A Taxonomic Revision of the Genus
Mentha in Pakistan

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Abstract The genus Mentha was revised to re-examine the taxonomic opinions of Hooker (1885), Mukerjee (1940), Borisova (1954), Stewart (1972) and Rechinger (1982). According to current studies the genus Mentha has five species in Pakistan: M. arvensis, M. piperita, M. spicata, M. longifolia and M. royleana. Four new varieties are described: M. royleana var. glabra, M. royleana var. gilgitica, M. longifolia var. swatica, and M. longifolia var. muqarrabica.

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The genus Mentha (subtribe Menthinae; tribe Saturejeae; Labiatae.) is distinguished from other genera of the subtribe mainly by the 4 stamens and the absence of staminodes.

Mentha displays great variability in leaf shape, indumentum, structure of inflorescence, size of calyx and corolla, length of stamens and styles. In shady habitats, verticillasters tend to be distantly spaced and usually contain fewer flowers. Hybridization is of common occurrence (Borisova 1954).

Bentham (1832–1836), in his monograph on Labiatae, listed 33 synonyms for Mentha sylvestris and 89 synonyms for M. arvensis. Hooker (1885), Mukerjee (1940) and Borisova (1954) recognized two species of Mentha from Pakistan, viz. M. sylvestris, and M. arvensis. Bentham and Hooker considered M. royleana to be a variety of M. sylvestris.

Murata (1964) listed Mentha longifolia from northern Pakistan and recorded var. incana under M. longifolia from Gilgit. Hedge (1968) described two new subspecies of M. longifolia from Pakistan and adjoining areas. He treated M. royleana as a subspecies of M. longifolia, but according to Rechinger (1982) M. royleana is a distinct species. Stewart (1972) followed Hedge (1968) in this regard and reported four species of Mentha from Pakistan.

Sobti (1974; 1975) reported the chromosome number of M. piperita and M. spicata as 2n=72 and 48; respectively. Harley & Brighton (1977) reported the chromosome number of M. longifolia as 2n=48, while Uhrikova (1978) reported the chromosome number of the same species as 2n=24. Gill (1984) and Bir & Saggo (1984) reported the chromosome number of M. sylvestris as 2n=10 and 12, respectively. While Saggo & Bir (1983) described the chromosome number of M. sylvestris var. royleana as 2n=72.

Rechinger (1982) in his Flora Iranica reported 7 species and described three new varieties of M. royleana from Iran and adjoining areas. Among them four species are also present in Pakistan.

Since extensive hybridization has been reported among the various taxa of Mentha, biosystematic studies are needed to clarify the taxonomy of the genus.
We examined specimens of Mentha and found that contiguous and interrupted spikes are found on the same individual and cannot be used to distinguish varieties. Using geographical distribution, hairiness, leafshape, and characteristics of the inflorescence, we recognize two new varieties of M. royleana viz., glabra and gigitica and two of Mentha longifolia viz., swatica and muqarrabica.

Key to the species

1a) Verticillasters in the axils of cauline leaves. ................................................. 1. M. arvensis
1b) Verticillasters crowded in a terminal inflorescence.
   2a) Leaves glabrous or subglabrous
      3a) Leaves petiolate; inflorescence interrupted only at the base; plants dark green. ... 2. M. piperita
      3b) Leaves mostly sessile, inflorescence interrupted; plants bright green. .............. 3. M. spicata
   2b) Leaves tomentose or pilose, very rarely glabrescent (M. royleana var. glabra).
      4a) Leaf base cordate; calyx 2-3 mm long. ..................................................... 4. M. longifolia
      4b) Leaf base attenuate; calyx 1.5 mm long. .................................................. 5. M. royleana


   Rhizome creeping; stem mostly prostrate, rarely erect, usually pubescent; verticillasters in the axil of cauline leaves; calyx campanulate, 2.5 mm long, violet; corolla tubular, lilac or rose lilac, 3.5–5 mm long, pilose both externally and internally; nutlets 1 mm long, globose. Flowering Period: June-October. Commonly found in fields, meadows, canals and irrigation ditches.

   Distribution: Europe, Afghanistan, Pakistan, Himalayas, Central Asia.


   Rhizome horizontal; stem erect, branched, mostly reddish, and glabrous; inflorescence capitate-spicate, interrupted at the base; calyx tubular, glabrous, violet tinged, glandular punctate; corolla glabrous, whitish, as long as the calyx; nutlets 0.75 mm, obovoid. Flowering period: July-October. Mostly cultivated both in plains and hills, also found as an escape near water in Balakot and Swat.

