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Anaphalis chlamydophylla Diels (Asteraceae: Gnaphalieae), a new record for Nepal Himalaya

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Abstract

Anaphalis chlamydophylla Diels (Asteraceae: Gnaphalieae) is reported as new record for Nepal Himalaya. Detailed description, illustration and relevant notes are provided.

***Key words*:** Flora Himalaya, Phyllaries, Villose leaf surface

INTRODUCTION

The genus *Anaphalis* was first described by Augustin-Pyramus de Candolle in the 6th volume of "*Prodromus Systematis Naturalis Regni Vegetabilis"* (1837) and was placed under the tribe Senecioneae Cassini of Compositae Giseke. Compositae (Asteraceae Martynov, *nom. alt.*) family is nested high in the Angiosperm phylogeny in Asterideae/ Asterales (Funk *et al* 2009). *Anaphalis* is the largest genus within the Asian Gnaphalieae and is well diversified in the Himalayas (Meng *et al* 2010). According to Flora Himalaya Database (leca.univ-savoie.fr), there are 45 species of *Anaphalis* in the Himalayas. "*Catalogue of Nepalese Vascular Plants*" (Malla *et al* 1976), the first catalogue of vascular plants of Nepal Himalaya has recorded 10 species of *Anaphalis* DC. The first comprehensive list of vascular plants of Nepal, "*An Enumeration of the Flowering Plants of Nepal*" (Hara *et al* 1982) has given names of 16 species and seven varieties of the taxon. The most recent literature for Flora of Nepal, i.e. *Annonated Checklist of Flowering Plants of Nepal* (Press *et al* 2000) has also listed 16 species and seven varieties of *Anaphalis* DC.

Diels (1912) established *Anaphalis chlamydophylla* as a distinct taxon. The first comprehensive revision of *Anaphalis* done by Feng Hui *et al* (1966) has included the taxon under the Section *Anaphalis*. While critically studying the herbarium specimens deposited at BM and KATH, the distinctive features of *A. chlamydophylla* were pointed out.

These specimens were then compared with the type specimens (Forrest 2354, E & CAL), and the most comparable species *Anaphalis xylorhiza* Schultz Bipontinus *ex* Hooker f. After studying the type protologue and critically examining the morphological characters, it was found that *Anaphalis chlamydophylla* exists in Nepal Himalaya as well.

The gross morphological characters of *Anaphalis chlamydophylla* are similar to those of *Anaphalis xylorhiza*, but can be readily distinguished from the latter in overall appearance in the field, and in the characters of leaves, phyllaries, stigma lobes, pappus and the achenes (Table 1).

Anaphalis chlamydophylla Diels, Notes Roy. Bot. Gard. Edinburgh 5: 188. 1912; Fedde, J. Bot. Jahr. 40(2): 123. 1912; Feng-Hui *et al*., Act. Phyt. Sin. 1: 96. 1966; Ling, Chen & Shih, Fl Ch. 75: 202. 1979. (Fig. 1)

Perennial wooly silver white herbs, 5 – 28 cm, stoloniferous. Stem slender, unbranched, erect or decumbent, cinereous, yellowish white, tomentose. Sterile and basal leaves rosulate; cauline leaves

Table 1: Distinguishing characters of *Anaphalis chlamydoylla* and *Anaphalis xylorhiza*.

Characters	*Anaphalis chlamydophylla*	*Anaphalis xylorhiza*
Leaves	Villose, shining white eglandular hairs woven together to form a membranous sheath	Arachnoid, tomentose, glandular hairs entangled with mass of eglandular hairs
Phyllaries	White or off-white, outermost with wooly base and golden brown middle portion and white upper part, inner ones with transparent base	Dirty white or pale pink, outermost phyllary with brown base and white upper portion, inner ones with opaque base
Stigma	Just a notch at bifurcation	Deeply bifurcated
Pappus	Without obvious basal cilia	With obvious basal cilia
Achenes	Papillose outer surface	Tomentose outer surface

decurrent; both surfaces villose, covered with silver white hairs woven together to form a transparent membranous sheath-like structure, 1-veined, ovate or oblong, 1 – 2.5 x 0.3 – 0.8 cm, acute, mucronate; the uppermost leaf just below the inflorescence with long chaffy acuminate tip. Inflorescence campanulate corymb, 1 – 1.5 cm in diameter, with 4 – 10 lax capitula. Each capitulum 0.8 – 1.5 cm in diameter. Peduncle tomentose, 0.5 – 1.5 cm. Phyllaries white, or pale yellow; outermost ovate, 6 x 2.5 mm, , wooly at base, middle part golden brown and upper part white, acute; middle phyllaries lanceolate, 8 x 3 mm, golden yellow base, transparent upper part, acute; innermost ones lanceolate, 6 x 2 mm, transparent base, upper portion white and acute. Pistillate florets ca. 5 mm, corolla lobes with distinct papilla. Staminate florets ca. 4 mm, corolla lobes golden yellow, papillose. Sterile florets ca. 2 mm, golden yellow. Pappus ca. 5 mm, with capillary bristles, basal cilia not obvious. Stigma lobes notched. Achenes densely papillose, papilla elongated, oblong, ca. 1.5 mm.

Type: N.W. of Yunnan, West China, 10,000 – 12,000 ft. (i.e. 3050 – 3660 m), 6. 1906, G. Forrest 2354 (LT: E! & CAL!).

Distribution: 2400 – 4000 m. Nepal, China.

