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New records of Lamiaceae from China and Uzbekistan

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art. 46 (2) — Published on 22 January 2024
www.adansonia.com

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ISSN (imprimé / *print*): 1280-8571/ ISSN (électronique / *electronic*): 1639-4798

New records of Lamiaceae from China and Uzbekistan

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Submitted on 17 April 2023 | accepted on 29 May 2023 | published on 22 January 2024

Zhao Y., Turginov O. T., Turdiboev O. A., Pulatov S. O., Chen Y.-P. & Xiang C.-L. 2024. — New records of Lamiaceae from China and Uzbekistan. *Adansonia*, sér. 3, 46 (2): 9-17. https://doi.org/10.5252/adansonia2024v46a2. http://adansonia.com/46/2

ABSTRACT
Geographic novelties of three species of Lamiaceae are reported in this paper. *Scutellaria repens* Buch.-Ham. ex D.Don, previously only known from India, Myanmar, Nepal, and Pakistan, is documented from Tibet, China for the first time. *Lamium purpureum* L., previously known as widely distributed in Eurasia (but not Uzbekistan) and North Africa, and *Dracocephalum baldshuanicum* (Gontsch.) A.L.Budantzev, previously only known from Afghanistan, Iran, Kirgizstan, Tajikistan, Turkmenistan, are newly reported from Uzbekistan. Diagnostic characters, detailed illustrations, and updated distributions of the three species are provided. In addition, lectotypes for *Dracocephalum baldshuanicum* are designated.

KEY WORDS
Central Asia, Lamioideae, Nepetoideae, *Lamium*, *Dracocephalum*, *Scutellaria*, lectotypification.

RÉSUMÉ
Signalements nouveaux de Lamiaceae de Chine et d'Ouzbékistan.
De nouveaux signalements géographiques sont indiqués pour trois espèces de Lamiaceae dans cet article. *Scutellaria repens* Buch.-Ham. ex D.Don, précédemment connue uniquement de l'Inde, du Myanmar, du Népal et du Pakistan, est documentée pour la première fois au Tibet, en Chine. *Lamium purpureum* L., réputé largement présent en Eurasie (mais pas en Ouzbékistan) et en Afrique du Nord, et *Dracocephalum baldshuanicum* (Gontsch.) A.L.Budantzev, rapportés jusqu'alors uniquement d'Afghanistan, d'Iran, du Kirgizstan, du Tadjikistan et du Turkménistan, sont nouvellement signalés en Ouzbékistan. Les caractères diagnostiques, des illustrations détaillées et les distributions actualisées des trois espèces sont fournis. En outre, les lectotypes de *Dracocephalum baldshuanicum* sont désignés.

MOTS CLÉS
Asie centrale,
Lamioideae,
Nepetoideae,
Lamium,
Dracocephalum,
Scutellaria,
lectotypification.

INTRODUCTION

The Lamiaceae are one of the largest flowering plant families, with over 230 genera and 7 000 species worldwide (Harley *et al.* 2004; Olmstead 2021; Zhao *et al.* 2021a). Species of Lamiaceae are of major economic importance and widely used as cosmetics, ornamentals, and culinary and medicinal herbs. During the past decade, we have been re-examining species diversity and phylogenetic relationships of Lamiaceae in Asia (Xiang *et al.* 2013; Chen *et al.* 2014; Zhao *et al.* 2017; Chen *et al.* 2019a, b, 2020; Zhao *et al.* 2021a, b, c; Zhao *et al.* 2022). During field expeditions between 2019 to 2022, we collected one species each of *Scutellaria* L., *Lamium* L. and *Dracocephalum* L. that did not match species described in local floras; we confirmed they are new distribution records for two Asian countries (China and Uzbekistan).