   Distribution: Central Europe, Mediterranean, Himalayas, Pakistan, China and Japan.

   Note: We were unable to examine specimens of M. arvensis and M. piperita; usually very few specimens of cultivated plants are kept in our herbaria.

   Economic importance: Peppermint or Podina (Local name) is propagated vegetatively and numerous cultivars are known. It is grown for its medicinal value and for its essential oil. The oil content is highest in the inflorescence. The oil contains 38–65% menthol. The leaves are used in infusions and decoctions for their stomachic and anodyne effects. The oil is used to enhance the palatability of other medicaments. The plant contains vitamin A; it is nectariferous, used in liqueur, food and perfume.

Perennial, 30–80 cm long, ascending, or erect, glabrous or nearly so, green, much branched; leaves 3–6 × 1–2 cm, sessile subsessile or shortly petiolate, ovate to oblong lanceolate, glabrous or subglabrous, subacute, margins thickened, crenate or entire; floral leaves bractiform; inflorescence 2–9 cm long slender, interrupted, sometimes upper part contiguous; calyx 1.5–2.5 mm long, glabrous, with 5 equal pointed teeth; fruiting calyx with 15 prominent nerves; corolla rose-violet; nutlets 1 × 0.5 mm, dark brown, ovoid-rounded. Flowering Period.: August-October. Common on River banks, in meadows and fields, sometimes a weed.

Distribution: Central Asia

Specimens examined: Baluchistan: Quetta, Manzoor and Maqsood 1687 (ISL); Ziarat, Manzoor and Maqsood,1351 (ISL) (pedicels and calyx with white hairs); Chautair forest (Sibi), ca 2600 m, 1985, Muqarrab Shah & K. Saeed 1470 (PMNH). North West Frontier Prov.: Makay to Parachinar (Kurram Valley); 15.x.1975, Iqbal Dar et al. 92 (ISL) (upper surface of leaves with white hairs); Balla mori (Hazara), M. Shaukat & Nisar 2238 (ISL) (calyx teeth reddish).


Perennial, rhizome spreading; stem 30–80 cm long, erect, branched or rarely simple, covered with white hairs; leaves highly variable in the nature of indumentum and size, usually sessile, sometimes shortly petiolate, (2-) 5–10 × 1.5–3 cm, ovate oblong or oblong lanceolate, base rounded to subcordate to cordate; apex acute, margins serrate, upper surface green, whitish or greyish due to indumentum, lower surface white or greyish tomentose; leaves in floral region bract-like or linear subulate; verticillasters terminal, pointed, rather closely situated, lower whorls sometimes remote; pedicel tomentose; calyx 2–3 mm long, narrowly campanulate, teeth variable, linear subulate; corolla 4–5 mm long, rose lilac, puberulous outside and glabrous inside; corolla tube more or less equaling the lobes, the upper lobe oblong ovate, emarginate, crenate, other lobes narrower oblong, obtuse; stamens usually included in the corolla; nutlets 0.5–0.8 mm long, ovoid, pilose, pitted, tip rounded. Flowering period: June-September. Common on wet banks of rivers, lakes and streams.

Distribution: Europe, Central Asia.

Note: The taxon is highly polymorphic in size, leaf structure and pubescence, inflorescence size and structure. Many authors have confused various species, for example, Stewart (1972) listed all the specimens of Mentha in Pakistan under two subspecies of M. longifolia. He considered Mentha royleana to be a subspecies of M. longifolia. Rechinger (1982) separated M. royleana from M. longifolia on differences in calyx length and leaf shape. He described 8 varieties of M. longifolia from Iran. Among them two are also found in Pakistan. In the present study we recognize two new varieties, swatica Shinwari & Chaudhri, and muqarrabica Shinwari & Chaudhri from Pakistan.

