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Four new combinations in *Pulicaria* (*Compositae: Inuleae*)

D. J. N. HIND¹ & L. BOULOS²

Summary. Four new combinations in *Pulicaria* are proposed for infraspecific taxa of *P. undulata*. The history of this problematic species is discussed and a full synonymy is provided.

INTRODUCTION

Work on the account of *Compositae* for the *Flora of Egypt* has thrown up a number of problems. One of these surfaced during the writing of the account of *Pulicaria* Gaertn. Lack (1980) recognized both *Pulicaria* and *Francoeuria* Cass., and provided a new combination, *F. undulata* (L.) Lack, in which he synonymised *Pulicaria crispa* (Forssk.) Benth. ex Oliv. In Gamal-Eldin's monograph of *Pulicaria* (Gamal-Eldin 1981), *P. crispa* appeared as the accepted name, with *F. undulata* in synonymy, together with text notes explaining why this name should be used (Gamal-Eldin 1981: 159 – 161 and 261). In order to avoid this confusion the nomenclature is revised and new combinations are provided.

HISTORY OF THE PROBLEM

Linnaeus's protologue of *Inula undulata* (Linnaeus 1767a, b) provides a diagnosis followed by an adequate description appearing after a pre-Linnaean reference to a plant described by Vaillant (1720). At the end of the protologue is a two letter reference, 'H.U.' (= Hortus Upsalensis), to the source of material used by Linnaeus. This can be linked to a specimen in Herb. LINN (# 999:15), evidently cultivated in Uppsala from seed sent by Forsskål (Linnaeus wrote 'Forsk.' on the verso of the sheet). De Candolle (1836) correctly based his combination '*P. undulata* (L.) DC.' on Linnaeus's name, although in doing so provided a superfluous combination, apparently unaware of that of Meyer (1831); de Candolle's combination appears rarely in the literature. De Candolle (1836) also recognized *Francoeuria crispa* (Forssk.) Cass. as a separate species.

Forsskål's name, *Aster crispus*, was based on Egyptian material; this, as discussed by Gamal-Eldin (1981: 160), was probably also the source of the material, cultivated by Forsskål, sent to Linnaeus and later described as *Inula undulata*; however, the two names have different types. It is now generally accepted that the two names refer to the same taxon and both Lack (1980: 120) and Gamal-Eldin (1981: 258 – 259) cite both names in synonymy (in *Francoeuria* and *Pulicaria* respectively). We recognize

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only *Pulicaria*, as did Gamal-Eldin (1981), and the correct name applicable to this taxon is therefore *Pulicaria undulata* (L.) C. A. Mey.

Jeffrey *et al.* (1980) proposed *P. undulata* and its basionym for rejection because of the confusion that existed with the plant generally referred to as *Pulicaria undulata sensu auct.*; this plant is certainly *Pulicaria incisa* (Lam.) DC. which also occurs in the Egyptian flora (represented by subsp. *incisa* and subsp. *candolleana* E. Gamal-Eldin). However, the Committee for Spermatophyta (Brummitt 1983) declined the proposal, so that *P. undulata* is the correct name for the species that we are dealing with in the Egyptian flora.

NEW COMBINATIONS

Following Gamal-Eldin's treatment (1981) we also recognize her infraspecific taxa; the following necessary new combinations are proposed and will be used in a variety of forthcoming floras. The full synonymy is as follows:

***Pulicaria undulata* (L.) C. A. Mey.**, Verz. Pfl. Casp. Meer.: 79 (1831), non *undulata sensu auct.* [= *Pulicaria incisa* (Lam.) DC.]

Inula undulata L., Syst. Nat. ed. 12, 2: 558; Mant. Pl. 115 (1767). Type: 'HU' [Hortus Upsaliensis], lectotype LINN (# 999.15), designated by Lack (1980).

Aster crispus Forssk., Fl. Aegypt.-Arab. 150 (1775). Type: Egypt: 'Circa Káhíram ad Pyramides Gisenses, alibique e murorum rimis excrescens.' [1762] *Forsskål* s.n. Lectotype C (selected by Gamal-Eldin (1981); noted as sheet 990 by Hepper & Friis (1994), sheets 987, 988, 989, & 991 apparently represent isoelectotypes, photographs of all of the specimens in K).

Inula crispa (Forssk.) Pers., Syn. Pl. 2: 450 (1807).

Duchesnia crispa (Forssk.) Cass., Dict. Sci. Nat. 13: 545 (1819).

Francoeuria crispa (Forssk.) Cass., Dict. Sci. Nat. 34: 44 (1825).

Pulicaria undulata (L.) DC., Prodr. 5: 479 (1836), comb. superfl.

Pulicaria crispa (Forssk.) Sch. Bip. ex Webb & Berthel., Hist. Nat. Iles Canaries, 3. Phytographia Canariensis 2: 223 (1844), comb. illegit., pro syn.

