

## *Anaphalis rhododactyla* W.W. Smith (Asteraceae: Gnaphalieae), a new record for Nepal Himalaya

Sheetal Vaidya<sup>1</sup> and Lokesh Ratna Shakya<sup>2</sup>

<sup>1</sup> Patan Multiple Campus, Tribhuvan University, Kathmandu, Nepal

<sup>2</sup> Amrit Campus, Tribhuvan University, Kathmandu, Nepal

E-mail: sheetal.vaidya@gmail.com

[Received: 30.04.2011; Accepted: 30.05.2011]

### Abstract

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

**Key words:** Compositae, Flora Himalaya, Phyllaries

### INTRODUCTION

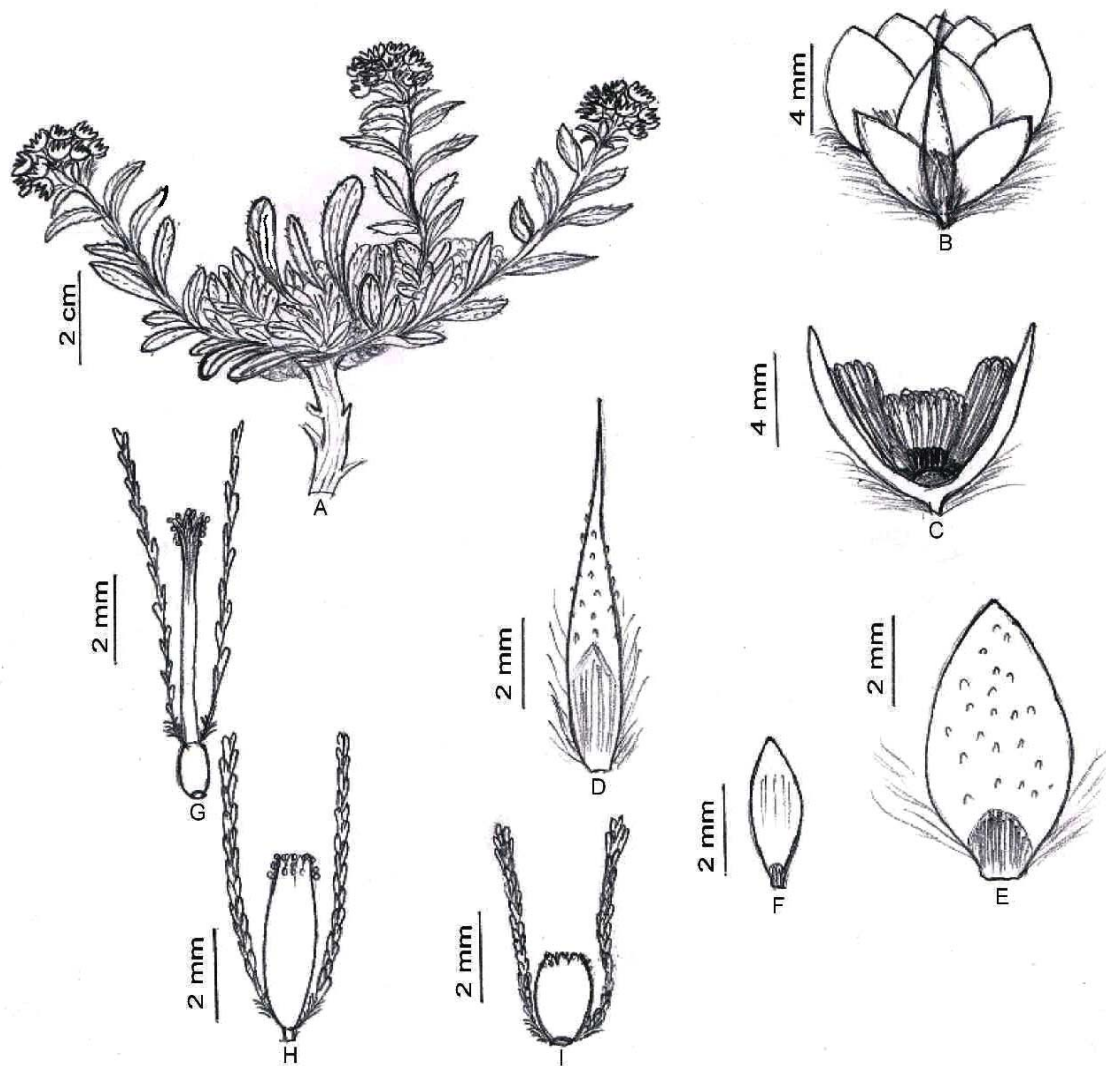
The genus *Anaphalis* was first described by Augustin-Pyramus de Candolle in the 6<sup>th</sup> volume of “*Prodromus Systematis Naturalis Regni Vegetabilis*” (1837) and was placed under the tribe Senecioneae Cass. of Compositae Giseke. Compositae (Asteraceae Martynov) is nested high in the Angiosperm 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 the genus *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. *Annotated Checklist of Flowering Plants of Nepal* (Press *et al* 2000) has also listed 16 species and seven varieties of *Anaphalis* DC.

