CHAETANTHERA ACHENO-HIRSUTA (TOMBESI) ARROYO, A.M.R. DAVIES & TILL-BOTTRAUD ELEVATED TO SPECIES, NEW FOR THE FLORA OF CHILE

Mary T.K. Arroyo1, Alison M.R. Davies2 & Irène Till-Bottraud3

1Departamento de Ciencias Ecológicas, Facultad de Ciencias, Universidad de Chile, Casilla 653, Santiago, Chile.
E-mail: southern@abello.dic.uchile.cl
2Department Biologie I der LMU München Bereich Biodiversitätsforschung: Systematische Botanik, Menzinger Straße 67, 80638, Germany
3Laboratoire d’Ecologie Alpine, CNRS UMR 5553, Université Joseph Fourier, BP 53 X, 38041 Grenoble Cedex, France

ABSTRACT

Chaetanthera acheno-hirsuta (Tombesi) Arroyo, A.M.R. Davies & Till-Bottraud (Asteraceae: Mutisieae), previously known from the upper limits of the vegetation (>3900m) on the eastern side of the Andes in San Juan Province, Argentina, is cited for Chile from six collections made in the Andes of the III Region (Atacama Region) between 3500-4000 m. The new record for the flora of Chile is based on Chaetanthera pulvinata (Phil.) Hauman var. acheno-hirsuta Tombesi, here elevated to species. Chaetanthera acheno-hirsuta belongs to Chaetanthera subgenus Egania. Its closest relatives, based on morphological characteristics, are C. apiculata (J. Remy) Benth. & Hook.f. and C. acerosa (J. Remy) Benth. & Hook.f. It is distinguished from C. pulvinata (Phil.) Hauman by its lack of sexual dimorphism, green-black maculate bracts, and densely pubescent achenes.

KEYWORDS: Chaetanthera pulvinata, Cordillera de los Andes, flora of Chile, new combination, new record.

RESUMEN

Chaetanthera acheno-hirsuta (Tombesi) Arroyo, A.M.R. Davies & Till-Bottraud (Asteraceae: Mutisieae), previamente conocida cerca del límite superior de la vegetación (> 3900 m) en el lado este de la Cordillera de los Andes en la provincia de San Juan, Argentina, es citada para Chile en base a seis colecciones recogidas en la Cordillera de los Andes de la III Región (Región de Atacama) entre 3500-4000 m. La especie nueva para la flora de Chile está basada en Chaetanthera pulvinata (Phil.) Hauman var. acheno-hirsuta Tombesi, aquí elevada al nivel de especie. Chaetanthera acheno-hirsuta pertenece al subgénero Egania. Sus parientes más cercanos, basado en características morfológicas, son C. apiculata (J. Remy) Benth. & Hook.f. and C. acerosa (J. Remy) Benth. & Hook.f. Se distingue de C. pulvinata (Phil.) Hauman por la ausencia de dimorfismo sexual, las brácteas maculadas, verde-oscuras, y los aquenios densamente pubescentes.

PALABRAS CLAVES: Chaetanthera pulvinata, Cordillera de los Andes, flora de Chile, nueva combinación, nuevo registro.
INTRODUCTION

Ongoing studies of the molecular phylogeny, systematics, biogeography and reproductive biology of the species of the genus *Chaetanthera* Ruiz & Pav. (Asteraceae: Mutisieae) have confirmed the occurrence in Chile of the entity originally described as *Chaetanthera pulvinata* (Phil.) Hauman var. *acheno-hirsuta* Tombesi (Tombesi 2000).

In 1981 a species of *Chaetanthera*, hitherto unknown in Chile, was collected at 4000 m in the Andes of the III Region of Atacama, from the upper valleys and passes in the area of Laguna Grande and Laguna Chica. Three additional collections of the same entity were made in the same general area in 1983. All were reported in the florula of the area (Arroyo et al. 1984). The collections were included (page 10; 1984) with the commentary that the plants probably represented a new species for the genus. Additional material was collected in the following decade, but from somewhat further south in the region.

In 2000, Tombesi described a new variety, *Chaetanthera pulvinata* (Phil.) Hauman var. *acheno-hirsuta* Tombesi, based on material collected from high elevations in the Andes of San Juan Province, Argentina. The paratypes cited in the paper were exclusively Argentinian collections.

After careful examination of images of the type specimen (Instituto de Botánica Darwinion 2003) and exhaustive study, it is our conclusion that *C. pulvinata* var. *acheno-hirsuta* (Figs. 1, 2) corresponds to the entity reported by Arroyo et al. (1984) from the western slopes of the Andes in Chile. Accordingly, we report this taxon as a new for the flora of Chile. Additionally, this entity is considered distinctive enough to merit specific status.

*Chaetanthera acheno-hirsuta* (Tombesi) Arroyo, A.M.R.Davies & Till-Bottraud stat. nov. (Figs. 1, 2).

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**Figure 1.** *Chaetanthera acheno-hirsuta* (Tombesi) Arroyo, A.M.R. Davies & Till-Bottraud a. Whole plant; b. Capitulum; c, d. Lower leaf and scale from stem; e. Upper stem leaf; f. Outer involucral bract; g. Middle involucral bract; h. Inner involucral bract; i. Achene immature. Scale (a, b, i) = 10 mm; c – h = 5 mm. (Illustration: A.M.R. Davies).

