

Leontopodium andersonii (Asteraceae), a new genus record for Thailand

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ABSTRACT

Leontopodium andersonii is here for the first time recorded for Thailand, and is also the first record of the genus *Leontopodium* (Asteraceae) in Thailand. A description and an illustration are provided.

KEYWORDS: Compositae, diversity, Gnaphalieae, taxonomy.

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INTRODUCTION

During field trips in the mountainous area of Chiang Mai in 2009, the second author came across an interesting composite with a woolly, silver-white, star-shaped capitula, which is a distinct characteristic of “edelweiss” or *Leontopodium*, a genus that had never been reported in Thailand before. *Leontopodium* R.Br. ex Cass. is a monophyletic genus in the tribe Gnaphalieae (Asteraceae) (Ward *et al.* 2009; Blösch *et al.* 2010), characterised by its heterogamous disciform capitula, in dense or loose terminal corymbs subtended by distinct white lanate bracteal leaves. The genus comprises 30–41 species distributed in Asia and Europe with a centre of diversity in the Sino-Himalayan region in south-western China, where about 15 species occur (Blösch *et al.* 2010; Safer *et al.*, 2011; Stille *et al.* 2016); in the Flora of China, 37 species were recorded (Chen & Bayer, 2010). In South-East Asia, there are some records of *Leontopodium* from Laos and Myanmar (Chen & Bayer, 2010), as well as Vietnam (Ministry of Science and Technology, 2007). In Thailand, 170 genera and 240 species of Asteraceae are reported but there is no record of *Leontopodium* (Koyama *et al.*, 2016). Thus, *Leontopodium andersonii* C.B. Clarke is reported here as a first record of this genus in Thailand.

MATERIALS AND METHODS

Morphological characters were studied using a stereo microscope. The measurements were taken from dried specimens. For pollen morphology, the pollen samples were collected and prepared by the acetolysis method (Erdtman, 1960) and observed under a light microscope and a Desktop Scanning Electron Microscopes (MiniSEM) (SNE-4500M). Pollen description was based on the pollen terminology of Walker and Doyle (1975) and Hesse *et al.* (2009).

DESCRIPTION

Leontopodium andersonii C.B. Clarke, Compos. Ind. 100. 1876.; Chen & Bayer in Wu *et al.*, Fl. China 20–21: 784. 2011. Type: Upper Myanmar, Momyen, 365 m alt., *D.J. Anderson s.n.* (not located).—*Gnaphalium andersonii* (C.B. Clarke) Franch., Bull. Soc. Bot. France, 39: 132–133. 1892. Fig. 1A.–D.

—*Gnaphalium subulatum* Franch., Bull. Soc. Bot. France, 39: 130. 1892. Type: China, Yunnan; Lan-kong, Hee-chan-men, alt. 3,000 m, *Delavay s.n.* (syntype **P** [P02669592!, P02669578!, P02669579!]; “in monte Che-tcho-tze, supra Ta-pin-tze”, alt. 2,000 m, 15 Oct. 1886, *Delavay 592* (syntypes **K** [K000901933!], **P** [P01816336!, P01816337!, P01816338!]; “forêt sur la Montagne de Mo-che-tsin”,

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J.M. Delavay 634 (syntype **P** [P01816334!]).— *Leontopodium subulatum* (Franch.) Beauverd, Bull. Soc. Bot. Genève, Sér. 2, 1: 193, pl. 5, f. 1–3. 1909; Gagnep. in Lecomte, Fl. Indo-Chine 3(4): 552. 1924. fide Chen & Bayer in Wu *et al.*, Fl. China 20–21: 784. 2011.

— *Leontopodium bonatii* Beauverd, Bull. Soc. Bot. Genève, Sér. 2, 4: 30, pl. 7, f. 1–9, 11. 1912. fide Chen & Bayer in Wu *et al.*, Fl. China 20–21: 784. 2011. Type: Yunnan: Tong-tchovan, 2,600–2,800 m alt, Sept. 1911, *E.E. Maire 2527* (**A n.v.**).— *Leontopodium subulatum* var. *bonatii* (Beauverd) Hand.-Mazz., Beih. Bot. Centralbl., 44(2): 46. 1927.

Perennial herb, rhizome branched. *Stem* erect, usually simple, up to 60 cm high, densely white villous. *Leaves* alternate, persistent, densely arranged along the stem, blade linear, 1–2.8 × 0.1–0.2 cm, apex acute or obtuse, base truncate, margins revolute, upper surface white arachnoid, lower surface densely white tomentose to villous. *Inflorescences* terminal, corymbose, up to 10 cm across, 40–56 capitula subtended by leaf-like bracts; peduncles 1.5–2.5 cm long, white woolly. *Bracts* subulate, linear, oblong or lanceolate, 0.5–2 × 0.2–0.5 cm, apex acute, both surfaces densely white woolly. *Capitula* disciform, 0.3–0.5 cm diam., yellowish, pale greenish to brown; involucre campanulate, ca 5 mm long; phyllaries 3-seriate, imbricate, lanceolate or ovate, subequal, 4–6 × 1–2 mm, outermost row white woolly, inner row pubescent, membranaceous; receptacle convex, epalaceous, ca 0.2 cm in diam. *Marginal florets* 15–20, female; corollas filiform, ca 4 mm long; style 4–5 mm long; ovary oblong, ca 1 × 0.2 mm, papillose. *Disc florets* 35–50, male, corollas tubular, apex 5-toothed, (2–)3–4 mm long; stamens 4–5 mm long, anthers ca 1 mm long. *Achene* oblong, ca 1 mm long, papillose. *Pappus* uniseriate, of 15–20 capillary bristles, ca 6 mm long, white, caducous.