Smith (1918) established *Anaphalis rhododactyla* as a distinct taxon. The first comprehensive revision of *Anaphalis* by Feng Hui *et al* (1966) has included the taxon under the Section *Margaripes* (DC.) Kitamura. *Flora of China* (Ling *et al* 1979) and *Flora of Tibet* (Zhengyui 1989) have described the taxon under the genus *Anaphalis* DC. itself. While critically studying the herbarium specimens deposited at BM, TUCH and CAL, the distinctive features of *A. rhododactyla* were pointed out. These specimens were then compared with the type specimen (Forrest 12628, E), 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 rhododactyla* exists in Nepal Himalaya as well.

The gross morphological characters of *Anaphalis rhododactyla* 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, corolla lobes, stigma lobes and the achenes. (Table 1).

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

Characters	<i>Anaphalis rhododactyla</i>	<i>Anaphalis xylorhiza</i>
Leaves	Cinereous tomentose and without obvious glandular hairs, lower surface and margin papillose; densely crowded below the involucre	Arachnoid and with obvious glandular hairs entangled with mass of eglandular hairs; sparse on stem and absent below the involucre
Phyllaries	Pinkish, bright rose, reddish, or red-purple; outermost phyllary with green base and pink upper portion	Dirty white or pale pink, outermost phyllary with brown base and white upper portion
Pistillate florets	Corolla lobes deep purple	Corolla lobes dark brown
Stigma	Just a notch at bifurcation	Deeply bifurcated
Achenes	Less than 1 mm long, papillose	Ca. 1 – 1.5 mm long, tomentose



**Figure 1:** *Anaphalis rhododactyla* W.W. Smith: A. Habit; B. Capitulum; C. L.s. of capitulum; D. Outermost phyllary; E. Middle phyllary; F. Innermost phyllary; G. Pistillate floret; H. Staminate floret; I. Sterile floret.

*Anaphalis rhododactyla* W.W. Smith, Notes Roy. Bot. Gard. Edinburgh 10: 169. 1918. Staff of Roy. Bot. Gard. Edinburgh, Notes Roy. Bot. Gard. Edinburgh 14: 250 & 302. 1924. Ling, Chen & Shih, Fl. Ch. 75: 198. 1979. Zhengyi, Fl. Tibet 4: 690. 1985. (Figure 1)

