

Tibetoseris depressa subsp. gauri D. Maity (Asteraceae), a new subspecies from eastern Himalaya

Debabrata Maity

Abstract

MAITY, D. (2010). *Tibetoseris depressa* subsp. *gauri* D. Maity (Asteraceae), a new subspecies from eastern Himalaya. *Candollea* 65: 211-216. In English, English and French abstracts.

A new subspecies of *Tibetoseris depressa* (Hook. f. & Thomson) Sennikov (Asteraceae, Cichorieae), *Tibetoseris depressa* subsp. *gauri* D. Maity, is described and illustrated from eastern Himalaya. This taxon is compared with the related taxa of *Tibetoseris* Sennikov and *Pseudoyoungia* D. Maity & Maiti.

Key-words

ASTERACEAE – *Tibetoseris* – Eastern Himalaya – Taxonomy

Résumé

MAITY, D. (2010). *Tibetoseris depressa* subsp. *gauri* D. Maity (Asteraceae), une nouvelle sous-espèce de l'Est de l'Himalaya. *Candollea* 65: 211-216. En anglais, résumés anglais et français.

Une nouvelle sous-espèce de *Tibetoseris depressa* (Hook. f. & Thomson) Sennikov (Asteraceae, Cichorieae), *Tibetoseris depressa* subsp. *gauri* D. Maity, est décrite et illustrée de l'Est de l'Himalaya. Ce taxon est comparé avec d'autres taxons des genres *Tibetoseris* Sennikov et *Pseudoyoungia* D. Maity & Maiti.

Address of the author: University of Calcutta, Department of Botany, Taxonomy and Biosystematics Laboratory, 35 Ballygunge Circular Road, Kolkata-700019, West Bengal, India. Email: debmaity@yahoo.com

Submitted on June 9, 2009. Accepted on August 26, 2010.

Edited by P. Perret

Introduction

CASSINI (1831) established the genus *Youngia* Cass. for some diversified tropical weeds mainly distributed in East Asia. After that several studies including monographic work were done to highlight the generic delimitation of the genus (LEDEBOUR, 1843-1846; BABCOCK & STEBBINS, 1937; KAMELIN & KOVALEVSKAYA, 1993). Simultaneously, about 25-30 species were added to the genus *Youngia* by different workers in scattered papers. Presently, the genus *Youngia* has 30 species (LACK, 2007) or about 40 species (BREMER, 1994; MABBERLEY, 2005). Recently, Sennikov (in TZVELEV, 2007) and SENNIKOV & ILLARIONOVA (2008) tried to resolve the generic delimitation of the genus *Youngia* and have segregated three new genera based on the sections recognized earlier by BABCOCK & STEBBINS (1937), e.g. *Tibetoseris* Sennikov, *Crepidifolium* Sennikov, and *Sonchella* Sennikov. The genus *Youngia*, these three segregates and *Ixeris* (Cass.) Cass., *Crepidiastrum* Nakai, *Ixeridium* (A. Gray) Tzvelev, and *Askellia* W. A. Weber were united in a new subtribe *Ixeridinae* Sennikov. The subtribe *Ixeridinae* is established and separated from *Crepidinae* by the characters viz. subglabrous biseriate involucre (outer phyllaries $\frac{1}{4}$ - $\frac{1}{3}$ as long as the inner) and mostly narrowly cylindrical capitula (SENNIKOV & ILLARIONOVA, 2008). KILIAN & al. (2009) later returned these genera to the subtribe *Crepidinae* and treated *Ixeridinae* as synonym under it.

SENNIKOV & ILLARIONOVA (2008) considered *Tibetoseris* to have 10 species of which 5 species were previously placed under *Youngia* sect. *Desiphylum* by BABCOCK & STEBBINS (1937). Later, two species were described by SHIH (1995) and Shih & Cai (in SHIH, 1995) under *Youngia* and transferred by SENNIKOV (2007). Another two new species and a new combination based on *Crepis tianschanica* Shih were published by TZVELEV (2007). MAITY & al. (2009) have added a new subspecies, *Tibetoseris gracilipes* subsp. *duthiei* Maity & al.

