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ALEXANDER N. SENNIKOV[1]

Critical notes on the genera *Hieracium* and *Pilosella (Asteraceae, Cichorieae)* in the Himalayas

Abstract

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The species of *Hieracium* and *Pilosella* of the sunflower family tribe *Cichorieae* recorded from the Himalayas (within India and Pakistan) are revised from selected specimens. *H. korshinskyi, H. kuusamoense* and *H. subramosum* are reported in place of *H. vulgatum,* and *H. robustum* in place of *H. crocatum*. The presence of *H. umbellatum* and *H. virosum* is confirmed. Four species are new to India, one is new also to Pakistan. All the species are present also in Central Asia.

Additional key words: hawkweeds, apomictic taxa, new records, India, Pakistan

Introduction

The first comprehensive list of species of *Hieracium* L., *Asteraceae* tribe *Cichorieae,* in India was provided by Hooker (1876), who accepted the identifications from the renowned British hieraciologist John Gilbert Baker. Baker used the species concept from the latest and most influential monograph of Fries (1862). Consequently, the species were circumscribed very broadly. Besides, at that time it was customary to identify Asian species by the oldest names originally coined for European plants; for this reason some names of Fennoscandian endemics appeared in the lists of Himalayan plants. No serious revision was undertaken since those times to bring the Asian identifications in line with the further development of the *Hieracium* taxonomy, i.e. to narrow circumscriptions and to distinguishing between European, Eurasian and purely Asian taxa, although already Hooker expressed the view that some particular taxa from the Himalayas cannot be reduced to European forms.

The standard to modern treatments of *Hieracium* was set by Zahn (1921–23) who described and classified thousands of narrowly defined apomictic taxa. Further broad-scale synoptic works published for the former USSR (Üksip 1960), E Europe (Schljakov 1989), Russian Siberia (Tupitsyna 2004), Central Asia (Sennikov 2009) and China (Shih & Gottschlich 2011) contributed very much towards a better understanding of definitions and distribution areas of apomictic taxa at the eastern limit of the *Hieracium* area. Although quite much is still to be done, especially for some poorly explored and inventoried areas, the basics of the future comprehensive revision are seemingly present.

Material and methods

This first attempt to assign the diversity of *Hieracium* in the Himalayas to narrowly defined taxa is based on the treatment developed for Central Asia (Sennikov 2009). Only scattered collections kept in some herbaria outside India and Great Britain (13 specimens in total) were available at present, all collected from the present-day India (mostly Kashmir). For this reason the *Hieracium*

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names recorded from the Himalayas (Clarke 1876; Hooker 1881; Zahn 1921–23; Stewart 1972; Mamgain & Rao 1995; Kachroo & al. 2002; Qureshi & al. 2009) are assessed on the basis of representative specimens and published information.

Taxonomic treatment

Hieracium korshinskyi Zahn
– *Hieracium vulgatum* auct. non Fr., p.p.: Hooker 1881: 399; Stewart 1972: 751; Mamgain & Rao 1995: 245; Qureshi & al. 2009: 6.

Specimens examined. — Kashmir: Alibad, 11000 ft., 6.7.1876, *C. B. Clarke 28916C* (LE); Zoji Pass, 11000', 29.8.1922, *R. R. Stewart 7486* (MO 922556); Pah[a]lgam, 10.8.1927, *R. R. Stewart 13497* (S); Sonamarg, 10000 ft., 17.7.1928, *R. R. Stewart s.n.* (S); above Gulmarg, 10000', 9.8.1929, *R. R. Stewart 10396* (MO 1048041); Banihal Pass, 9000 ft., 1.7.1931, *R. R. Stewart 12197* (S).

Notes. — New to India and Pakistan. This species had been commonly included in the broad concept of *Hieracium vulgatum* Fr. However, it immediately differs in the very special shape of its rigid cauline leaves, which, when well-developed, range from lanceolate to lanceolate-ovate, sessile with subrotund base (middle cauline leaves) to attenuate into a broadly winged petiole (lower cauline leaves), minutely dentate, all covered with long rigid simple hairs. Phyllaries are slightly larger than in *H.* sect. *Vulgata* Dahlst., covered with long rigid simple hairs (up to 2.5 mm long) and very short glandular hairs along the middle line only. The habit of this species allowed Zahn (1921–23) to assume that it appeared from hybridisation between *H. murorum* L. s.l. and *H. virosum* Pall., and this assumption may be essentially correct. The distribution area of *H. korshinskyi* stretches from the Himalayas to S Siberia, including Kazakhstan, Kyrgyzstan and China (Tupitsyna 2004; Sennikov 2009; Shih & Gottschlich 2011). The new record from Pakistan is based on the photograph of a specimen of *"H. vulgatum"* collected in Hazara (Qureshi & al. 2009: 16, fig. 6), which shows a typical plant of *H. korshinskyi*.

