



Kieslingia chilensis (Asteraceae: Astereae), a new genus and species from northern Chile

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Abstract

Kieslingia chilensis, a new genus and species of tribe Astereae (Asteraceae) from northern Chile restricted to the Huasco river basin of the Andes pre-mountain Range in the Atacama region is described and illustrated. The combination of its diagnostic characters including discoid homogamous capitula, alveolate epaleate receptacles, and deeply trifid leaves, is not found in any other species of South American Astereae. An ITS phylogenetic analysis placed *Kieslingia chilensis* within subtribe Hinterhuberinae, and sister to the genus *Guynesomia*, also endemic to Chile. The morphological characteristics of *Kieslingia chilensis* are compared and contrasted to sister taxa as identified by the molecular phylogenetic studies and the environmental features of the area where the species is found are discussed. A key to distinguish *Kieslingia* from other Astereae genera of northern Chile is given. Based on IUCN criteria and categories we assign the Endangered (EN) category to *Kieslingia chilensis*.

Keywords: Andes, Atacama, Compositae, endemism, Hinterhuberinae, *Guynesomia*, ITS analysis

Introduction

Since the early days of botanic exploration in Chile, the northern zone of the country and principally the Atacama Desert has been a region of great interest to biologists and naturalists because despite being one of the driest biomes on the planet, it contains a high number of taxa of vascular plants (Luebert 2011) most representing narrow species level endemics. In this context, Asteraceae is of particular relevance in the northern Chile area with four endemic and monotypic genera, *Gypothamnium* Philippi (1860: 27), *Oxyphyllum* Philippi (1860: 28), *Pleocarphus* Don (1830: 228), and *Guynesomia* Bonifacino & Sancho (2004: 675).

The recent additions to the Asteraceae flora of the northern Chile region at the generic level have not been the outcome of discoveries in scientific explorations but rather nomenclatural changes stemming from results of taxonomic studies to maintain a classification that reflects monophyletic groups, such as the recognition of the new genus *Guynesomia* (Bonifacino & Sancho 2004) and the resurrection of the genus *Ocyroe* Philippi (1891: 33) (Bonifacino 2008), the last genus discovered for northern Chile and described more than 120 years ago.

Floristic and ecological studies of the Huasco river basin vegetation of the Andean Pre-mountain Range of the Atacama region have resulted in the discovery of a new taxon belonging to the Asteraceae family. Corolla color and shape, anther and style characteristics, and cypsela morphology support the inclusion of the new taxon in tribe Astereae Cassini (Nesom 1994), but the combination of leaf shape, foliage glandularity and discoid capitula in solitary synflorescences is not shared by any known genus of the tribe in Chile (Muñoz-Pizarro 1966; Marticorena & Quezada 1985; Marticorena 1990; Moreira-Muñoz & Muñoz-Schick 2007), Argentina (Sancho & Ariza Espinar 2003), Bolivia (Hind 2011) or Peru (Dillon & Sagástegui 2001), the Southern Cone of South America (Sancho 2009) nor any other region of the world (Nesom & Robinson 2007). Taking the aforementioned considerations and molecular evidence into account, it turns necessary to recognize a new generic entity that is described and discussed below.

Notwithstanding the fact that we did not sample all members of subtribe Hinterhuberinae, our results show that relationships among genera within subtribe Hinterhuberinae are weakly supported requiring further DNA sequences and taxon sampling to obtain a strongly supported and resolved robust phylogeny of the tribe. Recent studies of the Andean Astereae (Karaman 2006; Karaman & Urbatsch 2009) suggest that Hinterhuberinae *sensu* Nesom & Robinson (2007) is paraphyletic as well as most informal groups proposed for the Hinterhuberinae *sensu* Nesom (1994).

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