

**Zeitschrift:** Candollea : journal international de botanique systématique = international journal of systematic botany  
**Herausgeber:** Conservatoire et Jardin botaniques de la Ville de Genève  
**Band:** 33 (1978)  
**Heft:** 1

**Artikel:** Three new species of Anaphalis (Compositae) from "Flora iranica" area  
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**DOI:** <https://doi.org/10.5169/seals-880205>

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## Three new species of *Anaphalis* (Compositae) from "Flora iranica" area

ELISABETH E. GEORGIADOU

### Résumé

GEORGIADOU, E. (1978). Trois nouvelles espèces d'*Anaphalis* (Compositae) dans l'aire de la "Flora iranica". *Candollea* 33: 135-138. En anglais, résumé français.

Trois nouvelles espèces de l'aire de la "Flora iranica" sont décrites dans le genre *Anaphalis*, famille des *Compositae*, tribu des *Inuleae*, sous-tribu des *Gnaphaliinae*: *A. candollei* Georgiadou de l'Afghanistan, *A. staintonii* Georgiadou du Pakistan et du Cachemire ainsi que *A. boissieri* Georgiadou de l'Afghanistan et du Pakistan. Des remarques sont faites quant à leur dimorphisme sexuel et leur tendance à la dicécie.

### Abstract

GEORGIADOU, E. (1978). Three new species of *Anaphalis* (Compositae) from the "Flora iranica" area. *Candollea* 33: 135-138. In English, French abstract.

Three new species of *Anaphalis* (Compositae), tribe *Inuleae*, subtribe *Gnaphaliinae*, are described from "Flora iranica" area. *A. candollei* Georgiadou from Afghanistan, *A. staintonii* Georgiadou from Pakistan and Kashmir, and *A. boissieri* Georgiadou from Afghanistan and Pakistan. Notes on subdioecism and sex-linked dimorphism are given.

### Introduction

In the course of preparation of the account of *Anaphalis* for "Flora iranica", three new species came to light and are described here.

*Anaphalis* has its centre of distribution in the mountains of Central Asia. The genus reaches its western limit in the mountains of Northwest Pakistan, in the adjacent section of East Afghanistan and in the Pamir-Alai mountain system of soviet Central Asia.

According to DRURY (1970), the genus is subdioecious, although GRIERSON (1972) pointed out that this is not absolute, as some species, such as the Ceylon species and some of the Sino-Himalayan are not. In the three new taxa, the predominantly hermaphrodite capitula contain exclusively the hermaphrodite (functionally male) type of florets, whereas in the predominantly female capitula of *A. candollei* and *A. boissieri*, there are some hermaphrodite florets in the centre of the capitulum. Female capitula were not seen in *A. staintonii*. This was also noted by GRIERSON (1972) in *A. aureo-punctata* Lingelsh. & Borza, *A. bicolor* Franchet, *A. griffithii* Hooker fil., *A. hancockii* Maxim., *A. larium* Hand.-Mazz. and *A. likiangensis* Chang.

Sex-linked dimorphism in *Anaphalis* was long ago observed by BEAUVERD (1910, 1913) in the florets, achenes and pappus. *A. candollei* and *A. boissieri* have filiform female florets whereas the hermaphrodite ones are tubular. The achenes of the female florets, where seen, are well developed and appear fertile, whereas in the functionally male capitula the hermaphrodite florets have reduced, rudimentary and sterile achenes. Finally the pappus of the female florets is finer with acute bristles, whereas that of the hermaphrodite florets is wider and clavicate, except in *A. boissieri* which has acute narrow bristles.

In habit many Asiatic species of *Anaphalis* resemble *Helichrysum* which, however, has either homogamous capitula with fertile hermaphrodite florets or heterogamous with peripheral female florets and central hermaphrodite florets, the latter predominating in the capitulum. Sex-linked dimorphism is unknown in the representatives of *Helichrysum* capitula at least from W. Asia and the Mediterranean region.

*Anaphalis* is taxonomically an extremely complicated genus. A thorough revision is urgently needed. Such an enterprise would be hampered by the conflicting interpretation of such widespread species as *A. virgata* Thomson.

In view of the variable sex distribution, a clearer indication of affinities can probably be obtained by the more consistent evaluation of relative stable vegetative characters, such as growth, leaf arrangement and direction, presence or absence of sterile axillary shoots.

### 1. *Anaphalis candollei* Georgiadou, spec. nova.

*Holotypus*: Breckle 3118, W.

Suffrutex multicaulis. Caules 20-30 cm alti laxe floccoso-tomentosi tota longitudine foliati, basi ramuligera. Folia supra virescentia, laxe floccoso-tomentosa, subtus dense albido-tomentosa, glandulis paucis indumento occultis, folia intermedia maxime circiter 20 × 6.5 mm, plana, margine leviter revoluta, basi late sessilia, apice breviter attenuata et apiculata. Folia superiora paulo decrescentia, synflorescentiam fulcrantia, quam inferiora proportione angustiora. Synflorescentia laxe corymbosa circiter 19.2-47.7 mm diametro. Capitula 7-30, subdioecia disciformia vel discoidea. Pedicelli 4-6.2 mm albo-tomentosi, parce glandulosi. Involucrum circiter 5-6.5 mm, flores paulo superans. Phylla 40-45, 6-7-seriata, alba, opaca, ± acuta, basi brunnescentia tomentosa. Flores in capitulis hermaphroditis (functione masculi) 29-31, in capitulo subfoemineo circiter 43 foeminei, 4 hermaphroditis. Achenia in capitulo submasculo 0.5 mm longa, oblonga sterilia. In capitula subfoemineo achenia florum foemineorum 1.3 mm longa, glabra. Pappus albus, uniseriatus, radii acheniorum foemineorum capillares ad apicem incrassati. Radii acheniorum hermaphroditum claviculati ad apicem incrassati. — Differt ab *A. boissieri* Georgiadou achenio foemineo glabro, involucri phyllis 40-45, 6-7 seriatis.