Tibetoseris chiefly differs from *Youngia* by its tufted habit, its 5-15-flowered capitula and outer phyllaries $\frac{1}{3}$ to $\frac{1}{4}$ shorter than inner, inner phyllaries 13-16 mm long, achenes with unequal 10-15 ribs. On the other hand, in *Youngia*, plants have paniculate foliose stems, 5-20-flowered capitula, outer phyllaries $\frac{1}{8}$ - $\frac{1}{10}$ as long as the inner, inner phyllaries 4-13 mm long. Moreover, in *Youngia* the lateral ribs of cypselas are much stronger than the other ribs. *Tibetoseris* shares many characters with *Crepis* but chiefly differs by the presence of biseriate involucre (SENNIKOV & ILLARIONOVA, 2008).

Tibetoseris depressa (Hook. f. & Thomson) Sennikov (= *Crepis depressa* Hook. f. & Thomson; = *Youngia depressa* (Hook. f. & Thomson) Babcock & Stebbins) is a remarkable species within the genus *Tibetoseris* having orbicular to broadly ovate or deltoid leaves with entire or remotely denticulate margins and long un-winged petioles; cataphylls often present;

capitula few or many (more than 30), surrounded by a crown of leaves, with 14-21 florets; outer phyllaries much shorter ($\frac{1}{3}$) than inner; receptacle areolate-fimbriate; corolla tube equal to ligule; anther tails free; style branches black; cypselas slightly compressed, more than (6-)7 mm long, with a strong coarse beak, (9-)10-ribbed, hispid towards apex, yellow with dense blackish-brown patches; pericarp sclerenchymatous (except epidermis) with very large vallecular canals; pappus 11-13 mm long (BABCOCK & STEBBINS, 1937; SHIH, 1997; GRIERSON & SPRINGATE, 2001; MAITY, 2005; MAITY & MAITI, 2010). Interestingly, these features are totally absent in the other species of *Tibetoseris*. Moreover, morphologically as well as with some reproductive features like equal length of corolla tube and ligule, this species is similar to *Stebbinsia umbrella* (Franch.) Lipsch. (MAITY & MAITI, 2007, 2010).

This species is distributed in the alpine meadows of the eastern Himalayas from Nepal, India (Sikkim), Bhutan to Tibet (China) between 3000-5000 m (BABCOCK & STEBBINS, 1937; KITAMURA & GOULD, 1882; SHIH, 1997; GRIERSON & SPRINGATE, 2001; MAITY, 2005; MAITY & MAITI, 2010).

Recently, MAITY & MAITI (2010) reduced the heterogeneity of the genus *Tibetoseris* and described it as monotypic with the only species *T. depressa*, and a new genus *Pseudoyoungia* D. Maity & Maiti was described to accommodate the rest of the species of *Tibetoseris* (sensu Sennikov & Illarionova).

The specimens from Sikkim described by MAITY & MAITI (2001) as *Lactuca pseudoumbrella* var. *pseudoumbrella* D. Maity & Maiti are regarded as conspecific with *Tibetoseris depressa* but have a larger growth-form (10-15 cm in diam. vs. 6-7 cm in diam.) and numerous capitula (more than 30). Therefore, MAITY & MAITI (2010) have treated this taxon as *T. depressa* var. *pseudoumbrella* (D. Maity & Maiti) D. Maity & Maiti.

In course of the study of a large number of collections identified as *Crepis depressa* deposited at CAL and BSHC as well as from the field seen during the last 10 years while working on the flora of Sikkim were examined and we found no deviation in the characteristic features of this taxon.