Economic importance: M. longifolia (L.) Huds. has long been in cultivation. It is used for seasoning (for green cheese) and is valued for its essential oil and its nectar. It is used in the pharmacological, soap and perfume industries; it also finds application in confectionery and liqueur production. The oil contains menthol and eugenol, the latter has antiseptic and analgesic properties and is used in dysentery.
Key to the varieties

1a) Leaves loosely covered with hairs; green.
2a) Leaves ovate or ovate lanceolate, 2 or sometimes 3 times longer than wide, recurved...1. var. asiatica
2b) Leaves lanceolate or oblong lanceolate, 3 or sometimes 4 to 5 times longer than wide, often patent, erect.................................................. 2. var. austro-afghanica
1b) Leaves covered on both sides with white or greyish hairs
3a) Leaves 3–5 × 1–2 cm, usually short petiolate; serrate; fruiting calyx pink or violet, calyx tube 2 mm, teeth 1 mm long; nutlets glabrescent........................................ 3. var. swatica, var. nov.
3b) Leaves subsessile, 1–3 × 0.5–1 cm, subentire; calyx green or grey in colour, teeth usually much shorter than tube; nutlets hairy........................................ 4. var. muqarrabica, var. nov.

4–1. var. asiatica (Boriss.) Rech. f., Fl. Iranica 150: 559(1982).

Stem 60–80 cm long, base sparsely hairy, becoming more hairy distally; leaves 4–7 × 1.5–3 cm, upper surface dark green, lower whitish to grey, or ovate lanceolate, recurved; inflorescence 3–6 cm, calyx 2 mm long, with short unequal teeth, with long white hairs; stamens exerted; nutlets 0.8 mm long, pitted ovoid, apex rounded. Common on stony soils. Flowering period: September–October.

Distribution: Iraq, Iran, Afghanistan, Pakistan, Central Asia.
Specimens examined: Azad Kashmir: Muzaffarabad, Besan, Shehzad & Ayaz 1318 (ISL); Kel Kela Kot., Shehzad & Ayaz, 820(ISL); North West Frontier Prov.: Hazara, Gabbar ca. 1400m, Shaukat & Nisar 1595 (ISL); Naran, ca. 2500 m; Muqarrab Shah & J. Saqib 107 (PMNH) (Flowers Yellow).


Stem 50–60 cm long, loosely puberulous throughout, branched in upper part; leaves 2–5 × 0.5–1.5 cm, subsessile, loosely hairy on both sides, green, with prominent nerves, lanceolate or oblong lanceolate, erect; inflorescence 2–5 cm, densely flowered, verticillasters contiguous, hairy; pedicel 1 mm long; calyx 2.5–3 mm long, teeth hairy ± equalling tube; corolla 4 mm long, hairy outside, lobes equal or longer than tube; stamens slightly exerted; nutlets 0.7 × 0.4 mm, ovoid, pitted, tip rounded, glabrescent. Flowering period: July–September.

Distribution: Afghanistan, Pakistan.
Specimens examined: North West Frontier Prov.: Orakzai Agency, Kuraiz, Haftizullah & Nisar 588 (ISL); Kaddah tirah, Haftizullah & Nisar 684 (ISL); Murrai, Haftizullah & Nisar 567(ISL) (Leaves smaller and narrower); Hazara, Near Forest rest House Naran, Iqbal Dar et al. 35 (ISL); Dayai, Shawkat & Nisar (ISL); Kundura, Shawkat & Nisar 802 (ISL); Lake Saiful-Maluk, Chaudhri et al. 1925(ISL); Kaghan, Iqbal Dar et al. 123 (ISL); Swat Distt., Shoa Khawar (Kalam), Muqarrab Shah et al. 227 (ISL); Gal, Muqarrab Shah & Dilawar 19 (ISL).

4–3. var. swatica Shinwari & Chaudhri, var. nov.

Caulis 40 cm longus canescens pubescenti-tomentellus foliaceus, nodis foliosis. Folia breviter petiolata. Laminae 3–5 × 1–2 cm, oblongo-lanceolatae, margine serratae, apice acutae, supra atrovirentia, infra canescentia, utrinque indumento denso canescenti vel albido. Spica 4 cm longa. Pedicelli 1 mm longi. Calyx fructifero 3 mm longus, roseus vel violaceus, dentibus 1 mm longis, tubo 2 mm longo. Corolla 4 mm longa, tubo extus puberulo, lobis intus pilis longis albidis. Nucula albida ovoidea glabrescens foveolata, 0.7 mm longa, apice rotundato.

Holotype: North West Frontier Prov.: Swat District: Gaz, ca 2500 m, 27.IX.1977,
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Muqarrab Shah & Dilawar 91 (ISL). (in some fls. only the calyx teeth are coloured while in many the whole calyx coloured).

