroniform pappus varies considerably in length, ranging from 0.1-1.5 mm (Gamal-Eldin 1981).

Pulicaria aromatica (Balf. f.) King-Jones & N. Kilian, **comb. nova**
≡ *Pluchea aromatica* Balf. f. in Proc. Roy. Soc. Edinburgh 11: 838. 1882. – Lectotype (designated here): Socotra, 2.-3.1880, *Balfour 465* (K, specimen mounted on one sheet together with

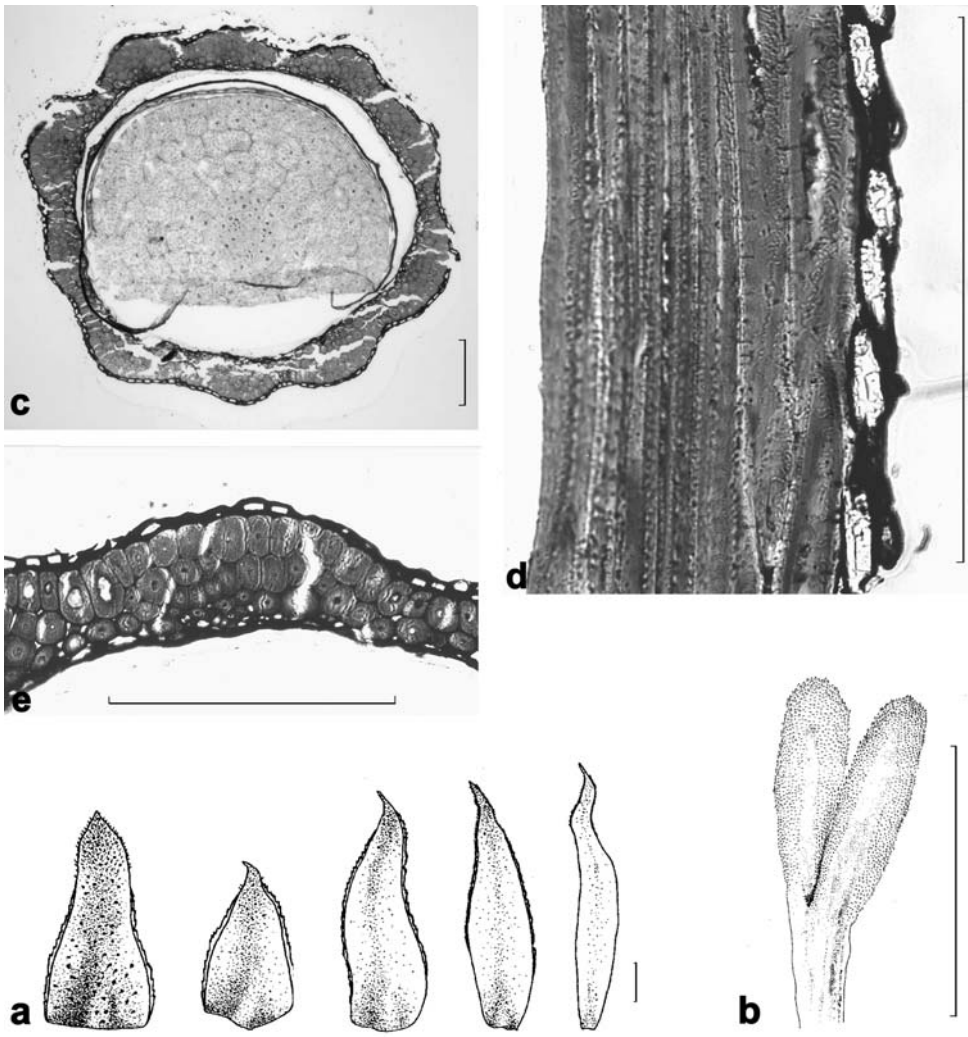

Fig. 3. *Pulicaria aromatica* – a: involucral bracts, arranged from the outermost (left) to the innermost; b: style; c, e: transverse microtome sections, overview (c) and detail of the achene wall (e); d: longitudinal section of the achene wall. – Scale: a-b = 1 mm, c-e = 0.1 mm; from *Paulay* (WU).

