

Notes on the flora of Sikkim I: Remarks, new synonyms and new taxon

Debabrata Maity

Taxonomy and Biosystematics Laboratory, Department of Botany, University of Calcutta,
35 Ballygunge Circular Road, Kolkata - 700 019, West Bengal, India

E-mail: debmaity@yahoo.com

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Abstract

Problems related to the present status of several taxa for the flora of Sikkim are discussed with the proposal of new synonymy. One new variety *Pilea anisophylla* (Wallich ex Weddell) Weddell var. *karchiensis* D. Maity, Maiti & A.S. Chauhan, var. *nov.* is proposed. Observation on apparent dioecy in *Holboellia latifolia* Wallich is reported. Taxonomic notes are provided on *Notochaete hamosa* Benth and *N. longiaristata* C.Y. Wu & H.W. Li and *Neillia rubiflora* D. Don and *N. thyrsiflora* D. Don.

Key words: Flora, Sikkim, Eastern Himalaya, taxonomic notes, new synonyms, new variety.

INTRODUCTION

Sikkim, the beauty spot of the Eastern Himalaya, lies on the north of the state of West Bengal, gracing it like a crown. The Sikkim state lies between 27° 04' to 28° 07' North Latitudes and 88° 01' to 88° 55' East Longitudes having a total area of about 7096 sq km. This tiny state although occupies nearly only 0.2 % of the total geographical area of the country but it shelters about 25 % of the flowering plants of India and thus included under the Himalaya Biodiversity Hotspot (Singh & Chauhan 1997, 1998; Singh & Singh 2002; Maiti 2005; Maiti & Maiti 2007).

The enumerable floristic elements, distributed from warm subtropical forest to the cold alpine habitats through dense temperate forest, provide opportunity to examine the plasticity of characters of a taxon both temporally as well as spatially. Sometimes taxa are described based on few specimens without considering the range of variation throughout its distributional range. Therefore, the actual status of a taxon is not properly reflected. The variety and variability of the members of a particular taxon is often greatly influenced by the environmental as well as geo-physical factors. Without examination of sufficient specimens from its entire habitat range, establishment of taxonomic groups sometimes leads to the misinterpretation. During the last 16 years the author has come across enumerable floristic elements of Sikkim, particularly plants from high altitude regimes. Different herbaria were also visited to examine the specimens. Herbarium study is also largely supported by the regular field visits to different remote places with various altitudinal ranges. Most of the specimens are deposited at BSHC and remaining ones are in CUH. This elaborate study provides opportunity to evaluate the actual status of some taxa.

This article aims to present the result of thorough investigation on floristic elements of the study area and evaluation of the status of some important taxa.

MATERIALS AND METHODS

Many collections and field observation trips to the study area were carried out since 1999 in order to acquire an integrated and adequate knowledge of the flora and the vegetation of Sikkim. Herbarium specimens were examined principally at BSHC, CUH and CAL. Through literature survey pertaining to the flora of the state was done. Important specimens, particularly intermediates are incorporated in the text.

Present study is provided with the taxonomic notes on synonyms of *Carpesium cernuum* Linnaeus var. *glundulosum* Hooker f. & Thomson, *Leucas mollissima* Wallich ex Bentham, *Nepeta discolor* Royle ex Bentham, *Prunella vulgaris* Linnaeus, *Salvia campanulata* Wallich ex Bentham, *Rubus paniculatus* Smith, *Salix longiflora* Wallich ex Andersson, and *Mimulus nepalensis* Wallich ex Bentham. Taxonomic notes are provided on *Notochaete hamosa* Bentham and *N. longiaristata* C.Y. Wu & H.W. Li and *Neillia thyrsoiflora* D. Don and *N. rubiflora* D. Don. Apparent dioecy of *Holboellia latifolia* Wallich is reported and one new variety of *Pilea anisophylla* (Wallich ex Weddell) Weddell is proposed.

All taxa, viz. families, genera under each family and species under each genus (in case of more than one genus and species respectively), are arranged alphabetically for ready references with full citations. Critical comments are incorporated in each case. Distributional pattern, flowering and fruiting time, ecology of each taxon is also provided.