Flowering: June – October

Etymology: Derived from two Greek words *chlamyd* (cloak) and *phylla* (leaves), referring to the thin membrane covering the leaves, like a cloak.

Specimens examined: N.W. of Yunnan, 3000 – 3600 m, 6. 1906, Forrest 2354 (E! & CAL!); **W. Nepal:** Maharigaon, Jumla, 4000 m, 20.7.1952, PSW 232 (CAL! & DD!); Hurta, Dolpa, 2400 m, 5.9.1952, PSW 3168 (BM! & CAL!); Rara, Mugu, 2900 m, 8.10. 1981, Manandhar & Joshi 7059 (KATH!). **C. Nepal:** Tukuche, Mustang, 2800 m, 19.8. 1964, Shrestha & Bista 1882; Tukuche, Mustang, 2800 m, 19.8. 1964, Shrestha & Bista 1918 (BM! & KATH!), Larjung, Mustang, 29.7.1996, Hoshino *et. al*. 9662080 (BM!), Lete, Marpha, 2700 m, 1.11.1971, Malla *et. al.* 13845, Tukuche, Mustang, 2620 m, Mikage *et. al.* 9967099 (KATH!) Lete, South of Tukucha, 2400 m, 6.9.1954, SSW 7709 (TUCH!).

Notes: Among the specimens studied, PSW 3168 (BM, CAL & DD) carried the labels mentioning "*Anaphalis* cf. *chlamydophylla*. Other specimens PSW 232 (CAL), Malla *et al* 13845 (KATH), Shrestha & Bista 1882 (BM & KATH), Shrestha & Bista 1918 (BM & KATH), Manandhar & Joshi 7059 (KATH), Hoshino *et al* 9662080 (BM), and Mikage *et al* 9967099 (KATH) all carried the labels with *Anaphalis griffithii* as their name.

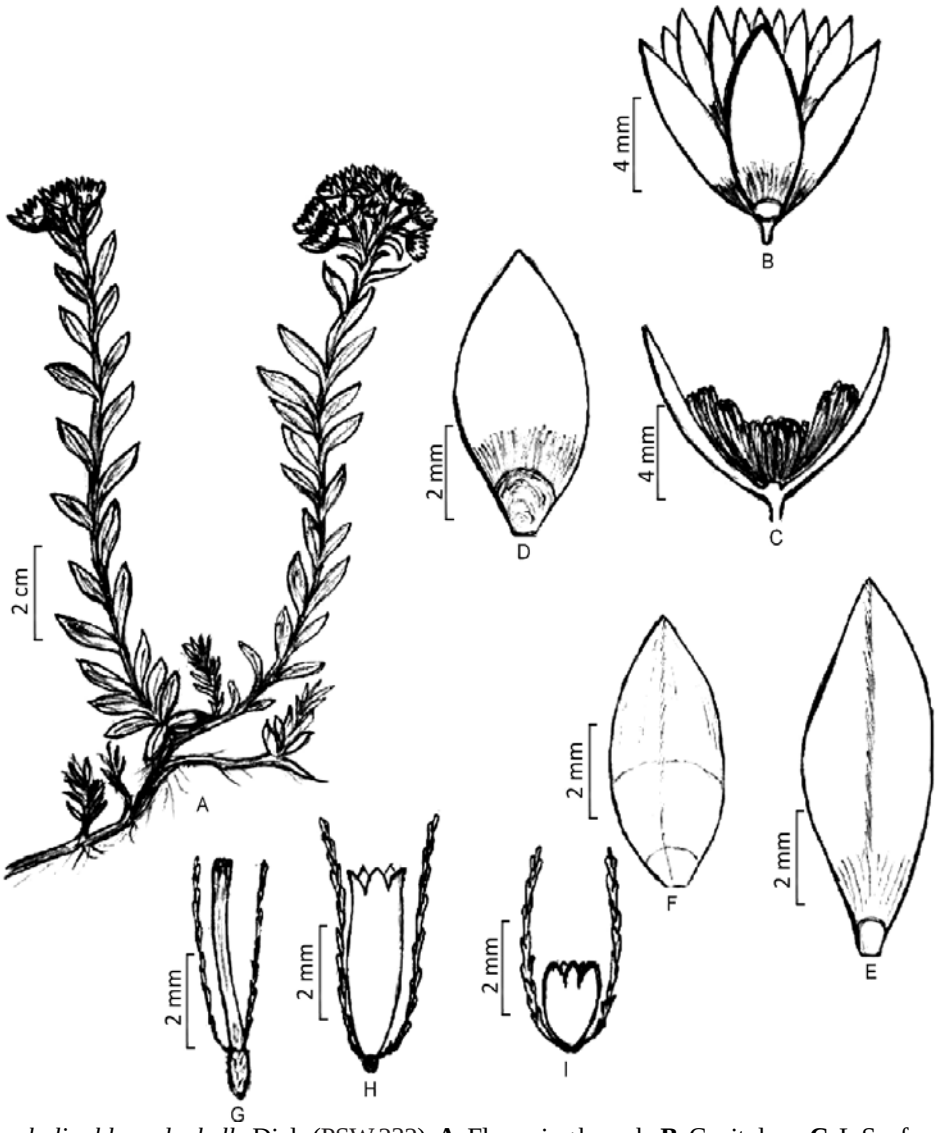

Fig. 1. *Anaphalis chlamydophylla* Diels (PSW 232): **A.** Flowering branch, **B.** Capitulum, **C.** L.S. of capitulum, **D – F.** Phyllaries, **G**. Pistillate floret, **H.** Staminate floret, **I.** Sterile floret.

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