Hieracium kuusamoënse Vainio
– *Hieracium vulgatum* auct. non Fr., p.p.: Hooker, 1881: 399; Stewart, 1972: 751; Mamgain & Rao, 1995: 245.

Specimen examined. — Kashmir: Near Gulmarg, 8–9000 ft., 11.6.1892, *J. F. Duthie 11413* (LE).

Notes. — New to India. This species is a member of *Hieracium vulgatum* Fr. s.l., being characteristic of its rather narrow basal leaves, densely covered above with short (0.5–0.8(–1) mm long) thin simple hairs, and the phyllaries fully covered with abundant simple hairs and scattered short (0.1–0.2 mm long) glandular hairs. This species is very widely distributed from the northernmost Fennoscandia (described from Finland) to the Urals, reappearing after a gap in S Siberia and Central Asia (Kazakhstan, China, Mongolia) (Sennikov 2009 and unpublished data). The plants from the European and Asian parts of its distribution area have no visible differences; besides, one notably characteristic facultative feature of the habit (abbreviated acladium) constantly appears in combination with the peculiar type of pubescence throughout the vast distribution area. This species is one of the rare examples of apomictic taxa with large distribution areas (notably, a few Fennoscandian species of *Hieracium* were recorded from S Siberia already by Hugo Dahlstedt (Samuelsson 1943)).

Hieracium robustum Fr.
= *Hieracium robustum* subsp. *kaschmiriense* Zahn in Engler, Pflanzenr. 79: 939. 1922 [ex descriptio]
– *Hieracium crocatum* auct. non Fr.: Hooker 1881: 400; Mamgain & Rao 1995: 240
– *Hieracium umbellatum* auct. non L., p.p.: Stewart, 1972: 751.

Specimens examined. — Kashmir: Dras Valley, 10–11000 ft., 22.8.1893, *J. F. Duthie 14157* (LE) [orig. *H. umbellatum* L.]; Sonamarg, 19.8.1922, *R. R. Stewart* (MO 922554) [orig. *H. crocatum* Fr.].

Notes. — New to India on the basis of these records and synonymy. Stewart (1972: 751) reduced *Hieracium robustum* subsp. *kaschmiriense* Zahn to the synonymy of *H. umbellatum* L., that is very unlikely judging from the original description. This species is a hybrid between *H. virosum* Pall. and *H. umbellatum,* morphologically variable and very common in the vast distribution area from Hungary (Schljakov 1989) to S Siberia (Tupitsyna 2004) and Central Asia (Zuckerwanik 1993; Sennikov 2009; Shih & Gottschlich 2011). *H. robustum* is sometimes confused with *H. umbellatum,* from which it differs, first of all, in slightly glaucous, broader leaves with more prominent venation below, with clearly rotund base, usually only sparsely (if at all) covered with stellate hairs.

Hieracium subramosum Lönnr.
= *Hieracium ganeschinii* Zahn
– *H. vulgatum* auct. non Fr., p.p.: Hooker 1881: 399; Stewart 1972: 751; Mamgain & Rao 1995: 245.

Specimens examined. — Himachal Pradesh: Chenab Valley, Phindru, 7500 ft., 16.6.1881, *R. Ellis 1232* (LE). — Uttarakhand: Landour, Missoorie, 6000 ft., 7.5.1930, *R. R. Stewart* (MO 1048040).

Notes. — New to India. Belongs to *Hieracium vulgatum* Fr. s.l., being different from *H. kuusamoense* in broader basal leaves which are less densely hairy above

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with longer (0.8–1(–1.5) mm long) simple hairs, and in the involucres with less abundant simple hairs, which are not covering the narrow margin of phyllaries. This is another example of the broad distribution of apomictic microspecies, nearly congruent with *H. kuusamoense* (Sennikov 2009, and unpublished data). In Asia, *H. subramosum* is found in Kazakhstan, Kyrgyzstan, China, Mongolia and S Siberia (Sennikov 2009).

Hieracium umbellatum L.
= *Hieracium umbellatum* var. *lanceolatum* Hook. f., Fl. Brit. Ind. 3(8): 400. 1881

Specimens examined. — Kashmir: Pah[a]lgam, field weed, 2.9.1931, *R. R. Stewart 12390* (MO 1048033).

Notes. — Confirmed as present in India. This species is rather broadly distributed in eastern parts of Central Asia (Zuckerwanik 1993; Sennikov 2009; Shih & Gottschlich 2011), but many of its earlier records were found based on misidentified specimens of *Hieracium robustum* (pers. obs.). In more arid areas of Central Asia this species is represented by a form with appressed phyllaries, making it being keyed out as *H. robustum* (Sennikov, unpubl. data). *H. umbellatum* var. *lanceolatum* Hook. f. is a depauperate form of *H. umbellatum* that is developed by grazing and under harsh conditions.