Perennial woolly yellowish green herbs, 4–20 cm, caespitose. Rootstock thick and woody, upper part densely covered by withered leaves. Stem slender, unbranched, cinereous, yellowish white, tomentose, densely leafy. Flowering and sterile stems congested to pulvinate. Leaves yellowish green clothed in grayish white wool, lower surface and margin papillose, 3-veined or 1-veined, mid-vein convex abaxially. Radical leaves rosette, both sides covered with cinereous mat of hairs, obovate, oblong or spatulate, 1.5–4 x 0.3–0.7 cm, few with base attenuate to a long petiole, obtuse. Middle leaves erect, spatulate or oblong, 2–3 x 0.5 cm, slightly decurrent, obtuse. Upper leaves, more crowded near the involucre, lanceolate 2.5 x 0.5 cm, acute. Inflorescence subglobose corymb, 2–3 cm in diameter, with 10–20 capitula tightly congested. Each capitulum 7–8 mm in diameter. Peduncle tomentose, 2–5 mm. Phyllaries white, pink or purple; outermost phyllaries linear, 8 x 2 mm, acuminate, green at base and bright pink at tip; middle phyllaries ovate, 4–6 x 2–3 mm, bright pink, acute; innermost ones ovate, 2.5 x 1 mm, white and acute. Pistillate florets ca. 6 mm, with deep purple corolla lobes with distinct papilla and slightly extruding stigma. Staminate florets ca. 4 mm, corolla lobes yellowish brown, papillose. Sterile florets ca. 2 mm, brown. Pappus 8–10 mm, with capillary bristles and basal cilia. Achenes papillose, globose, ca. 0.8 mm.

- Type:** Chungtein, Yunnan, West China, *Forrest 12628* (HT: E)
- Specimens studied:** *Lowndes 1247* (BM), *TUCH MO 89* (TUCH), *Forrest 21359* (CAL), *Forrest 15384* (CAL) & *Forrest 22102* (CAL).
- Flowering:** June – September
- Fruiting:** August – October
- Distribution:** Nepal, China; 3600 – 4400 m

### Acknowledgements

The authors are grateful to the directors and curators of Natural History Museum Herbarium, London, UK (BM), Central National Herbarium, Howrah, India (CAL) and Tribhuvan University Central Herbarium, Kirtipur, Nepal (TUCH) for providing necessary facilities to study the herbarium specimens. Dr. Bhasker Adhikary deserves special gratitude for helping with the Type photograph.

### LITERATURE CITED

- Candolle A.P. de 1837. *Prodromus systematis naturalis regni vegetabilis, sive, Enumeratio contracta ordinum generum specierumque plantarum huc usque cognitarium, juxta methodi naturalis, normas digesta. Vol. 6.* Sumptibus Sociorum Treuttel et Wurtz, Paris.
- Feng-Huei, C.; Yong, L.; Yi-Ling, C.; Chu, S. & Wei, W. 1966. De Genere *Anaphalis* DC. Familiae Compositarum Florae Sinicae. *Acta Phytotaxonomica Sinica* 1: 91-112.
- Funk, V.A.; Susanna, A.; Stuessy, T.F. & Bayer, R.J. 2009. *Systematics, Evolution, and Biogeography of Compositae*. International Association for Plant Taxonomy, Vienna.
- Hara, H.; Stearn, W.T. & Williams, L.H.J. 1982. *An enumeration of the flowering plants of Nepal*. (Vol. 3). Trustees of British Museum (Natural History), London.
- Ling, Y.; Chen, Y. & Shih, C. 1979. in: *Flora of China* (75) pp. 198, Science Press, Beijing, China.
- Malla, S.B.; Shrestha, A.B.; Rajbhandari, S.B.; Shrestha, T.B.; Adhikari, P.M. & Adhikari, S.R. (Eds.). 1976. *Catalogue of Nepalese Vascular Plants*. His Majesty's Government, Ministry of Forests, Department of Medicinal Plants, Kathmandu, Nepal.
- Meng, Y.; Sun, H.; Yang, Y.-P. & Nie, Z.-L. 2010. Polyploidy and new chromosome counts in *Anaphalis* (Asteraceae: Gnaphalieae) from the Qinghai-Tibet Plateau of China. *J. Syst. Evol.* 48: 1: 58 - 64.
- Press, J.R.; Shrestha, K.K. & Sutton, D.A. 2000. *Annotated Checklist of the Flowering Plants of Nepal*. The Natural History Museum, London.
- Smith, W.W. 1918. *Diagnoses Species Novarum in Herbario Horti Regii Botanici Edinburgensis Cognitarum (Species Asiaticae)*. *Notes from Royal Botanic Garden, Edinburgh*. 10: 169 - 170.
- Zhengyui, W. 1989. in: *Flora of Tibet* (4) pp. 690, Science Press, Beijing, China.