OBSERVATIONS AND DISCUSSION

Observations of the present studies on the taxonomic circumscription of some taxa from Sikkim Flora are presented and discussed below:

ASTERACEAE

CARPESIUM Linnaeus

C. cernuum Linnaeus (Sp. Pl. ed. 2: 859. 1753; Hooker f. in Hooker f., Fl. Brit. India 3: 300. 1881; Kumar in Hajra *et al.*, Fl. India 13: 6. 1995). var. *glundulosum* Hooker f. & Thomson in C.B. Clarke, Comp. Ind. 130. 1876; Hooker f. in Hooker f., Fl. Brit. India 3: 301. 1881; Kumar in Hajra *et al.* (eds.), Fl. India 13: 10. 1995.

Carpesium pedunculosum Wallich ex A.P. de Candolle, Prodr. 6: 281. 1836; *C. cernuum* var. *pedunculosum* Wallich ex C.B. Clarke, Comp. Ind. 131. 1876; Hooker f. in Hooker f., Fl. Brit. India 3: 301. 1881, *syn. nov.*; *C. nepalense* Lessing var. *pedunculosa* (Wallich ex C.B. Clarke) S. Kumar in Rao *et al.*, Fl. Ind. Enum. Aster. 22. 1988, *syn. nov.*

Carpesium cernuum is a variable species. The varieties, viz. var. *glundulosum* Hooker f. & Thomson and var. *pedunculosum* Wallich ex C.B. Clarke are often with overlapping characters.

Specimen Maity 23289 (with duplicates) shares both the characters of var. *pedunculosum* being ovate lamina with long winged petioles and var. *glundulosum* being large leafy bracteates heads. Therefore, the var. *pedunculosum* is treated here as synonym under var. *glundulosum*.

Distribution: INDIA [Himalaya: Himachal Pradesh; Uttarakhand, Sikkim; Meghalaya]; BHUTAN.

Grows in most shady places, along streams, grassy slopes in evergreen temperate forest to open alpine meadows at 1800 – 4100 m altitudes.

Flowers & Fruits: June – September

Specimen cited: Tholung to Kishong, 2800 m, *Maity* 23289 [BSHC].

LAMIACEAE

LEUCAS R. Brown

L. mollissima Wallich *ex* Bentham in Wallich, Pl. Asiat. Rar. 1: 62. 1830; Hooker *f.* in Hooker *f.*, Fl. Brit. India 4: 682. 1885; Xiwen & Hedge in Wu & Raven, Fl. China 17: 142. 1994, Clement in Grierson & Long, Fl. Bhutan 2(2): 962. 1999.

L. mollissima var. *chinensis* Bentham in A.P. de Candolle, Prodr. 12 : 525. 1848, *syn. nov.*; *L. mollissima* var. *scaberula* Hooker *f.* in Hooker *f.*, Fl. Brit. India 4: 682. 1885, *syn. nov.*

The specimen cited below (with duplicates) shares the characters of at least three varieties including the typical one as were treated earlier by different authors. It has both hispid lamina (on both the surfaces) and calyx (position uncertain). In some calyx the teeth are clearly alternately long and short (character of var. *chinensis*) and in others almost subequal (character of var. *typica*). When working on the Himalayan flora it is often seen that in maximum cases indumentum character varies greatly. Therefore, creation of taxa based on indumentum features and calyx teeth is not a significant one and thus here all these varieties have been treated as synonyms under the typical one.

Distribution: Throughout INDIA; NEPAL; BHUTAN; TIBET; CHINA; MYANMAR; JAPAN; MALAYSIA; INDONESIA; THAILAND; VIETNUM; SRI LANKA.

Grows in between shrubberies in tropical forest to evergreen temperate forest ascending up to 2700 m altitude.

Flowers & Fruits: May – November

Specimen cited: Tholung to Nampruk, 2200 m, *Maity* 23242 [BSHC].

NEPETA Linnaeus

N. discolor Royle *ex* Bentham, Hook. J. Bot. Kew Gard. Misc. 3: 378. 1883; Xiwen & Hedge in Wu & Raven, Fl. China 17: 110. 1994.

N. lamiopsis Bentham *ex* Hooker *f.* in Hooker *f.*, Fl. Brit. India 4: 659. 1885; Xiwen & Hedge in Wu & Raven, Fl. China 17: 112. 1994; Clement in Grierson & Long, Fl. Bhutan 2(2): 952. 1999, *syn. nov.*

These two species *N. discolor* Royle *ex* Bentham & *N. lamiopsis* Bentham *ex* Hooker *f.* are too close and thus failed to find any key character to separate them. The presently collected specimens also share characters of both the species vegetatively as well as reproductively. The well overlapping characters are also indicated by Clement (1999). Therefore, *N. lamiopsis* Bentham *ex* Hooker *f.* is considered here as conspecific with *N. discolor* and is treated here as synonym of *N. discolor*.