The genus *Scutellaria* is one of the largest genera within Lamiaceae, comprising approximately 360 species and widely distributed globally (Paton 1990; Harley *et al.* 2004; Paton *et al.* 2016; Zhao *et al.* 2017; WFO 2023). China is perhaps the center of diversity of the genus, harboring more than 100 species (Li 1977; Li & Hedge 1994). *Lamium* is the type genus of subfamily Lamioideae and the Lamiaceae, consisting of 34 species, primarily distributed in Eurasia, North Africa (including Macaronesia), and Central and East Asia (Harley *et al.* 2004; Zhao *et al.* 2021b; Celep *et al.* 2022). *Dracocephalum* comprises approximately 70 species primarily distributed in temperate Eurasia (Wu & Wang 1977; Harley *et al.* 2004; Chen *et al.* 2021). Recently Chen *et al.* (2022) expanded the genus to include *Lallemantia* Fisch. & C. A. Mey and *Hyssopus* L. In addition to the report of newly recorded species of these genera, we also provide taxonomic notes for each of the species in this paper.

MATERIAL AND METHODS

In order to clarify species diversity within Lamiaceae from China and Uzbekistan, we have conducted extensive fieldwork as well as examination of herbarium material. We examined specimens of Lamiaceae from the B, BM, C, CAL, CDBI, DR, E, FI, GH, GMU, HIB, IBSC, K, KUN, KYO, L, LE, LINN, LUCCA, M, MA, MAO, MICH, MO, MW, NAS, P, PE, PI, S, SG, TASH, TI, U, US, W, WU, WUK and XJBI (herbarium acronyms followed Thiers 2023) herbaria, as well as our own collections from the field.

SYSTEMATICS

Family Lamiaceae Martinov
Genus *Scutellaria* L.

Scutellaria repens Buch.-Ham. ex D. Don
(Figs 1; 2)

Prodromus Florae Nepalensis: 110 (Don *et al.* 1825).

Type material. — **Nepal** • Narainhetty; *Hamilton, s.n.*; holo-, CAL[CAL0000020538] photo!

Phenology. — Flowering from September to April, fruiting from October to May.

Distribution and habitat. — China, India, Myanmar, Nepal, Pakistan; new record for China, occurring in Gyirong County, Xizang (Tibet). Growing on grassy slopes, 900-2200 m.

Etymology. — The specific epithet refers to the often prostrate stems.

Common name (assigned here). — Jilong Huang Qin (吉隆黄芩; Chinese name).

Additional specimens examined. — **China** • Xizang, Shigatse, Gyirong County, Resuo Village; 15.IX.2019; *Y.P. Chen, Y. Zhao & B.Y. Zhang EM 1201*; KUN!
Nepal • 1821; *N. Wallich 2141.1*; K[K001115294] (photo!) • 1821; *N. Wallich 2141*; K[K001115297, K000820749] (photo!) • Pokhara region, trekking route from Nayapul to Tikhedhunga, Hill slope facing south, near the road; 13.XI.2008; *A. Sukhorukov s.n.*; MW[MW0746728] (photo!) • Kathmandu, territory of the Botanical Garden, hillside, in shrubs on moist soil; 15.XI.2005; *A. Sukhorukov, s.n.*; MW[MW0746729] (photo!) • Dhawalagiri Zone; 22.IX.1996; *M. Mikage et al. 9684297*; L[L4404858] (photo!).
India. Calcutta Botanic Garden (cultivated); *N. Wallich 2141.3*;



FIG. 1. — *Scutellaria repens* Buch.-Ham. ex D.Don: **A**, habit; **B**, **C**, inflorescences; **D**-**F**, flowers. Photographed by Y. P. Chen.

K[K001115296] (photo!) • 1821, *N. Wallich 2141*; K[K000820753] (photo!) • Paprola, Kangra District, Punjab; 22.XI.1936; *Walter Koelz 10314*; MICH[MICH1519301] (photo!) • Bhadwar, Kangra, Punjab; 19.IV.1933; *Koelz 4156*; MICH[MICH1519303] (photo!), US[US02770122] (photo!) • Himachal Pradesh, Kullu; 28.XII.1930; *Koelz 1540*; MICH[MICH1519302] (photo!) • Kangra;