*Afghanistan*: E: Kunar: Bashgal, Garm Chashma, 3250 m, *Rasoul* in Breckle 3518! In valle Suyengal, affluentis fluvii Bashgal, 3600 m, 4.9.1969, Breckle 3118! (holotypus). Barge-Matal, in valle orientali, 2450-2650 m, *Anders* 5101! Darrah-i Pengar ad conjunctionem vallis Pushal, 3350-3400 m, *Podlech* 16388!

## 2. *Anaphalis staintonii* Georgiadou, spec. nova.

*Typus: Stainton 3032* (holotypus BM!; isotypus G!).

Suffrutex multicaulis. Caules 35-40 cm alti, erecti vel arcuati, tota longitudine foliati, appresse canescenti-tomentosi, parce glandulosi. Folia a basi usque ad apicem omnia aequalia circiter 22 × 1.7 mm, anguste linearia, acuta, arcte convoluta, utrimque subaequaliter tomentosa, inferiora foliorum fasciculos nonnullos minutos proferentia, superiora inflorescentiam attingentia. Synflorscentia longe ramosa, laxe corymbosa, 22-57 mm diametro, 15-57-cephala. Pedicelli 1.5-7.5 mm longi, albo-tomentosi et glandulosi. Involucrum 5 × 7.5 mm. Phylla 32-41, 5-6-seriata, acuta, irregulariter laxe disposita, inferne coriacea, superne scariosa, amoene rosea, interiora quam exteriora duplo longiora. Flores hermaphroditi in capitulis hermaphroditis (functione masculi) 26-36. Achenia in capitulo submasculo circiter 0.5 mm longa, oblonga, omnia sterilia. Pappus albus uniseriatus, scabridulus, radii claviculati ad apicem incrassati. Capitula foeminea non visa. — Habitu *A. virgatae* Thomson ex C. B. Clarke similis! Differt ab ea inflorescentia ampla, involucris roseis, pappo claviculato.

*Pakistan:* Chitral: Baroghil Pass, 1100 ft., 28.7.1858, *Stainton 3032!* Lager Rumosto, in Bachsand, 2900 m, *Kerstan 1570!* *Kashmir:* Kar-Gah trans Gilgit, 2600-2900 m, *Schmid 1997!*

## 3. *Anaphalis boissieri* Georgiadou, spec. nova.

*Typus: Gilli 3984, W!*

Suffrutex multicaulis, omnino indumento subfloccoso-tomentoso canescens vel albescens, indumento in partibus inferioribus magis floccoso, in superioribus magis appresso. Caules floriferi 20-35 cm alti, erecti vel arcuato-ascendentes, tota longitudine foliati, prope basin ramulos steriles proferentes. Folia omnia indumento supra laxiore atro- vel sordide canescenti-viridia, subtus indumento denso tomentoso appresso albida, inferiora usque ad 20-25 × 4-7 mm, lanceolata, obtusiuscula vel acutiuscula, plana, quam folia caulina superiora semper evidenter latiora et proportione breviora, folia caulina media et superiora basi latiuscula vel sat breviter attenuata sessilia, lanceolata usque anguste lineari-lanceolata, acuta, margine ± revoluta, angulo ± recto patentia. Synflorescentia 28-35 mm diametro, ± 15-cephala, composite corymboso-paniculata, plerumque densiuscula. Rami inferiores plerumque 10-20 mm longi. Pedicelli albo-tomentosi, involucro breviores vel paulo longiores. Involucrum depresso-semiglobosum, floriferum, ± 5 mm, fructiferum usque ad 8 mm diametro. Phylla 28-35, 5-6-seriata, alba, opaca, basi saepe rubescentia vel brunnescentia, longitudine inter se non valde diversa. Flores hermaphroditi in capitulis hermaphroditis 24, in capitulis subfoemineis circiter 20, hermaphroditi 3. Achenia in capitulo submasculo 0.5 mm longa sterilia, in capitulis subfoemineis, 1.5 mm longa, papillosa. Pappus albus, uniseriatus, radii scabridi, acuti. — Proxima *A. darvasicae* Borissova, a qua differt involucri phyllis 5-6-nec 3-4-seriatis, papii radiis acheniorum hermaphroditum acutis nec clavato-dilatatis.

*Afghanistan*: E: In fissuris rupium gneiss, faucium Nedschrab inter Gulbahar et Sarobi, 3100-3240 m, 13.9.1951, *Gilli 3984!*, *3985!* Logar: In valle fluvii Cacobay in saxosis humidis, 3100 m, *Lalande R 1072-E 12!* *Pakistan*: Kurrām: Parachinar, *Afendi 40!*

### *Acknowledgements*

The author is most grateful to Prof. Dr. K. H. Rechinger for his collaboration during the preparation of the account of *Anaphalis* and *Helichrysum* for "Flora iranica". Thanks are also due to the Conservateurs and technical staff of the Conservatoire et Jardin botaniques de Genève, for the facilities and help offered during her visits there.

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