Distribution: Throughout INDIA; TURKESTAN; AFGHANISTAN; PAKISTAN; NEPAL; BHUTAN; TIBET; CHINA.

Grows on open slopes, between shrubberies, grassy places, damp soils in evergreen temperate forest to open alpine meadow at 2500 – 5000 m altitudes.

Flowers & Fruits: June – September

Specimen cited: Thi La, 4200 m, *Maity* 22925 [BSHC]; Naku La, Lhonak, Zemu, 10000 – 16000 ft. (3000 – 4850 m), *Smith & Cave* 1035, 1185, 1456, 1700, 1987 [all at CAL].

NOTOCHAETE Bentham

N. hamosa Bentham in Bot. Reg. 15: sub t. 1289. 1829; Hooker *f.* in Hooker *f.*, Fl. Brit. India 4: 694. 1885; Xiwen & Hedge in Wu & Raven, Fl. China 17: 139. 1994; Clement in Grierson & Long, Fl. Bhutan 2(2): 956. 1999.

Till date, two species are known under the genus *Notochaete* Bentham. The acceptability of the second species *N. longiaristata* C.Y. Wu & H.W. Li (in Acta Phytotax. Sin. 10: 154. 1965) described from China is quite questionable in regards to its proper taxonomic rank. Later, Xiwen & Hedge (1994) had again elaborately described these two species. But, the key characters given by them are not good enough because of the presence of intermediates. Recently collected specimens from Sikkim [identified as *Notochaete hamosa* Bentham] are characterized by the features as, leaves distinctly crenate-serrate (teeth *ca* 4 mm) throughout the margin with acute apex (0.4 – 1 cm long) and rounded to cordate (*ca* 1 cm deep) at base; sparsely hispid with simple hairs on the upper surface and with scattered stellate hairs only along veins on the lower surface; bracts also 1 – 1.5 cm long, villous at base with simple hairs (Maity 21204) or glabrescent with few short simple hairs (Shukla 22154); calyx sparsely (very few) hairy with stellate ones on outer surface (Shukla 22154) and sparsely villous near top; but spines always subterminal and calyx 0.5 – 0.8 cm long. Interestingly, flowers are always white in Sikkim and Darjeeling Himalaya (Maity 21204). Nutlets are glabrous in all cases.

So, the characters which may distinguish the second species *N. longiaristata* from *P. hamosa* are terminal spines of calyx and nutlets stellate at apex. It is assumed that the so called distinctive characters as mentioned in the key and also in description by Xiwen & Hedge (1994) are may be geographical (–ecological) variations instead of constant features. Such inference can be drawn based on the study of the specimens collected from Sikkim. Therefore, it is better to treat *N. longiaristata* as a subspecies under *N. hamosa*.

Recently, both the species is transferred to the genus *Phlomooides* Moench as *P. hamosa* (Bentham) Mathiesen (Mathiesen *et al.* 2011) and *P. longiaristata* (C.Y. Wu & H.W. Li) Salmaki (Salmaki *et al.* 2012) based on molecular phylogeny.

Distribution: INDIA [West Bengal, Sikkim]; NEPAL; BHUTAN; CHINA; MYANMAR.

Grows on open rocky slopes, between shrubberies in warm subtropical forests to evergreen temperate forests at 1200 – 2650 m altitudes.

Flowers & Fruits: July – November

Specimen cited: Yoksum, Raju 4342; Yoksum to Bakhim, 1900 m, Maity 21204; Karchi Reserve Forest, 2000 m, Shukla 22154 [all at BSHC].

PRUNELLA Linnaeus

P. vulgaris Linnaeus, Sp. Pl. ed. 1: 600. 1753; Xiwen & Hedge in Wu & Raven, Fl. China 17: 134. 1994; Clement in Grierson & Long, Fl. Bhutan 2(2): 955. 1999.

var. vulgaris

Brunella vulgaris Greene, Man Bot. San Franc. Bay 293. 1892; Hooker *f.* in Hooker *f.*, Fl. Brit. India 4: 670. 1885; *Prunella vulgaris* var. *lanceolata* (Barton) Fernald, Rhodorab 15: 183. 1913; Xiwen & Hedge in Wu & Raven, Fl. China 17: 135. 1994, **syn. nov.**; *P. pennsylvanica* Willdenow var. *lanceolata* Barton, Fl. Philadelph. Prod. 64. 1815.