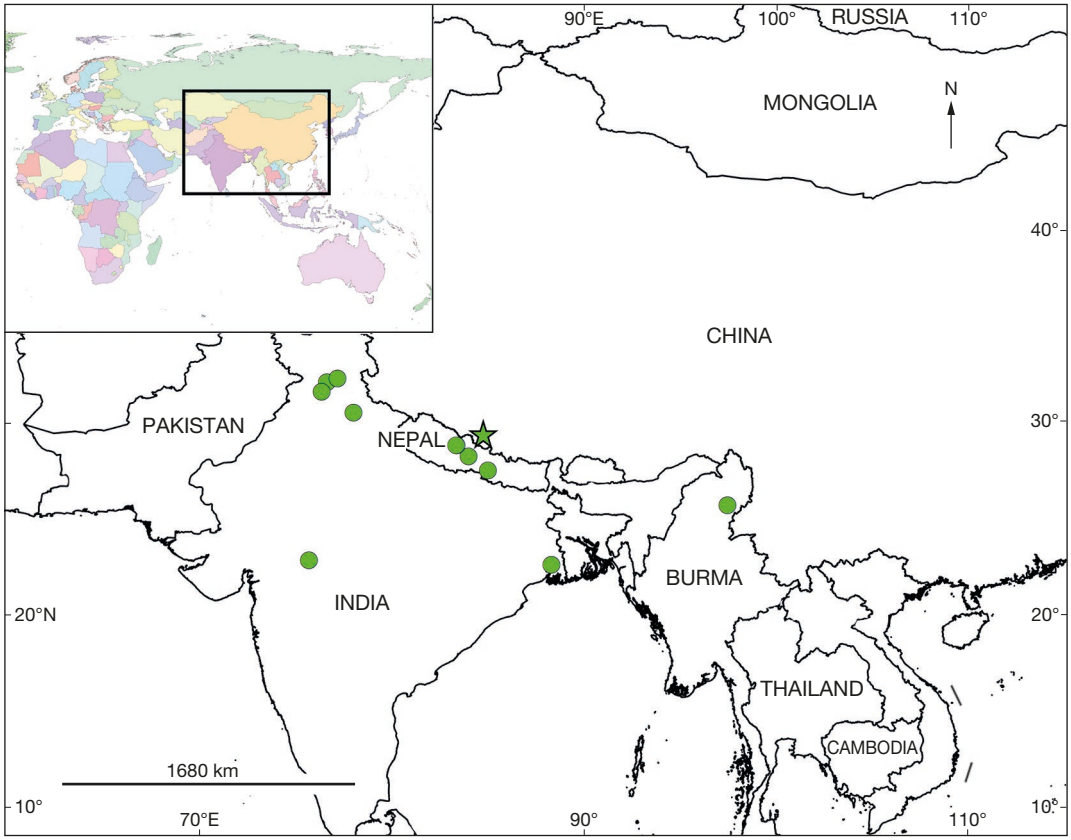


Fig. 2. — Distribution of *Scutellaria repens* Buch.-Ham. ex D.Don.

20.X.1874; *A. Legit 23625*; US[US802873] (photo!) • Himachal Pradesh, Kangra; 20.X.1874; *A. Legit 23782*; US[US802879, US802880] (photo!) • Punjab, Arui Seoraj; 4.XI.1916; *R.E. Cooper 5979*; P[P04158111] (photo!) • Punjab; XI.1879; *J.R. Drummond 918*; P[P04158113] (photo!) • Punjab; 1917; *R.R. Stewart s.n.*; US[US1173668] (photo!) • Uttarakhand, N.W. Himalaya, near Mussourie; *G. King 1869*; US[US0097585] (photo!) • 26.III.1912; *H. Hallier s.n.*; L[L2871346, L2871347, L2871348] (photo!) • Himal Bor. Occ. Regio trop.; *J.J. s.n.*; L[L2871349, L2871350] (photo!), U[U1403349] (photo!).
Burma. Upper Burma, Malahaya hill; 10.III.1893; *Dr. King's Collector 351*; U[U1403348] (photo!).

Taxonomic notes

Morphologically, *Scutellaria repens* is similar with *S. scandens* by having scandent stems and axillary racemes (Paton 1990), but the two species are differentiated by nutlets, stems and flowers. *Scutellaria repens* has grey-black, subpapillate, pubescent nutlets, wingless stems, and a parallel-sided corolla tube, while *S. scandens* has brown, papillate, glabrous nutlets, obviously winged stems, and a bent and saccate corolla tube base. Paton *et al.* (2016) indicated that *S. shweliensis* W. W. Sm. and *S. tenasserimensis* A. J. Paton are closely related to *S. repens* rather than *S. scandens.* Morphologically, all the former three species have subpapillate, pubescent nutlets and parallel-sided corolla, but can be distinguished by other characters.