Plants to 40 cm long, with long white hairs; nodes densely leafy; leaves densely covered on both sides with white or greyish hairs, sometimes having a short petiole, to 50 mm long, lamina 3-5 × 1-2 cm, upper surface dark green, lower grey, oblong lanceolate, serrate, acute; inflorescence terminal, to 4 cm long; pedicel 1 mm long; fruiting calyx pink or violet, 3 mm long, tube 2 mm, teeth 1 mm long, with long white hairs, corolla to 4 mm long, tube hairy outside, lobes hairy inside, hairs long, white; nutlets 0.7 mm long, white, ovoid, tip rounded, pitted, glabrescent. Flowering period: September.

Distribution: Swat.
Other specimens examined: North West Frontier Prov.: Swat Dist., Ushu, ca. 2500 m, Muqarrab Shah & Dilawar 254 (ISL).

Note: This taxon is similar to vars. austro-africanica and muqarrabica, but can be distinguished easily from the former by the size and hairiness of the plant, hairiness of the leaves and size and color of the calyx teeth. Plants of var. austro-africanica are taller (usually more than 50 cm) laxly puberulous throughout, and the calyx teeth = equal the tube and are widely distributed, especially in western Pakistan. Variety swatica is less than 40 cm tall, the whole plant has long white hairs, the calyx teeth are 1/2 the tube in length and pink or violet (specially the fruiting calyx) and occurs only in Swat District (NW Pakistan).

4-4. var. muqarrabica Shinwari & Chaudhri, var. nov.

Planta elata, supra albo-villoso. Caulis erectus remosus. Folia 1-3 × 0.3-1 cm, supra atro-virentia, infra canescentia, subintegra, pilis laxis. Spica 4 cm longa. Pedicelli 1-1.5 mm longi, albo tomentosi. Dentes calyceis quam tubo breviores. Corolla 4 mm longa, albo pilosa. Stamina exserta. Nucula 1 mm longa, oblonga alveolata pilosa.

Holotype: North West Frontier Prov.: Swat district, Nawe Kali ca. 1200 m, 17.x.1975, Muqarrab Shah, Manzoor Hussain & Javed Akhtar 658 (PMNH).

Upper portion of plant densely covered with long white hairs, less hairy towards base, branched at the nodes; leaves 1-3 × 0.3-1 cm, subentire, upper surface dark green, lower surface greyish, loosely hairy; spike 4 cm long, pedicel 1-1.5 mm, white hairy; calyx teeth much shorter than tube; corolla 4 mm long, with long white hairs, stamens much exserted; nutlets 1 mm long, oblong, lower portion wider, pitted, concave, hairy. Flowering period: June-December.

Distribution: Northern & Western Pakistan.
Other Specimens examined: North West Frontier Prov.: Khyber Agency, Sunara, Hafizullah & Nisar 843 (ISL); Orakzai Agency, Kaka Khel tira, Hafizullah & Nisar 832 (ISL) (Leaves as var. asiatica); Landakai, Muqarrab Shah & Dilawar 1831 (ISL); Hazara, Garhi Habibullah, Jan Mohammad 310 (ISL).

Note: This variety is similar to var. swatica from which it can be distinguished easily by leaf size and margins, calyx colour, size and characters of nutlets. In variety swatica, the nodes are densely leafy, the leaves are 3-5 × 1-2 cm, densely hairy and serrate; the calyx is usually pink or violet, the teeth are 1/2 length of tube; the nutlets are 0.7 mm long, ovoid and glabrescent. Variety muqrrabica is branched at the nodes, the leaves are 1-3 × 0.3-1 cm, loosely hairy, subentire, the calyx is green or grey and the teeth are usually much shorter than the tube. The nutlets are up to 1 mm long, oblong and hairy.


Perennial herbs, with variable indumentum; leaves mostly petiolate, rarely sessile, base attenuate, both sides covered with whitish hairs or becoming discoloured with age; inflorescence 4–10 cm long, of continuous or interrupted spikes; calyx (1)-1.5 mm, whitely tomentose; corolla 2.5–3.5 mm, yellowish lilac.