In the specimens cited below with their duplicates the stems are very densely hairy, almost obscuring and the upper corolla lip is with a very prominent hispid spot on the back. As the leaf shape, leaf margins and indumentum features are too much variable and do not

correlate with any other characters given by the author, the var. *lanceolata* (Barton) Fernald is treated here as synonym under the typical one. Within the same plant leaves varies from ovate to ovate-oblong, obscurely serrate to entire (*Maity* 21644), and so also for the indumentum feature.

Distribution: Throughout the subtropical, temperate to alpine ASIA & EUROPE.

Grows on grassy slopes, along roads, damp places, along streams, open rocky slopes ascending up to 4000 m altitude.

Flowers & Fruits: May – October

Specimen cited: Lachen, 2750 m, *Maity & Maiti* 21601; Bakhim, 2800 m, *Maity* 21644; Yoksum, 1700 m, *Maity & Pradhan* 23474 [all at BSHC]; Lachen, Thangu, 8000-1000 ft. (2400-3000m), *Smith & Cave* 848 [CAL].

SALVIA Linnaeus

S. campanulata Wallich ex Benth in Wallich, Pl. Asiat. Rar. 1: 67. 1830; Hooker f. in Fl. Brit. India 4: 654. 1885; Xiwen & Hedge in Wu & Raven, Fl. China 17: 206. 1994; Clement in Grierson & Long, Fl. Bhutan 2(2): 972. 1999.

S. campanulata Wallich ex Benth var. *hirtella* Peter-Stibal in Fedde. Repert. 39. 179. 1936 *syn. nov.*

Specimens collected from Tholung to Kishong (*Maity* 24248 with duplicates) are with villous stem and villous adaxial surface of leaves (character of typical plant), but with distinct caudate bracts (character of var. *hirtella*). Again lobation of calyx is also variable. In the specimens cited below, calyces are very shallowly to somewhat deeply cleft. Therefore, creation of taxa based on indumentum and lobation of calyx is not significant as was wrongly done by Peter-Stibal (*l.c.*).

Distribution: INDIA [Himalaya: Uttarakhand, West Bengal, Sikkim (? Throughout INDIA)]; NEPAL; BHUTAN; TIBET; CHINA; MYANMAR.

Grows on open slopes, between shrubberies, along streams in evergreen temperate forests to open alpine meadows at 2400 – 4300 m altitudes.

Flowers & Fruits: June – October

Specimen cited: Lachen to Talem, *Raju & Singh* 5901; Tholung to Kishong, 2600 m, *Maity* 24248 [all at BSHC]; Zemu valley, 9000 – 1300 ft. (2700 – 3900 m), *Smith & Cave*, 1048, 1195 [all at CAL].

LARDIZABALACEAE

HOLBOELLIA Wallich

H. latifolia Wallich, Tent. Fl. Nepal. 24. t. 16. 1824; Hooker f. & Thomson in Hooker f., Fl. Brit. India 1: 108. 1872; Grierson & Long, Fl. Bhutan 1(2): 330. 1984; Nayar & Paul in Sharma *et al.* (eds.), Fl. India 1: 423. 1993; Dezhao and Shimizu in Wu *et al.*, Fl. China 6: 446. 2011.

Plants are often described as evergreen (Dezhao & Shimizu 2001). However, plants are deciduous in nature at least in Sikkim. This huge climber loses all foliages before flowering. Numerous fasciculate inflorescences with as more numerous flowers are hanging downward from naked nodes. Interestingly, though plant is monoecious, however, male and female flowers are developed on separate branches. In this way an ‘apparent dioecism’, ‘superficial

dioecism' or 'branch dioecism' is observed in this species. Male flowers are more numerous than the female ones. Usually female flowers are few to several depending on the age and growth habit of the plant. Significantly, leaves come earlier in female branches than the male ones. For this reason fully expanded leaves were observed almost at each node in female branches, whereas, at the same time the male branches were naked, leaf less and with only numerous fasciculate raceme inflorescences.