Genus *Dracocephalum* L.

Dracocephalum baldshuanicum (Gontsch.) A.L. Budantzev (Figs 3; 4)

Botanicheskii Zhurnal (Moscow & Leningrad) 78 (2): 111 (Budantsev 1993).

Lallemantia baldshuanica Gontsch., *Trudy Tadzhikistansk. Bazy* 2: 184 (Gontscharov 1936).

Lectotype (here designated). — **Tajikistan** • Tut-Kaul, Baldschuan region; 8.V.1906; *G.G. Morren 446*; lecto-, LE[LE00053902] photo!, isolecto-, LE[LE00053901, LE00053903, LE00053904] photo!).

Phenology. — Flowering occurs from April to June and fruiting from May to July.

Distribution and habitat. — Iran, Afghanistan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan; new record for Uzbekistan, occurring in Babatagh. It grows on soft slopes from the foothills to middle elevations of mountains between 900 to 1300 m. In the ephemeral vegetation belt, this species is part of groupings that include the forb-grass ephemeral formation with perennials and, less frequently of the *Aegilops* ephemeral formation.

Etymology. — The specific epithet refers to Baldschuan in Tajikistan, where the species was found.

Common name. — Baldjuan lallemantiyasi (Uzbek name).



Fig. 3. — *Dracocephalum baldshuanicum* (Gontsch.) A.L.Budantzev: **A**, habit; **B**, inflorescence; **C**, leaves. Photographed by O. T. Turginov.

Additional specimens examined. — **Uzbekistan** • Surkhandarya region, Mountain Babatag, Kuruksay, surroundings of the village of Tomchisay; 13.IV.2022; *S.O. Pulatov & O.A. Turdiboyev BT12*, *BT13*, *BT14*, *BT15*, *BT16*; TASH! • Uzun region, surrounding of the village Jonchekka; 21.IV.2022; *O.A. Turdiboyev & S.O. Pulatov BT01204221*, *BT01204222*, *BT01204223*; TASH!
Tajikistan • District Kulab, between Kulab and the Tashrabat route near the village of Chimchigly, Alintau Mountain range; 15.V.1910; *D. Divnogorskaja s.n.* • *Locus classicus*, in the mountains near the village of Chargi; 25.V.1910; *D. Divnogorskaja s.n.* • *Loc. cit.*, river Yakhsu near Kulab; 30.IV.1906; *R. Roschewitz s.n.* • In the mountains of Imam-Maskara to the east of Kulab; alt. 2130-2430 m; VI.1883; *A. Regel s.n.* • Between Kulab and Baldshuan; 30.VI.1906; *R. Roschewitz s.n.* • Baldshuan; alt. 920 m; VI.1883; *A. Regel s.n.* • *Loc. cit.*, in the clayey hills; 27.V.1897; *S. Korshinsky s.n.* • District Baldshuan, in the Valley of Dangere; V.1884; *A. Regel s.n.* • In the mountains of Jilantau between Baldshuan and Kangurt; 26.V.1913; *A. Michelson s.n.* • On the eastern slopes of the Sarsarjak mountains near the village Margak; 9.VII.1932; *N. Gontscharov, G. Grigorjev, V. Nikitin s.n.* • In the valley of the river Vakhsh at the mouth of the narrows of Kuli-Safion near the village Shurguzar; 4.V.1913; *A. Michelson s.n.* • Saripul in the river Aksu; VI.1884; *A. Regel s.n.* • Umar, in the mountains of Babatag; 18.V.1906; *G. Morren s.n.* • Saray to the river Panj; III-IV.1884; *A. Regel s.n.* • Jomut on the western slopes of the Gazy-Mailik mountains

