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Evaluation of the taxonomic status of the genus *Aliella* (Compositae, Gnaphalieae): a recircumscription of the genus *Phagnalon*

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Abstract

A taxonomic evaluation of the genus *Aliella*, endemic to the Moroccan Atlas Mountains, is presented. We evaluate the taxonomic status of *Aliella* using a morphologic and molecular approach. Firstly, we discuss the variability and usefulness of its morphological diagnostic characters. Secondly, we analyse nuclear ETS and ITS, and chloroplast *ycf3-trnS* and *trnT-trnL* spacers. Phylogenetic analyses of the nrDNA and cpDNA spacers suggest the paraphyly of *Aliella* and *Phagnalon*. Two species of *Aliella*, *A. ballii* and *A. embergeri*, form a strongly supported clade. In contrast, relationships of *A. platyphylla* to *A. ballii* and *A. embergeri* are only weakly supported, and *A. iminouakensis* do not form a group with the other species and shows two different haplotypes. The morphological and diagnostic characters of *Aliella* are described and compared with an extensive sampling of the closely related genus *Phagnalon*. Our results strongly suggest that *Aliella* should be merged into *Phagnalon*. For each accepted taxon, taxonomical, chorological, and ecological data are provided. Six taxa are recognized, three species and three subspecies. Three lectotypifications of specific names and three new combinations are proposed. New descriptions and distribution maps of the recognized taxa are given.

Key words: *Aliella*, endemism, ETS, Gnaphalieae, infraspecific variation, ITS, Mediterranean region, *Phagnalon*, *trnT-trnL*, *ycf3-trnS*

Introduction

The genus *Aliella* Qaiser & Lack (1986: 487) (Compositae, Gnaphalieae) was described as a segregate from *Phagnalon* Cassini (1819: 173) on the basis of vegetative and reproductive characters (Qaiser & Lack 1986). It is currently accepted as an independent genus (Anderberg 1991, Dobignard 1997, Bayer *et al*. 2007, Ward *et al*. 2009). *Aliella* comprises four species and two subspecific taxa: *A. ballii* (Klatt 1896: 836) Greuter (2003: 241); *A. ballii* subsp. *ballii*; *A. ballii* subsp. *nitida* (Emberger 1935: 224) Qaiser & Lack (1986: 493); *A. embergeri* Humbert & Maire in Maire (1928: 52) Qaiser & Lack (1986: 493); *A. iminouakensis* (Emberger 1932: 189) Dobignard & Jeanmonod in Dobignard (1997: 143) and *A. platyphylla* (Maire 1924: 85) Qaiser & Lack (1986: 490). *Aliella helichrysoides* (Ball 1873: 364) Qaiser & Lack (1986: 492) is a synonym of *Aliella ballii*. The generic diagnosis was based on the presence of bracts on the peduncle similar in shape and size to the involucral ones, the presence of waxy cushions on the corolla lobes, tubular female florets, caudate anthers, and pappus setae barbellate from the base to apex. The species of *Aliella* are chamaephytes which grow in calcareous or siliceous rock crevices in the Atlas Mountains of Morocco, at altitudes of 1800 m to 3600 m.

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