Flower colour is also variable. Female flowers are often described as purple (tepals) and male as greenish white (Dezhao & Shimizu 2001). However, recently bright green female flowers in Gangtok, Bakhim-Tsoka areas of East and West Sikkim respectively have been observed. Though, purple female as well as male flowers are also observed in Sikkim and Rishop-Darjeeling (West Bengal) areas. After examination of the specimens deposited at BSHC, it was confirmed that flowers are both green and purple in colour.

Distribution: INDIA [Himalaya: Uttarakhand, West Bengal, Sikkim, Arunachal Pradesh; Manipur, Assam, Meghalaya]; NEPAL; BHUTAN; BANGLADESH; MYANMAR; WEST CHINA.

Grows in subtropical to temperate forests at 600 – 2900 m altitudes.

Flowers & Fruits: March – June

Specimen cited: Yoksum-Tsoka, *Sinha* 16067; Tholung, 2500 m, *Sinha* 16951; Bakhim, 2900 m, *Maity* 21563 [all at BSHC]; Gangtok, 1700 m, *Maity & Dey* 20110 & 20111 [all at CUH].

ROSACEAE

NEILLIA D. Don

N. thyrsoflora D. Don, Prodr. Fl. Nepal. 228. 1825; Hooker *f.* in Hooker *f.*, Fl. Brit. India 2: addenda (for p. 326). 1879; Grierson in Grierson & Long, Fl. Bhutan 1(3): 536. 1987; Purohit & Panigrahi, Fam. Rosa. India 1: 30. 1991; Cuizhi & Alexander in Wu *et al.*, Fl. China 9: 79. 2003.

Spiraea thyrsoflora (D. Don) K. Koch, Dendr. 1: 307. 1869.

Two species, viz. *N. thyrsoflora* D. Don and *N. rubiflora* D. Don are found in Sikkim Himalaya. The specimens cited below are under *Neillia thyrsoflora* based on only androecium characters (i.e. numbers of stamen, number of stamen series and the length of filament). All other characters which separate *N. thyrsoflora* from *N. rubiflora* are quite overlapping. The specimen *Maity* 21258 (with duplicates) is characterized as, leaves trilobed with cordate base; panicles well branched with large, lax flowers, placed *ca* 5 mm apart; inflorescence extra-axillary (*ca* 1 cm apart from leaf axil) and possess 1-2-vegetative buds in between them; bracts lanceolate-oblong with simple nonglandular hairs and with a few glandular hairs along margins; calyx cup broadly campanulate (*ca* 4 x 4 – 5 mm), appressed pubescent and with stalked glandular hairs in fruiting on outer surface and glabrous on inner surface; lobes *ca* 4 mm long, lanceolate, caudate-acuminate with appressed pubescent nature of the outer surface and only apical portion of inner surface; petals almost orbicular (*ca* 2 x 2 mm); number of stamen much variable from 10 to 15 in 1 or 2 series; filaments 1 mm long or less, glabrous; carpel solitary, glabrous except at base near ventral suture where more or less densely hairy.

Another specimen (*Maity & Ghosh* 21537, with duplicates) is with smaller leaves than earlier and compact, little branched inflorescence, only 2 – 5 cm long; bracts gland-

tipped serrate with few non-glandular hairs along margins; calyx cup and calyx lobes as earlier but smaller (both *ca* 2 mm); stamens more constantly 10; gynoecium as in previous one.

This examination does not correlate with any variety of *N. thyrsiflora* as described by Vidal (in *Adansonia* 3: 153. Pl. 1. Figs. 7-8. 1963). Again many of the characters which are served as distinctive features for delimitation of these two species are quite overlapping. Much details study is needed for these two species.

Distribution: INDIA [Himalaya : West Bengal, Sikkim, Arunachal Pradesh; Assam, Meghalaya, Manipur, Nagaland]; NEPAL; BHUTAN; CHINA; MYANMAR; INDONESIA; SUMATRA.

Grows on the rocky slopes in warm subtropical forest to cool, evergreen, mixed temperate forests at 1000 – 3300 m altitudes.

Flowers & Fruits: March – October

Specimen cited: Lachen, *Chakraborty* 2320; Lachen to Chunthang, *Mandal* 10510; Khechipalri Lake, *Pradhan* 15072; Yoksum to Phamrung falls, 1550 m, *Maiti & Ghosh* 21537; Bakhim to Yoksum 2200 m, *Maiti* 21258 [all at BSHC].