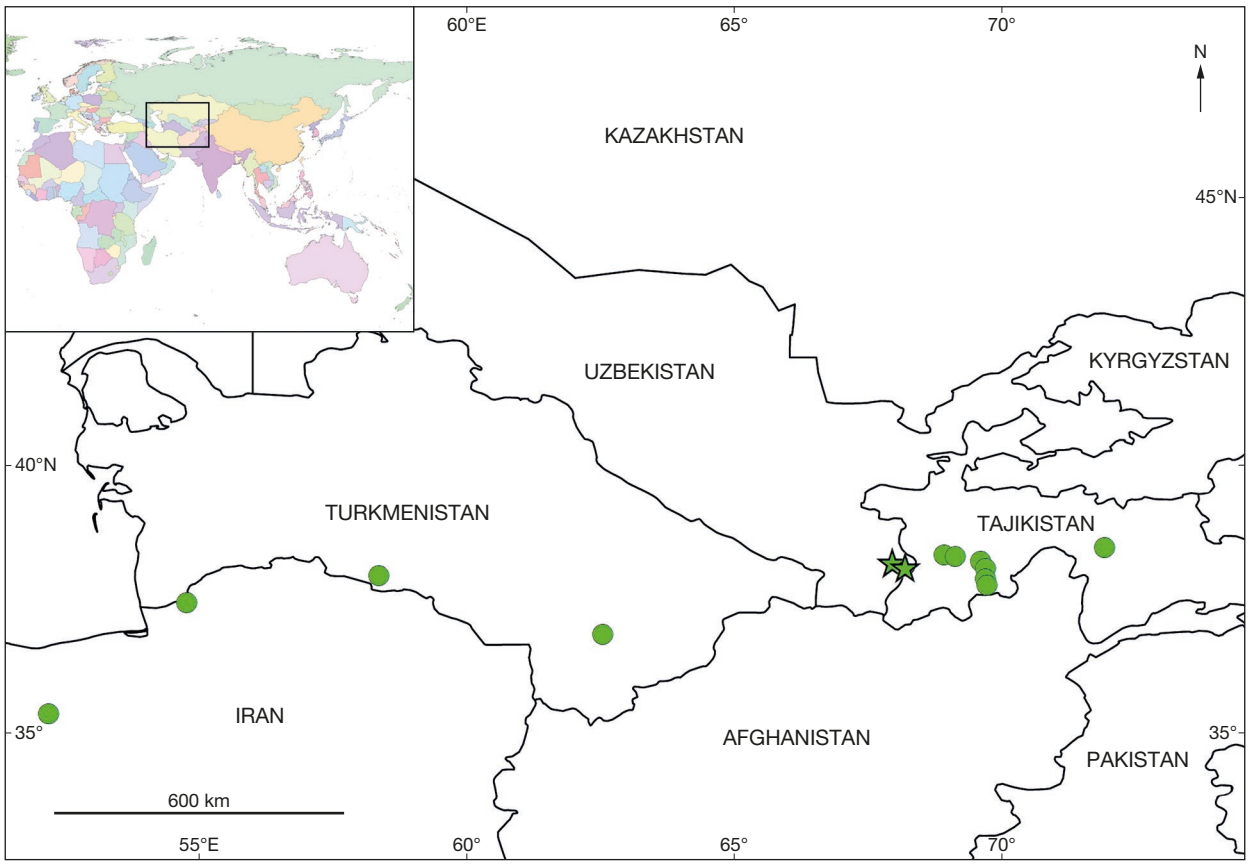


Fig. 4. — Distribution of *Dracocephalum baldshuanicum* (Gontsch.) A.L.Budantzev.

between the rivers Vakhsh and Kafirnigan; alt. *c.* 920 m; 13-25.V.1883; *A. Regel s.n.* • Hissar, in the mountains of Tashbulak; alt. 1520-1825 m; 21.IV.1883; *A. Regel s.n.* • Between Dushanbe and Warzob at the river Sigdy in the Hissar mountains; alt. *c.* 920-1216 m; 22.VII-3.IX.1884; *A. Regel s.n.* (all herbarium specimens stored in LE).
Iran • Gorgan, 8 km east of Aitmar, south of Hootan; alt. 230 m; *Hiver 3719*; TEHRAN.