Hieracium virosum Pall.

Specimens examined. — Kashmir: Tongola, Purig, 27.7.1933, *W. Koelz 6085* (F 1456147).

Notes. — Confirmed as present in India. This species is very often confused with its hybrid *Hieracium robustum,* to which many earlier records actually belong (pers. obs.). *H. virosum* differs from *H. robustum* in the complete absence of stellate hairs (also under calathidia), in shorter (7–8 mm long, vs. 8–10 mm long) phyllaries, and more glaucous leaves with more prominent venation and usually broader (often semiamplexicaul) base.

Excluded taxa

Hieracium bichlorophyllum (Druce & Zahn) Pugsley (Qureshi & al. 2009: 4)

Judging from the specimen reproduced in Qureshi & al. (2009: 15, fig. 2), this record from Pakistan may belong to *Hieracium regelianum* Zahn (Sennikov 2009).

Hieracium crocatum Fr. (Hooker 1881: 400; Mamgain & Rao 1995: 240).

The distribution area of this species is restricted to Fennoscandia, the northern part of E Europe and possibly W Siberia (Sennikov 1999). It is not known from S Siberia (Tupitsyna 2004) and Central Asia (Zuckerwanik 1993; Sennikov 2009; Shih & Gottschlich 2011), and its presence in the Himalayas is impossible. As found in the present study, the relevant material may be referable to *Hieracium robustum.*

Hieracium diaphanoides Lindeb. (Qureshi & al. 2009: 5)

No material was available. In spite of the illustration provided in Qureshi & al. (2009: 15, fig 3), this record from Pakistan is completely mysterious.

Hieracium echioides Lumn. (Stewart 1972: 751; Mamgain & Rao 1995: 242).

No material was available. Most probably, *Pilosella echioides* (Lumn.) F. Schultz & Sch. Bip. s.str. is not present in the Himalayas, but *P. procera* (Fr.) F. Schultz & Sch. Bip. s.l. is expected.

Hieracium murorum L. (Clarke 1876: 256).

No material was available. Obviously recorded in place of subsequent reports of *"Hieracium vulgatum"*.

Hieracium prenanthoides Vill. (Hooker 1881: 400; Stewart 1972: 751; Mamgain & Rao 1995: 242).

No material was available. The typical *Hieracium prenanthoides* s.str. is endemic to the Alps (Zahn 1921–23), whereas *H. regelianum* (Sennikov 2009) is expected in the Himalayas.

Hieracium rigidum Hartm. ≡ *Hieracium umbellatum* var. *rigidum* (Hartm.) Clarke, Comp. Ind.: 258. 1876.

No material was available. *Hieracium rigidum* s.str. is restricted to Europe, although its distribution area is not properly studied yet. No other representative of *H.* sect. *Tridentata* (Fr.) Gremli is recorded from the Himalayas (as well as from Central Asia) yet.

Hieracium sherwalii Abedin & Zamarrud in Pakistan J. Bot. 40: 6. 2008.

No material was available. Judging from the protologue (Abedin & Zamarrud 2008), this species described as a local endemic of Pakistan (disputed territories in Kashmir) is strikingly dissimilar with *Hieracium* and may not belong to this genus.

Hieracium vulgatum Fr. (Hooker 1881: 399; Stewart 1972: 751; Mamgain & Rao 1995: 245; Kachroo & al. 2002; Qureshi & al. 2009: 6).

The eastern limit of the distribution area of *Hieracium vulgatum* is traced in the westernmost areas of the central part of European Russia (Sennikov 2006). The three species recorded in place of *H. vulgatum* here, *H. korshinskyi, H. kuusamoense* and *H. subramosum,* probably reflect the complete diversity of this group in the Himalayas.

Conclusions

At present, the identity of six species (including apomictic taxa and interspecific hybrids) of *Hieracium* is estab-

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lished or confirmed in India on the basis of herbarium specimens. One more species is known under a collective name. Their distribution cannot be verified yet. Among these species, three *(H. umbellatum, H. robustum, H. virosum)* are very widespread and belong to temperate steppes and meadows of Eurasia, two *(H. kuusamoense, H. subramosum)* are Fennoscandian-E European and Central Asian-S Siberian elements, whereas the remaining two (*H. korshinskyi,* most likely also *H. prenanthoides* s.l.) are restricted to Central Asia and S Siberia.

A single species of *Pilosella* (*P. echioides* s.l.) is known from the Himalayas. Its identity and distribution area is not ascertained yet.

Further studies on the diversity and distribution of *Hieracium* and *Pilosella* in the Himalayas are needed.

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