RUBUS Linnaeus

R. paniculatus Smith in Rees, *Cyclop.* 30: Rubus. 41. 1819; Hooker *f.* in Hooker *f.*, *Fl. Brit. India* 2: 329. 1878, p.p.; Grierson & Long, *Fl. Bhutan* 1(3): 552. 1987.

Rubus paniculatus var. *glabrescens* T.T. Yu & L.T. Lu, *Acta Phytotax. Sin.* 20: 456. 1982; *syn. nov.*

The indumentum on inner surface of calyx lobes varies in the species. In some specimens (*Maiti* 23258) lower half of calyx lobes are glabrous and only upper half villous. However, in others (*Maiti* 21637, 24262), inner surface of calyx lobes are villous throughout. The nature of serration and hairiness on leaves is also variable. Sharply serrate leaves have pubescent upper surface (Grierson & Long 1987); while obscurely serrate ones show glabrous upper surface (*Maiti* 23258, 21637). There is no such correlation between hairiness and serrations of leaves. Therefore, *R. paniculatus* var. *glabrescens* T.T. Yu & L.T. Lu is treated as synonym under typical one.

Distribution: INDIA [Himalaya: Jammu & Kashmir, Himachal Pradesh, Uttarakhand, West Bengal, Sikkim; Assam, Meghalaya]; PAKISTAN; NEPAL; BHUTAN; CHINA.

Grows in between shrubberies in subtropical to evergreen temperate forests at 1300 – 3200 m altitudes.

Flowers & Fruits: June – November

Specimen cited: Bakhim, 2800 m, *Maiti* 21637; Tholung to Kishong 2750 m, *Maiti* 23258; Tholung to Kishong 2900 m, *Maiti* 24262 [all at BSHC].

SALICAEAE

SALIX Linnaeus

S. longiflora Wallich *ex* Andersson in *J. Linn. Soc. Bot.* 4: 50. 1860; Hooker *f.* in Hooker *f.*, *Fl. Brit. India* 5: 633. 1888; Grierson & Long, *Fl. Bhutan* 1(1) : 67. 1984; Zhenfu *et al.* in Wu & Raven, *Fl. China* 4: 201. 1999.

Salix longiflora var. *albescens* Burkill in Forbes & Hemsley, J. Linn. Soc. Bot. 26: 530. 1899; Zhenfu *et al.* in Wu & Raven, Fl. China 4: 201. 1999, *syn. nov.*

The var. *albescens* Burkill (in Forbes & Hemsley, J. Linn. Soc. Bot. 26: 530. 1899) is treated with the characters like : (i) leaf obovate-elliptic (1.6 – 3 x 1 – 2 cm) in fruiting, (ii) pilose when young, otherwise glabrescent. But these characters are too variable within the same plant. The size and shape leaves varies greatly from elliptic (usually smaller ones) to obovate-oblongate (usually larger ones) and size varies from 2 – 8 x 0.7 – 2.3 cm. Indumentum character is also variable. Thus these characters are showing range of variation and not constant one. Therefore, the var. *albescens* Burkill is treated here as synonym.

Distribution: INDIA [Himalaya: Sikkim]; NEPAL; BHUTAN; CHINA.

Grows in subtropical forest to mixed evergreen temperate forest to open alpine slopes at 500 – 4000 m altitudes.

Flowers & Fruits: April – June

Specimen cited: Lachen, 2560 m, 7 1999, *Maity & Maiti* 21330 [BSHC].

SCROPHULARIACEAE

MIMULUS Linnaeus

M. nepalensis Wallich *ex* Benth, Scroph. Ind. 29. 1835; Hooker *f.* in Hooker *f.*, Fl. Brit. India 4: 258. 1884; Deyuan *et al.* in Wu & Raven, Fl. China 18: 41. 1998; Mill in Grierson and Long, Fl. Bhutan 2(3): 1099. 2001.

Mimulus assamicus Griffith in Lannaea 12: litt. 199. 1836.