Note

When describing this species, Gontscharov (1936) indicated that type specimens were collected from "Montes Transoxanae. Tut-Kaul ad fl. Vachsch., 8 May 1906, (446) (Leg. G.G. Morren)", but Gorschkova (1954) thought that this species was "Described from Tut-Kaul, at the river Vakhsh" and mentioned that types specimens were deposited in LE". In this study, we have found four type specimens of *D. baldshuanicum* from LE. Having studied all the materials available to us in more detail, we concluded that the lectotype is stored in LE. Therefore, the lectotypification of *D. baldshuanicum* is proposed in conformance with Art. 9.3 of International Code of Nomenclature for algae, fungi, and plants (Turland *et al.* 2018).

Taxonomic notes

Dracocephalum baldshuanicum is morphologically similar to *D. royleanum* Benth., but can be readily distinguished by the corolla tube protruding from the calyx and its larger limb.

Genus *Lamium* L.

Lamium purpureum L.
(Figs 5; 6)

Species Plantarum 2: 579 (Linnaeus 1753).

Lectotype. — Herb. Linn. No. 733.11 (LINN).

Phenology. — Flowering from March to October, fruiting from May to October.

Distribution and habitat. — Native to Eurasia, naturalized throughout northern and southern America; disturbed, fertile soils, usually in full or partial sun. Occurs throughout Uzbekistan.

Etymology. — The epithet and common name refer to the purple tint of the upper leaves.

Common name. — Gulobi lamium (Uzbek name).

Additional specimens examined. — **Uzbekistan** • Namangan region Turakurgan district, near city Turakurgan; 2.IV.2022; *K.Sh. Tojibaev s.n.*; TASH[TASH109423]! • Tashkent city, Yunusabad district, near market Uch Kakhramon; 22.III.2023; *O.T. Turginov 15*; TASH[TASH109422]!
Germany • Zschon [Zschoner] Grund; IX.1949; *T.K. Möbius s.n.*; DR[DR069208]! • Sachsen, Dresden, Gartensparte; 3.V.2019; *A. Lautenschläger 2*; DR[DR067780]!
Italy • Giardino in loc. Bertacca, Massarosa (LUCCA); 17.III.1982; *A. Lunardini s.n.*; (PI[PI009143]!); Region of Toscana, Prov. Siena,