Key to the varieties

1a) Upper surface of leaves green, lower surface grey, both sides entirely glabrous. ... 2. var. glabra, var. nov.
1b) Leaves woolly or with different kinds of hairs.
   2a) Entire plant grayish-tomentose; leaves white pubescent or villous, especially on lower surface; nerves indistinct. ... 1. var. royleana
   2b) Lower portion of stem slightly pubescent; leaves covered with grayish hairs on both surfaces, becoming pale on the undersurface; nerves distinct.
      3a) Calyx 1.2–1.5 mm long, slightly hairy; floral leaves ovate, acuminate, entire, rounded. ... 4. var. afghanica
      3b) Calyx 1.5–1.8 mm long, hairy; floral leaves linear, subulate, lanceolate.
         4a) Plant to 25 cm tall; densely leafy; leaves ovate; spike wholly interrupted. ... 3. var. gilgitica, var. nov.
         4b) Plants 40–80 cm tall, leaves lanceolate; spike contiguous apically, interrupted at base. ... 5. var. detonsa

5–1. var. royleana

Syn.: M. sylvestris var. royleana (Benth.) Hook. fil., Fl. Brit. Ind. 4: 647 (1885) – M. longifolia (L.) Hudson var. kashmiriana Briquet, Bull. Herb. Boiss. 2: 697 (1894). Fig. 1.

Plants 80 cm tall, the whole plant grayish tomentose; leaves subsessile, 1–3 × 0.5–1.5 cm, lanceolate, margins acutely toothed, apex acute, base somewhat cuneate; lower surface densely woolly, upper surface white pubescent, nerves indistinct; inflorescence of interrupted spikes (upper portion contiguous) up to 8 cm long, white pubescent or villous; calyx 1.5 mm long, densely hairy; corolla 2.5 mm.

Common on the banks of streams or water channels on sandy or rocky soil. Alt. 1000–3000 m. Flowering period: June-Sep.


Note: A few specimens share characters of two different varieties, i.e. Abbottabad Dist., Bharrier, Zabta Khan Shinwari, Jamshed & Manzoor 560 (PMNH), has leaves like those of Mentha royleana var. royleana but the inflorescence is interrupted, and the flowers are white as in var. gilgitica.

Specimens examined: Northern Areas Diamar District: Chilas, ca. 1300 m, Zubair et al. 67 (ISL); Gilgit District: Jaglot, Zabta Khan Shinwari & Ashfaq (PMNH); Gilgit, ca. 1450 m, M. Ajab & M. Afsal 755 (ISL); Kargah Nallah, ca. 2000 m, M.N.Chaudhri et al. 22 (ISL); Dinyore, ca. 1450 m, Mir Ajab & M.Afsal 788 (ISL); Jager Baseen, Zabta Khan Shinwari & Ashfaq 102 (PMNH); Baltistan District: Skardu Airport ca. 2600 m, A.B. Khan et al. 316 (ISL); Shigar valley, ca. 2650 m, A.B. Khan et al. 34 (ISL); Satpara lake, M.Ajab & M. Afsal 1365 (ISL); Baluchistan: Pishin. Bet.Kachkak and Kach, Muqarrab Shah & Walli 1471 (ISL); Sibi, Sanjani, Manzoor Hassan and Dilewar 89(ISL); Kach, Manzoor Hassan and Dilewar 296 (ISL); Loralai, Iqbal Dar et al. 40(ISL).
5–2. var. glabra Shinwari & Chaudhri, var. nov. Fig. 2.
Caulis 50 cm altus, glabratu. Folia petiolo 1.5 mm longo; lamina 2–6.5 x 1–2.5 cm, ovato-lanceolata, supra virescenti, infra canescenti-virenti, basi cuneata, margine serrata, apice subacuta. Spica 6 cm longa, verticillastris infime remotis. Calyx 1.7 mm longus. Corolla 3.5 mm longa, lobis integris, raro incisis.
Holotype: N.Pakistan: Baltistan District, Tolti Nullah, M. Ajab and N. Abassi 2043 (ISL).
Plant glabrous, to 50 cm tall; leaves petiolate, petiole to 1.5 mm long, lamina 2–6.5 x 1–2.5 cm, ovate lanceolate, upper surface green, lower grey, margins toothed, base cuneate, apex subacute; inflorescence 6 cm long, spike contiguous, but the lower 1–3 whorls distant;
Fig. 2: *M. royleana* var. *glabra* Shinwari & Chaudhri (Holotype).

calyx 1.7 mm long; corolla to 3.5 mm long, lobes entire, sometimes one of the lobes notched. Fl. Period: June-July. Common near water in stony soils. Alt. 2000–3500 m.