Schweinfurth 631 (K [Fig. 1], isolectotypes: BM 20919!, K!, OXF!). – Paralectotype: Socotra, über Kischen, 800 m, 2.5.1881, *Schweinfurth 631* (K! [Fig. 1]).

Note: *Pulicaria aromatica* R. Br. in Salt, Voy. Abyss., App.: 65. 1814, listed in 'Index kewensis', is a nomen nudum and as such no obstacle to the new combination made here.

Ic.: Fig. 1-3; Balfour 1888: t. 32.

Vernacular (Socotri) name: Keideh (Balfour 1888: 126), Kädi (Schweinfurth in sched. 631).

Description

Aromatic shrub with erect branches; densely covered with stipitate, 0.1-0.4 mm long glands; leaf axils bearing up to 2 mm long trichomes. *Leaves* 2-7 × 1-2.5(3) cm, lanceolate to oblanceolate,

their base attenuate into a petiole 0.5-1.5 cm long, their apex acute. *Capitula* homogamous, hemispherical, pedunculate, solitary or in loose terminal clusters. *Peduncles* 2-5 cm long, glandular, with 0-4 bracts. *Involucre* 8-10 mm long; *involucral bracts* in 5-6 rows, subimbricate; outermost bracts 4.5-6 × 1.5-1.7 mm, entirely or more often only apically herbaceous but otherwise coriaceous and rigid, ovate to lanceolate, glandular; the following bracts acute, lanceolate to narrowly elliptical, entirely coriaceous, rigid, ± glabrous, with a somewhat fimbriate margin; the innermost bracts linear-elliptical to linear and acuminate, otherwise similar, 6-7.5(8) × 0.6-1 mm. *Receptacle* reticulate, 5-6 mm in diameter. *Florets* all perfect, tubular; corolla (4.8)5-6.5(6.8) mm long, 5-lobed, lobes glabrous to glandular; *style branches* with sweeping hairs not reaching below the bifurcation of the style; *anther*s caudate, 3-4 mm long, basal appendages branched 0.9-1.2 mm long, apical appendages acute; antheropodium 0.4-0.5 mm long. *Achenes* 1.8-2.2 mm long, 0.5-0.8(1) mm in diameter, somewhat tapering towards the base, subangular, with 10 weak ribs, glabrous, pale to medium brown, basally with a small ring-shaped carpopodium. *Pappus* very inconspicuously double; inner pappus of 8-15 deciduous, barbellate, flat bristles in one row, (4.2)5-5.5 mm long; outer pappus an indistinct coronula of ± connate scales, ≤ 0.05 mm long.

Achene anatomy

Microtome sections of the achene made according to the method described by Kilian (1999) exhibit an achene wall with an epidermis in which each cells contains one elongate oxalate crystal and a continuous sclerenchymatous tissue of 2-3 cell layers between the ribs and up to 5 layers in the faint ribs (Fig. 3c-e). This is a character combination common in *Pulicaria* sect. *Platychaete* but is also ± occasionally present in all other sections of the genus (Gamal-Eldin 1981).

Additional specimens examined

Socotra: Jena-agahan, 1500-2000 ft, 3.1.1899, *Ogilvie-Grant-Forbes Exped. 148* (E); Nordfuss des Gäbäl Derafonte bei Haulaf [Hawlaf: 12°41'N, 54°05'E], an der Grenze des Dünensandes, 16.-28.2.1899, *Paulay* (WU); Umgebung des Hafens von Haulaf im Bereich des Dünensandes, 16.-28.2.1899, *Paulay* (WU).

Relationship

We do not know any *Pulicaria* species that would be closely related to *P. aromatica.* A relationship to *P.* (sect. *Vieraeopsis*) *vieraeoides* Balf. f., a shrub also endemic to Socotra, is plausible in view of the characteristics of the achene and pappus bristles, indumentum, habit and synflorescence.

Acknowledgements

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