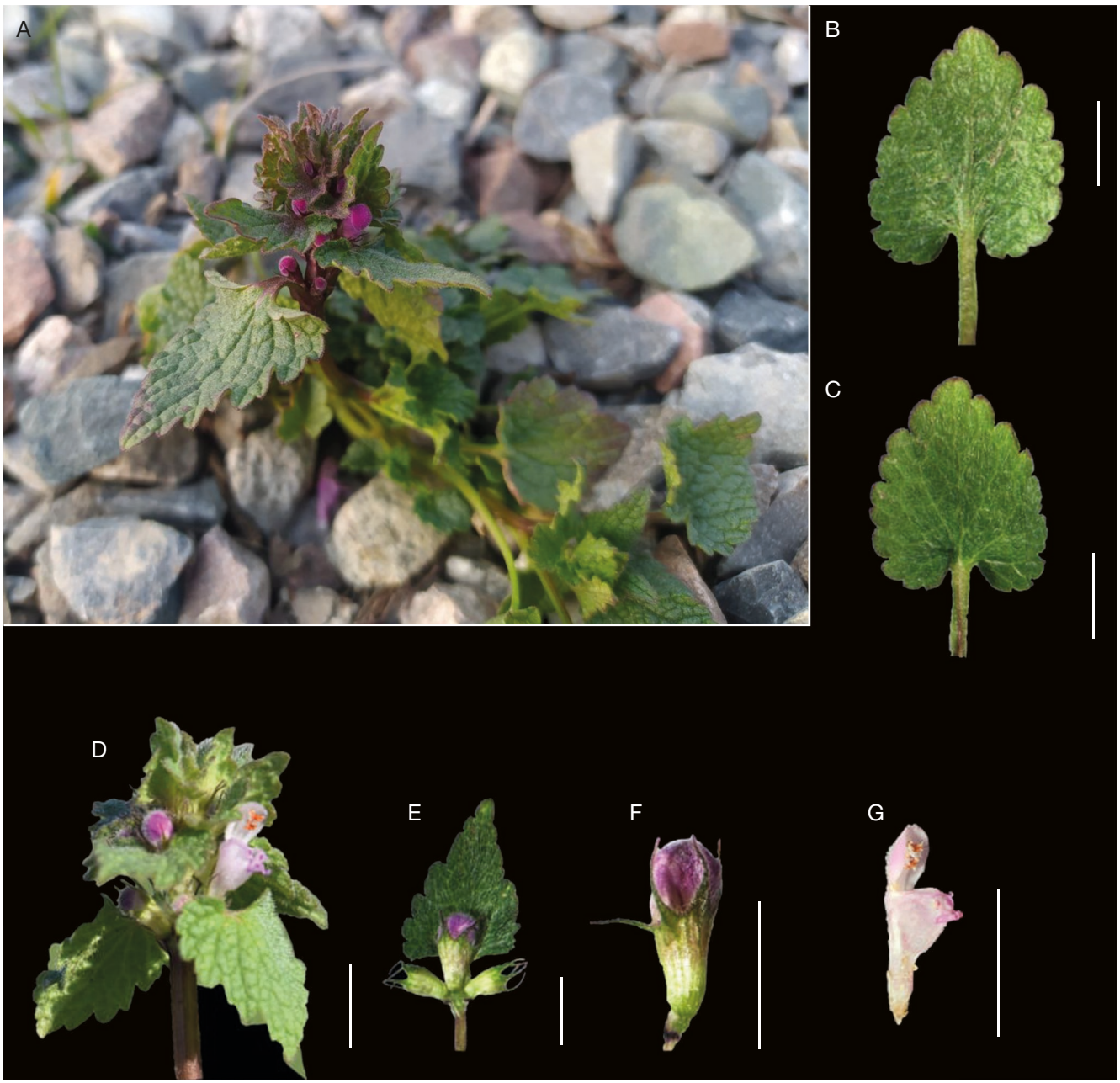


Fig. 5. — *Lamium purpureum* L.: **A**, plant; **B**, **C**, leaves; **D**, inflorescence; **E**, verticillaster; **F**, **G**, flowers. Scale bar: 1 cm. Photographed by O. T. Turginov.

north of Montepulciano, south of Podere Pietrose, little north of Il Granaio; *W. Till 130016*; WU[WU0069675]!
Russia • Yakutia, City Olekminsk, hill near the city; 16.VII.1947; *M. Karavayev s.n.*; MW[MW0129807] (photo!) • Mordovia, Mordovian State Reserve named after P.G. Smidovich, surrounding of the village Pushta; 9.IX.1996; *L.V. Teryoshkina*; GMU (photo!) • Vologod region, Kirillovsky district, surroundings of the village Ferapontovo; 28.VI.1998; *N. Shvedchikova s.n.*; MW[MW0490795] (photo!).

Taxonomic notes

It is often found alongside *Lamium amplexicaule* L., which is easily mistaken for it since they have similar-looking leaves and similar bright purple flowers. Morphologically, they are easily distinguished from each other in that *L. purpureum* L. has stalked leaves on the flower stem (vs. without stalked leaves in *L. amplexicaule* L.) (Parnell & Curtis 2012).

DISCUSSION

In this study, one species of Lamiaceae (*Scutellaria repens*) is reported for the first time from China, and two additional mint species (*Dracocephalum baldshuanicum*, *Lamium purpureum*) are reported for the first time from Uzbekistan,