Distribution: Endemic in Baltistan (Pakistan).

Other Specimens examined: Northern Areas: Baltistan Dist., Satpara lake, 12.VII.1980, *M. N. Chaudhri et al. 525* (ISL); Karisgarh Nallah, *M. Ajab & N. Abassi 1361* (ISL); Tolti village, ca. 3300 m, *M. Ajab & M. Afzal 2136* (ISL).

Note: Variety *glabra* is related to the type variety of this species, but is glabrous, while var. *royleana* is densely woolly. Moreover, in var. *glabra* the leaves are petiolate while in the
typical variety the leaves are subsessile. The type variety is widely distributed from Iran, E.Afghanistan to western and NW Pakistan while var. glabra is endemic in Northern Pakistan.

5–3. var. gigitica Shinwari and Chaudhri, var. nov. Fig. 3.

Caulis 25 cm altus sparse remosus gracilis villosus, internodiis brevibus, nodis foliosis. Folia 0.5–1 × 1–2.5 cm, ovata, sessilia, supra virescentia, infra albido-villosa-pubescentia,
Fig. 4: *M. royleana* var. *afghanica* (Murata) Rech.f. (Holotype).

basi cuneata, margine remote serrato, apice acuto vel subacuto, nervis prominentibus. Spica 8 cm longa, plerumque interrupta, pubescens. Folia in spica 6 mm longa, linearia vel lanceolata, acuminata pubescentia. Calyx 1.5 mm longus villosus, dentibus brevitisbus. Holotype: N. Pakistan: Gilgit Dist.: Thalichi ca. 1300 m, 7.VIII. 1976, Shahzad Iqbal et al. 336 (ISL).

Stem slender, 25 cm tall, sparsely branched, hairy, internodes very short, densely leafy; leaves subsessile 1–2.5 × 0.5–1 cm, ovate, toothed, acute or subacute, base cuneate; upper
surface dark green, hairy, lower surface white, densely woolly, nerves prominent; spike terminal, to 8 cm long, whorls well apart, hairy; floral leaves 6 mm long, linear-lanceolate, acuminate, hairy; calyx 1.5–1.8 mm long, densely hairy. Flowering period: June-September. Common in stony soils. Alt. 1300-1500 m.

Distribution: N Pakistan.
Other specimens examined: Northern Areas: Gilgit Dist.: Village Hanzil, M.N. Chaudhri et al. 226 (ISL); Chilas ca. 1222 m, M.N. Chaudhri et al 29 (ISL); Kargah Nallah, M.N. Chaudhri et al. 191 (ISL); Baltistan Dist., Shigar valley, A.B. Khan et al. 34 (ISL); Satpara lake; M.Ajab & M. Afzal 1355(ISL); Kashmura, A.B. Khan et al. 484 (ISL); Satpara village, A.B. Khan et al. 158 (ISL); Olding, ca. 2500 m, A.B. Khan et al. 238 (ISL).

Note: Some specimens of this taxon, for example, Gilgit Agency, Minapin, ca. 2600 m, Zabta Khan Shinwari & M. Ashfaq 293 (PMNH); Nomal, ca.2000 m, Rashid, Qutbuddin & Manzoor 354 (PMNH); Kargah Nallah, ca. 1800 m, Zabta Khan Shinwari & M. Ashfaq 529 (PMNH); Dinyore, ca. 500 m, Zabta Khan Shinwari & M. Ashfaq 135 (PMNH) have leaves like those of var. detonsa. Variety gigitica is similar to var. afghanica in the interrupted spikes, but can be distinguished by the size of the densely hairy plant (to 25 cm), thin leaves, spikes to 8 cm long, calyx 1.5-1.8 mm, linear-lanceolate floral leaves. Variety afghanica is taller (40–70 cm), the leaves are moderately thick, the spike is 12–23 cm long, the calyx is less than 1.5 mm long, slightly hairy, the floral leaves are ovate, acuminate and entire, and the base is rounded.


Perennial; stem robust, ashy grey, much branched 40–70 cm tall; leaves, petiolate, 1–3.5 × 0.5–1.5 cm lanceolate to oblong lanceolate, serrate, appressed hairy or velvety, grayish, lower surface slightly pale, base cuneate, apex acute; spike often distinctly remote, 12–23 cm long.

Distribution: Afghanistan, Chitratal, N and NE Pakistan, Iran.