Now we detected 3 interesting gatherings (total of 12 specimens) in the herbarium CAL identified as "*Crepis depressa*" or "*Lactuca lessertiana*", and collected by Dr. Georges King's collaborators, which are surprisingly different from the typical specimens. The leaves of these specimens are lyrate-pinnatisect and are broadly oblanceolate in outline, having broadly triangular terminal lobes with broad triangular dentations, and much shorter petioles. Moreover, the size of the cypselas and the pappus are shorter than the typical ones, though they are quite alike in morphological appearance and anatomical features. These 3 gatherings had been made in eastern Himalaya, Sikkim and Nepal, in two successive years (1887 and 1888). These specimens are described here as a new subspecies of *Tibetoseris depressa*.

***Tibetoseris depressa* subsp. *gauri* D. Maity, subsp. nova**
(Fig. 1)

Typus: INDIA: Sikkim Himalaya, Bloktan, 12,000 ft. [3600 m], VIII.1888, *King's collector s.n.* (holo-: CAL [255172D]; iso-: CAL [255172A, 255172B, 255172C]).

Subspecies nova haec affinis T. depressa subsp. depressa sed foliis lyratis vel pinnatisectis, ambitu oblanceolatis; petiolis quam lamina multo brevior; cypsela 4.5-5 mm; pappus 7-9 mm differt.

Tufted, perennial herb with strong vertical tap root. Caudex thick, strong, ca. 5 mm diam., without withered old leaf bases. Stem absent. Leaves radical, rosulate, several, lyrate to pinnatisect, 5-6 cm long, usually with the remnant of the laminar extension along the petioles; pinnatisect lobes 2-6 pairs, variously shaped, rhomboid, triangular or broadly oblong; terminal lobe largest, broadly triangular or broadly ovate, 1.5 × 1-1.5 cm, with broad triangular dentate lobes of variable sizes; apex of lobes and terminal lobes obtusely acute, margin of

