



Five new species of *Saussurea* (Asteraceae, Cardueae) from the Hengduan Mountains region, southwestern China

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Abstract

Based on both herbarium and field observations, five new species of *Saussurea* (Asteraceae, Cardueae) from the Hengduan Mountains region, southwest China, namely *S. fuscipappa*, *S. liangshanensis*, *S. pseudorockii*, *S. qamdoensis*, and *S. xiaojinensis*, are described and illustrated.

Key words: Compositae, Sichuan, Xizang, Yunnan

Introduction

The Hengduan Mountains region is located at the eastern end of the Himalayan range and in the southeastern corner of the Qinghai-Tibet Plateau in southwestern China. It is probably the richest temperate region in the world in respect of biodiversity, with about 8590 seed plant species already recorded there (Nie *et al.* 2005, Zhang *et al.* 2009). The region is the largest center of diversity of the genus *Saussurea* Candolle (1810: 156). More than 100 species of this genus have been recorded from the region, many of which are endemic (Shih & Raab-Straube 2011).

Saussurea is one of the largest genera in the tribe *Cardueae* of Asteraceae, including over 400 species (Lipschitz 1979, Shih & Raab-Straube 2011). It is the largest genus of the family in China, with 289 species recorded as native to the country (Shih & Raab-Straube 2011). In recent years, new *Saussurea* species from China, especially from the Hengduan Mountains region, were continuously described (Chen 2010, 2011, Chen & Gan 2011, Raab-Straube 2011, Xu *et al.* 2013, Wang *et al.* 2014).

In the course of preparing an account of *Saussurea* for the *Flora of Pan-Himalayas*, we examined the rich material of the genus in the major herbaria in China (CDBI, HNWP, KUN, PE), the United Kingdom of Britain (BM, E, K), the United States of America (A, GH, MO) and Russia (LE), and made several botanical expeditions to the Hengduan Mountains region. As a result, five new species have been discovered in the region. They are described and illustrated below.

1. *Saussurea fuscipappa* Y.S. Chen, *sp. nov.* (Figs. 1 & 6A)

Type:—CHINA. Xizang: Zayü, Tsawarong, Meili Xue Shan, Shuola pass, scree slope, 28°37'58" N, 98°35'41" E, 4400 m, 22 August 2011, Y.S. Chen & Y.C. Bi 11-191 (holotype PE; isotypes PE).

Perennial herbs, 5–25 cm tall. Rhizome usually branched, ascending or prostrate, covered with withered remains of leaves. Stems usually several, 2–4 mm in diameter, erect, apically few-branched, straw-colored to brown, sparsely arachnoid. Leaves adaxially greyish green or green, sparsely arachnoid, minutely pubescent or glabrous, abaxially greyish white, densely arachnoid; base attenuate, margin sparsely denticulate, apex acute. Rosette, basal and lower stem leaves petiolate; petiole 1–2 cm, basally sheathed; leaf blade linear-lanceolate, 5–12 × 0.5–1.2 cm; upper cauline leaves few, smaller, sessile, linear to linear-lanceolate, 3–10 × 0.2–0.7 cm, base sessile, attenuate. Capitula 3–7, 0.8–1.0 cm in diameter, in a clustered or lax, corymbiform synflorescence. Involucre obconic, 0.8–1.0 cm in diameter. Phyllaries in 5 rows, coriaceous, black, densely to sparsely villous especially at apex, apex usually obtuse, or acute; outer phyllaries triangular-ovate, 4–5 × 3–3.5 mm, apex acute; middle phyllaries ovate-elliptic, 5–8 × 3–3.5 mm, apex

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