M. nepalensis Wallich *ex* Benth var. 2 Hooker *f.* in Hooker *f.*, Fl. Brit. India 4: 259. 1884.

M. nepalensis Wallich *ex* Benth var. *procerus* Grant in Ann. Missouri Bot. Gard. 11: 207. 1924, *syn. nov.*

M. szechuanensis auct. non Pei : Yamazaki in Hara, Fl. East. Himal. 1: 289. 1966.

M. nepalensis Wallich *ex* Benth var. *procerus* Grant does not stand as a good variety because of intermediates. Presently collected specimens are with the leaves less than 2 x 1.2 cm in size; calyx straight to slightly curved. Therefore, var. *procerus* is treated here as synonym of typical species.

However, www.theplantlist.org [studied on October 28, 2014] recorded *M. nepalensis* as a synonym of *Mimulus tenellus* var. *nepalensis* (Benth) Tsoong [Fl. Reipubl. Popularis Sin. 67(2): 171. 1979].

Distribution: INDIA [Himalaya: Sikkim; Assam, Meghalaya]; NEPAL; BHUTAN; CHINA; MYANMAR; JAPAN; VIETNUM.

Grows on open grassy slopes in warm subtropical forest to evergreen temperate forest at 1100 – 2800 m altitudes.

Flowers & Fruits: March – November

Specimen cited: Bakhim, 2800 m, *Maity* 21656; Karchi Reserve Forest, 2000 m, *Shukla* 22134 [all at BSHC].

URTICACEAE

PILEA Lindley; *nom. cons.*

P. anisophylla (Wallich ex Weddell) Weddell, Monogr. Urtic. 193. 1856; Hooker *f.* in Hooker *f.*, Fl. Brit. India 5: 552. 1888; Grierson & Long, Fl. Bhutan 1(1): 115. 1984; Jiarui & Monro in Wu *et al.*, Fl. China 5: 119.2 003.

var. *karchiensis* D. Maity, Maiti & A.S. Chauhan, *var. nov.*

Similar to *P. anisophylla* var. *anisophylla* but differs with the characters as branches one or two (almost every node naked); cystoliths obscure on stem (particularly towards apex); upper surface of leaves with almost devoid of linear cystoliths (if present, inconspicuous).

Type: South Sikkim, Karchi Reserve Forest, 2000 m, *Shukla* 22196 (*Holotype*: BSHC; *Isotype*: BSHC).

Note: The diagnostic features are static. The specimen (male) collected from East Sikkim, on 26 August 1980 (Lindok, *Hajra* 645-BSHC) is with the same features as observed in a specimen *Shukla* 22196 (female) collected from West Sikkim on 29 October 1999. Though leaves are narrow (*ca* 10.5 x 3.2 cm) in the earlier than later (10 x 4.5 cm).

Another interesting observation regarding the presence of indumentum is in some specimens (*Shukla* 22196-BSHC, A & B) where twigs are tomentose, but in others it is perfectly glabrous (*Shukla* 22196-BSHC, C). The specimen *Hajra* 645 is with tomentose twigs.

Paratype: Sikkim, Lindok, *Hajra* 645 [BSHC].

Etymology: The infraspecific epithet is based on the type locality of the taxon.

CONCLUSION

The circumscription of taxon is always crucial in taxonomic research. Lot of researches is going on now-a-days for proper placement of taxa as well as proper evaluation of status of different taxa. Establishment of taxon with its correct position is a monumental job and require huge experience in the respective field of study. Sometimes taxon established without examining the range of variation leads to the misinterpretation. Sikkim is floristically rich and many new taxa are also described day by day from this region. Description of new taxon is again a novel duty to a taxonomist. The discovery of apparent novel morphological variability is always promising. Taxonomists are generally in favor of recognizing variability as it prompts additional research. However, care should be taken to illustrate the variation and variability of the individuals of a taxon in its entire distributional range. In the present study an attempt has been made to make some crucial observation for some taxa found in Sikkim and its adjoining regions. All total nine synonymy are proposed out of which five are from Lamiaceae. Critical observation on the morphology variability, both vegetative and reproductive, and 'apparent dioecy' in the species *Holboellia latifolia* is reported. Crucial observation on *Notochaete hamosa* – *N. longiaristata* and *Neillia rubiflora* – *N. thyrsiflora* 'complex' has been provided which will serve the basic platform for further research. One new variety *Pilea anisophylla* (Wallich ex Weddell) Weddell var. *karchiensis* D. Maity *et al.* is proposed based on important morphological parameters.

This study provides some basic information on the flora of Sikkim Himalaya and will be a footstep for further research.

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