Pollen morphology: Pollen grains monads, isopolar, radially symmetrical, tricolporate (Fig. 1D–E), small (Equatorial axis (E) 21.12 ± 0.092 μm, Polar axis (P) 20.04 ± 0.18 μm, shape oblate spheroidal (P/E = 0.95), exine sculpturing echinate.

Thailand.— NORTHERN: Chiang Mai [Chai Prakan, Doi Dan Fak, 13 Dec. 2009, *Suksathan 4926* (**BKF, K KU, QBG**); *ibid.*, 26 May 2018, *Munsuk & Triyutthachai M155* (**K KU**)].

Distribution.— China (Guizhou, Sichuan, Yunnan), Laos, Vietnam, Myanmar.

Ecology.— Open grassy slope along ridges, alt. ca 1,700 m, locally uncommon.

Notes.— *Leontopodium andersonii* is distinguished by its terminal corymbose inflorescences subtended by white woolly leaf-like bracts which are much broader than the leaf blade.

Additional specimens examined.— China (Tibet, Tongolo, 1893, *J.-A. Soulié 428* (**P!** [02669584])); Laos [Sam-neua, 10 Oct. 1920, *Poilane 2037* (**P** [P02669598!]); Province Tranninh, Ban Sot, *Pételot & Colani 4460* (**P** [P02669595!]).

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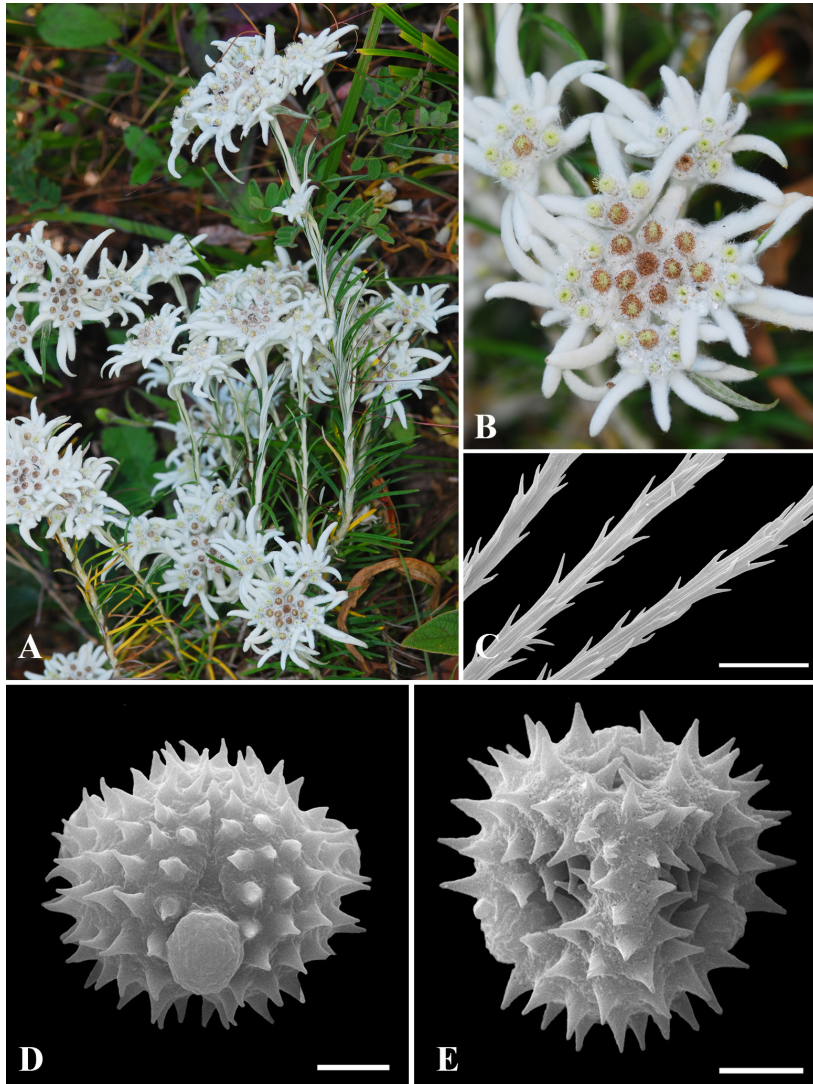


Figure 1. *Leontopodium andersonii* C.B.Clarke, A. Habit; B. Inflorescences; C. Pappus; D.–E. Pollen grain: D. Equatorial view; E. Polar view. (Scale bar: C = 150 μ m; D and E = 5 μ m). (Photos A–B by P. Phonsena).

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