Pulicaria crispa (Forssk.) Benth. ex Oliv., Trans. Linn. Soc. London 29: 96 (1873). [This combination is also attributed to 'Benth. & Hook. f. ex Oliver & Hiern, Fl. Trop Afr. 3: 366 (1877)' (cf. Lack 1980), although this is in error.]

Francoeuria crispa (Forssk.) Cass. var. *B discoides* Boiss., Fl. Orient. 3: 207 (1875). Type: 'Hab. in glareosis fluv. Zab Persiae australis inter Seytum et Bebehan (*Haussk!*).'

Francoeuria undulata (L.) Lack, Fl. Iranica 145: 120 (1980).

Pulicaria undulata* (L.) C. A. Mey. subsp. *undulata

DISTRIBUTION. Spain (Canary Islands), Morocco, Algeria, Libya, Egypt, Sudan, Eritrea, Ethiopia, Saudi Arabia, Yemen Republic, Oman.

***Pulicaria undulata* (L.) C. A. Mey. subsp. *fogensis* (E. Gamal-Eldin) D. J. N. Hind & Boulos, comb. nov.**

Pulicaria crispa subsp. *fogensis* E. Gamal-Eldin, Phanerog. Monogr. 14: 270 (1981).
Type: 'Kapverdische Inseln: Fogo, dry bed of a Riba between S. Lourenco & town Fogo, 28.V.1875, Herb. *Lowe* s.n.' (Gamal-Eldin 1981) ['Cape Verde Island: Fogo. Betwn. S. Lourenço & the town Fogo. 24 March 1864, *Lowe* s.n.' — from the label of the *Lowe* collection] Holotype BM.

DISTRIBUTION. Cape Verde Islands.

***Pulicaria undulata* (L.) C. A. Mey. subsp. *candidissima* (Maire) D. J. N. Hind & Boulos, comb. nov.**

Pulicaria crispa (Forssk.) Benth. ex Oliv. var. *candidissima* Maire, Bull. Soc. Hist. Nat. Afrique N. 34: 136 (1943). Type: not cited. 'T. [Tibesti] Enneri Areun.'

Pulicaria crispa (Forssk.) Benth. ex Oliv. var. *virescens* Maire, Bull. Soc. Hist. Nat. Afrique N. 34: 136 (1943). Type: not cited. 'T. [Tibesti] Aozou.'

Pulicaria crispa (Forssk.) Benth. ex Oliv. subsp. *candidissima* (Maire) E. Gamal-Eldin, Phanerog. Monogr. 14: 272 (1981).

DISTRIBUTION. Chad.

***Pulicaria undulata* (L.) C. A. Mey. subsp. *tomentosa* (E. Gamal-Eldin) D. J. N. Hind & Boulos, comb. nov.**

Pulicaria crispa subsp. *tomentosa* E. Gamal-Eldin, Phanerog. Monogr. 14: 274 (1981).
Type: 'Bogos, Cheren Lungo l'Anseba, alt. 1300 m, 20.II.1909, *Fiori* 1792.'
Holotype FI, isotype FT.

DISTRIBUTION. Sudan, Ethiopia, Eritrea, Somalia.

***Pulicaria undulata* (L.) C. A. Mey. subsp. *argyrophylla* (E. Gamal-Eldin) D. J. N. Hind & Boulos, comb. nov.**

Pulicaria crispa subsp. *argyrophylla* E. Gamal-Eldin, Phanerog. Monogr. 14: 275 (1981). Type: 'Chad, about 65 km S of Fort Lamy, along road to Bongor, on waste field in roadside, 1.I.1965, *de Wilde* c.s. 5126.' Holotype WAG.

DISTRIBUTION. Upper Volta, Niger, Nigeria, Chad, Cameroon.

EXCLUDED NAMES

During our studies three names came to our attention that appear somewhat obscure in the literature:

Pulicaria undulata (L.) C. A. Mey. var. *alveolosa* (Batt. & Trab.) Maire, Mem. Soc. Hist. Nat. Afrique N. 2 (3): 205 (1933) = ***Pulicaria alveolosa*** Batt. & Trab.

Pulicaria undulata (L.) C. A. Mey. var. *alveolosa* (Batt. & Trab.) Maire forma *angustifolia* Maire, Bull. Soc. Hist. Afrique N. 34: 136 (1943). Types: 'T. [Tibesti] Voon; Cherga Bini Erdé.' = ***Pulicaria alveolosa*** Batt. & Trab.

Pulicaria undulata (L.) C. A. Mey. var. *alveolosa* (Batt. & Trab.) Maire forma *villosissima* Maire, Bull. Soc. Hist. Afrique N. 34: 136 (1943). Types: 'T.[Tibesti] Tougui à Totouss; Enner Maro; Aozou.' = ***Pulicaria alveolosa*** Batt. & Trab.

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