Note: The specimens from Baluchistan, particularly, from Ziarat and Hanna Urak (Quetta) are variable in leaf size, shape and characters of the calyx. In the following specimens the larger leaves show the characters of M. longifolia while all other characters are like M. royleana. The thick leaves and stem, and the features of the corolla are the same as M. royleana var. afghanica, but, the colour of the leaves and the contiguous spike are the same as in var. detonsa.

Specimens examined: Northern Areas: Baltistan Dist.: Kachura, M. Ajab & M. Afzal 1550 (ISL); Satpura Nallah, M. Ajab & Nisar 2008 (ISL); Shigar village, M. Ajab & Nisar 1264 (ISL); Azad Kashmir: Muzaffarabad, Chakoti, Shahzad & Maqsood 366(ISL); Dawanian, Shahzad & Dilawar 1370 (ISL); Baluchistan: Sibi: Ziarat, ca. 2800 m, Muqarrab Shah & K. Saeed 1313 (PMNH); Quetta, Urak, S.Malik et al 125 (PMNH); Chighai Sarai, Kitamura s.n. (KYO, type).


Stem 40–80 cm tall, much branched throughout, not densely leafy, grayish tomentose; leaves short petiolate, 2-6 × 0.5–3 cm, oblong lanceolate, subentire, less hairy, obtuse or subacute, upper surface dark green, hairy, lower surface densely white woolly; spike 4(-6) cm long, hairy, upper portion contiguous, lower interrupted; calyx to 1.5 cm long, hairy; corolla 2–2.5 mm long, somewhat hairy. Flowering period: April-Oct. Common in rocky and stony soils near water. Alt. 500–3000 m.

Distribution: Tibet, NW Himalayas, Pakistan, E Afghanistan, Iran.

Specimens examined: Northern Areas: Baltistan District: Skardu ca. 2500 m, M. Ajab 137 (ISL); Hamidgarh ca. 2650 m, M. Ajab & M. Afzal 1220 (ISL); Kachura lake, ca. 2500m, Mir Ajab & N. Abbasi 1126 (ISL) (Leaves upto 3.5 × 1.5 m); SE mountain Kachura lake, M.Ajab & N.Abbasi 1106 (ISL); Satpara lake, Mir

Ajab & N. Abbasi 809 (ISL); Shigar valley, ca. 3000 m, M. Ajab & M. Afsal 1411 (ISL); Gilgit Distr., Jaglot, Chaudhri et al. 311 (ISL); Gulmit ca. 3000m, S. Malik et al. 98 (PMNH); Kargah Road, ca. 1600 m, M. Ajab & M. Afsal 639 (ISL); Naltar ca. 3000 m, Zubia Khan Shinwari & Ashfaq 431 (PMNH); Diamar Distr., Bet Chilas & Babusar, M.N. Chaudhri et al. 68 (ISL). North West Frontier Prov.: Chitral, Muqarrab Shah & Ayaz 2459 (ISL); Swat Dist., Mankhial, Muqarrab Shah & Dilawar 296 (ISL); Kalam, ca. 2500m, Muqarrab Shah & Dilawar 217 (ISL); Bannu Dist., Kot Kashmir, ca. 650m, M. Zubair & Saeed Khan 708 (ISL); Punjab: Jhelum Dist., Kallar Kahar, Chaudhri et al. 76 (ISL); Attock Dist., Wah Garden, Muqarrab Shah & Manzoor 13 (ISL); Federal Capital Islamabad: Rawal Dam, Rashid s.n.(PMNH); Azad Kashmir: Kotli, Joona, ca. 900 m, Shahzad & Nisar 1706 (ISL).

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References


摘要

Z. K. シンワリ*・M. N. チョードリ**: パキスタン産ハッカ属の分類学的再検討

パキスタンあるいはその周辺地域のハッカ属 (Mentha) は, Hooker(1885),
Mukerjee(1940), Borisova(1954), Sterwart(1972), Rechinger(1982)によって分類されているが、それぞれの見解には少なからぬ違いが見られる。本研究はパキスタンに産する分野群を再検討し、M. arvensis, M. piperita, M. spicata, M. longifolia, M. royleana の5種に分類した。そして、4新変種, M. longifolia var. swatica, M. longifolia var. muqarrabica, M. royleana var. glabra, M. royleana var. gilgitica を記載した。

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