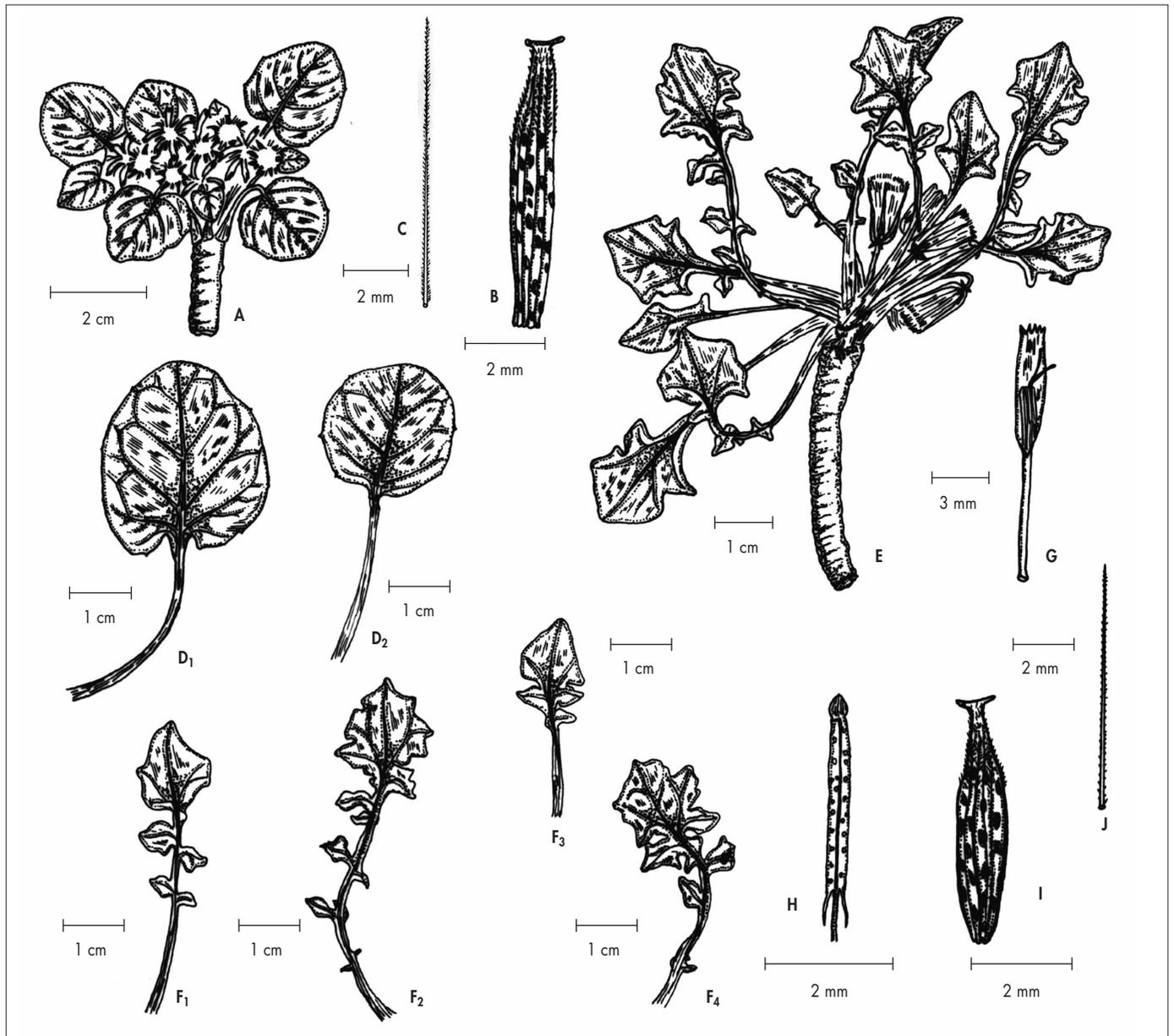


Fig. 1. – A-D: *Tibetoseris depressa* (Hook. f. & Thomson) Sennikov subsp. *depressa*. A. Habit; B. Cypsel (dorsal face, pappus removed); C. Pappus hair; D₁, D₂. Leaves. E-J: *Tibetoseris depressa* subsp. *gauri* D. Maity. E. Habit; F₁, F₂, F₃, F₄. Leaves; G. Floret; H. Stamen; I. Cypsel (dorsal face, pappus removed); J. Pappus hair.

[A-C: Sinha & Shukla 20455, BSHC; D₁, D₂: Maity & Pradhan 26880, BSHC; E-J: *King's collector s.n.*, CAL [255172D]; F₁: *King's collector s.n.*, CAL [255173A]; F₂: *King's collector s.n.*, CAL [255172D]; F₃, F₄: *King's collector s.n.*, CAL [255172C]] [Drawings by D. Maity]

Table 1. – Comparison of morpho-anatomical characters of the *Tibetoseris depressa* (Hook. f. & Thomson) Sennikov subsp. *depressa*, *T. depressa* subsp. *gauri* D. Maity, and related species of *Pseudoyoungia* D. Maity & Maity.

Characters	<i>T. depressa</i> subsp. <i>depressa</i>	<i>T. depressa</i> subsp. <i>gauri</i>	<i>Species of <i>Pseudoyoungia</i></i>
1. Leaf blade	Orbicular-ovate to deltoid-triangular, entire or remotely denticulate	Oblanceolate, lyrate-pinnatisect	Oblanceolate, sinuate-dentate, pinnatifid
2. Capitula	Several to many, congested, large-sized and surrounded by crown of crowded leaves	Several, congested, large-sized and surrounded by crown of crowded leaves	Few to several, medium-sized, some times surrounded by loose crown of leaves
3. Receptacle	Areolate and fimbriolate	Areolate and fimbriolate	Areolate, not fimbriolate
4. Ratio of length of corolla tube and ligule	Corolla tube and ligule are equal in length (1:1)	Corolla tube and ligule are equal in length (1:1)	Corolla tube shorter than the ligule
5. Anther tails	Free	Free	United
6. Colour of stigmatic branches	Dark brown to black	Dark brown to black	Yellow
7. Cypselas			
a. Morphology	More than (6-17) mm long, coarsely beaked outer ones slightly flattened than inner	4.5-5 mm long, coarsely beaked outer ones slightly flattened than inner	4-5 mm long, not beaked cylindrical, slightly compressed
b. Colour	Straw-coloured with randomly scattered numerous brown patches	Straw-coloured with randomly scattered numerous brown patches	Uniformly coloured, yellowish
c. Ribs	10, large and small ribs alternately arranged	10, large and small ribs alternately arranged	10-15, large and small ribs alternately arranged or ribs almost equal
d. Cross sectional structure	Inner surface of pericarp ridged and furrowed with strong undulating line	Inner surface of pericarp ridged and furrowed with strong undulating line	Inner surface of pericarp entire, not undulate
e. Pericarp (mesocarp)	Sclerenchymatous throughout	Sclerenchymatous throughout	Parenchymatous, with sclerenchymatous patches in ridges
f. Vallicular canal	Present, very large	Present, very large	Absent or inconspicuous
8. Length of Pappus [mm]	11-13	7-9	5-9 (-12)