Plants with above-ground parts to 3 cm. Underground stems long, soft, buried in substrate; glabrous below, lanate above ground, with bud clusters at base; root filamentous. Leaves opposite to rarely alternate, narrowly spatulate to linear. Leaves on peduncle or subtending the capitulum starting with a small scale, rapidly becoming broadly spatulate limbate, pale green, midrib visible, 8-15 (22) mm long, lamina (1)-4 (5.5) mm wide. Lamina sometimes decurrent to petiole rendering spatulate part somewhat indistinct. Dorsal and ventral surfaces densely lanate except in areas with alae, which are glabrescent. Indumentum shorter towards apex. Middle involucral bracts with alae from ½ to nearly entirely alate; 10 mm long, lamina 1-2 mm wide, alae 2.5-3 mm wide, oblong. Inner involucral bracts 1 series, 9-13.5 x 2.3-3 mm, lanceolate. Apices 3-3.5 mm long, broadly acute, green-black, hirtellous. Pappus 7-8.5 mm long, white, barbellate. Ray florets white, 12-25 (mean 16), female. Corolla 10-11 mm long, corolla tube 4-4.5 mm, outer ligule 1.5-2 mm wide, inner ligule 0.5 mm, inconspicuous, bifid. Stigmas 7-8 mm long, shortly bifid, green. Disk florets yellowish-green, 27-60 (mean 39), hermaphroditic. Corolla 8 mm, corolla tube 7-7.5 mm. Anthers 5-6 mm (7.5-8.5 mm including filaments). Stigmas 7.5-8.5 mm, lobes 0.5 mm. Achenes to 3.5 mm (immature), turbinate, ± densely hirsute (long simple hairs to 0.5 mm).
DISCUSSION

The presence of subterranean bud clusters together with inner involucral bract apices with clearly differentiated coloured apices place this species firmly in Chaetanthera subgenus Egania (J. Remy) Reiche Cabrera (1937).

With more intensive study including more collections, the most closely related taxa to C. acheno-hirsuta are now considered to be C. apiculata (J.Remy) Benth. & Hook.f. and C. acerosa (J.Remy) Benth. & Hook.f. rather than C. pulvinata (Phil.) Hauman. This relationship is supported by several characters, which are laid out in Table I. The apical morphology of the inner involucral bracts of the first three taxa is quite uniform, with green-black maculate, sparsely hirtellous triangular acute to apiculate apices. The achenes are often covered with simple, filamentous hairs (0.5 mm), and when glabrous have a non-descript surface. The habit is lax, with leaves sparsely arranged along the stems and the peduncles. Additionally, these taxa are always gynomonoecious. In contrast, C. pulvinata, also a high Andean species, has shortly triangular inner involucral bract apices that are brown-black maculate ± a narrow translucent margin. The achenes are always glabrous with a distinctly tessellated surface (Davies & Facher 2001). The habit is more or less lax, with lanate stems, but the upper leaves are densely whorled in a rosette below the capitulum. Furthermore, C. pulvinata can be sexually dimorphic.

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**Table I. Comparison of C. acheno-hirsuta, C. apiculata, C. acerosa and C. pulvinata.**

<table>
<thead>
<tr>
<th>Taxon</th>
<th>Bracts</th>
<th>Achenes</th>
<th>Habit</th>
<th>Leaves</th>
</tr>
</thead>
<tbody>
<tr>
<td>C. acheno-hirsuta</td>
<td>Maculate black-green; triangular acute; sparsely pubescent</td>
<td>Pubescent, hairs long, simple, filamentous (0.5 mm)</td>
<td>Leaves lax, sparsely arranged</td>
<td>Broaddly spatulate, limbate; lanate</td>
</tr>
<tr>
<td>C. apiculata</td>
<td>Maculate black-green; triangular apiculate; sparsely pubescent</td>
<td>When pubescent, then long, simple, filamentous (0.5 mm)</td>
<td>Leaves lax, sparsely arranged</td>
<td>Broadly linear, apices ± dilated, apiculate, limbate; lanate</td>
</tr>
<tr>
<td>C. acerosa</td>
<td>Maculate black-green; triangular acute; sparsely pubescent</td>
<td>When pubescent, then long, simple, filamentous (0.5 mm)</td>
<td>Leaves lax, sparsely arranged</td>
<td>Narrowly linear, apiculate, lightly limbate; lanate at bases, hirtellous on lamina</td>
</tr>
<tr>
<td>C. pulvinata</td>
<td>Maculate brown-black ± translucent margins; triangular acute; sparsely pubescent</td>
<td>Glabrous, tessellated achene surface</td>
<td>Clusters of leaves densely whorled below capitula</td>
<td>Narrowly linear, apices ± dilated, obtuse; lanate</td>
</tr>
</tbody>
</table>

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In Chile C. acheno-hirsuta inhabits consolidated high-elevation fell field habitats of gentle slope between 3500 and 4000 m.a.s.l. It grows at the base of small rocks, or in the cracks between smaller rocks. So far it has only been collected from the province of Huasco in the Region de Atacama. In Argentina it occurs in the Departamento of Iglesia in San Juan Province, which lies immediately east of the III Region. Thus, the species has a highly restricted, endemic distribution in the arid sector of the high South American Andes.
latter species also tend to have more and smaller capitula (5-10 per plant). The apparent surface rosette habit of *C. acheno-hirsuta* superficially resembles *C. pusilla* (D.Don) Hook. & Arn. (subgenus *Oriastrum*), a dwarf annual species from the Metropolitana Region, Chile and Mendoza Province, Argentina. However, *C. pusilla* is easily distinguished from *C. acheno-hirsuta* by its distinctive dark wine red to pale orange-pink bract apices, a lack of clustered subterranean buds and pyriform achenes densely coated with globular twin hairs.

**MATERIAL EXAMINED**


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**REFERENCES**