terminal lobes undulate or uneven, entire; glabrous or sparsely hairy along veins towards base; petioles much shorter than blade, 1-2.5 cm long, dilated at base. *Capitula* ligulate, several, large, congested, amongst radical leaves, with 14-21 florets. *Involucre* biseriate; outer phyllaries much shorter, 2-3 mm long, setose outside along midrib, ciliate at apex; inner phyllaries 13-14 mm long, setose outside along midrib, ciliate and crested at apex. *Receptacle* areolate-fimbriate. *Florets* ca. 14 mm long; corolla tube glabrous, equal to ligule. *Anther* tails free. *Pollens* echinate. *Style* branches black. *Cypselas* slightly compressed, 4.5-5 mm long, with a strong coarse beak, 10-ribbed (becomes 11- or 12-ribbed at middle due to partial separation of main ribs), hispid towards apex, yellow with dense blackish-brown patches. Pericarp sclerenchymatous (except epidermis) with very large vallecular canals. *Pappus* biseriate, 7-9 mm long, white or stramineous, persistent.

Flowering & fruiting. – July-August.

Distribution and ecology. – India (Sikkim), Nepal. Grows in open alpine grassy slopes between 3600-5100 m.

Etymology. – The infraspecific epithet has been chosen after the name of Prof. G. G. Maiti, a renowned taxonomist and my respected teacher from whom I have learned taxonomy.

Other specimens examined. – **INDIA**: Sikkim Himalaya [Nepal?], [without any precise locality], 1887, *King's collector s.n.* (CAL [4 specimens A, B, C & D]).

NEPAL: Chingbapla, 17,000 ft. [5100 m], VIII.1888, *King's collector s.n.* (CAL [255173A, 255173B, 255173C, 255173D]).

Note. – The three taxa described under *Tibetoseris depressa* are unique with respect to the characters like areolate-fimbriate receptacle; corolla tube glabrous and equal to the ligule; free anther tails; black style branches; cypselas yellow with dense blackish-brown patches and with a strong coarse beak; sclerenchymatous pericarp (except epidermis) with very large vallecular canals. Therefore, these characters are treated as the diagnostic features of the genus *Tibetoseris* (MAITY & MAITI, 2010). The newly described subspecies is also unique due to the presence of lyrate to pinnatisect leaves and relatively small cypselas and pappus. A comparative morpho-anatomical study of the species of *Pseudoyoungia*, *Tibetoseris depressa* subsp. *depressa* and the new subsp. *gauri* is appended in Table 1.

Acknowledgements

I am thankful to the Additional Director, Central National Herbarium (CAL), Howrah, West Bengal, India for giving permission to consult the herbarium and library. I am grateful to Prof. G. G. Maiti, Department of Botany, University of Kalyani, West Bengal, India for guidance and encouragement. Prof. A. N. Sennikov, Botanical Museum, Museum of Natural History, University of Helsinki, is warmly thanked for providing some valuable reprints.

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