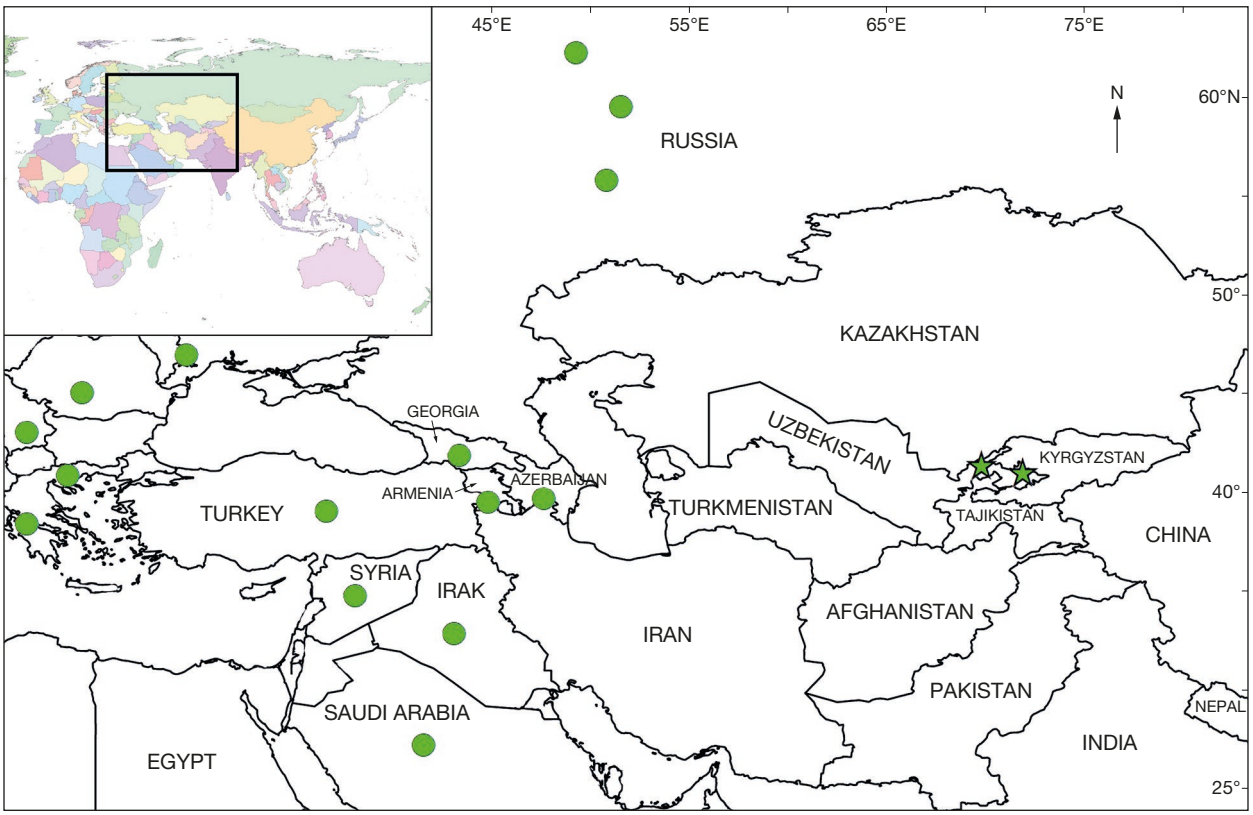


Fig. 6. — Distribution of *Lamium purpureum* L.

respectively. *Scutellaria repens* is distributed sporadically in the Himalaya region of India, Myanmar, Nepal, and Pakistan. It is not surprising that we found it occurring in Gyirong County, Xizang, China since the locality is near the border between China and Nepal. The climatic conditions, environmental factors and habitat types are similar in these areas. Similarly, *Dracocephalum baldshuanicum* is distributed sporadically in Iran, Turkmenistan, and Tajikistan (Fig. 4) and, only a few collections are known from those countries. Here, we reported *D. baldshuanicum* from Uzbekistan for the first time, from the Babatag region of southern Uzbekistan, close to the border with Uzbekistan. Additional collections may help clarify our understanding of the distribution area of these two species. *Lamium purpureum* was found from Uzbekistan but this is perhaps not surprising because it has a wide distribution elsewhere in Eurasia. In Uzbekistan, *L. purpureum* is generally found with *L. amplexicaule*. Morphologically, both species have similar-looking leaves and purple flowers and can easily be confused. This is likely part of reason that *L. purpureum* was not reported from Uzbekistan before.

The mountains of Central Asia and Southwest China are considered to be biodiversity hotspots (Myers *et al.* 2000), but the flora of these regions has not been well studied (Li *et al.* 2020). Recently however, many new species and new records have been reported from the region (Tojibaev *et al.* 2014; Sun *et al.* 2022). The aforementioned findings indicate that more intensive field collections are necessary, especially international joint field trips that focus on border regions. These collaborative endeavors will contribute to important plant diversity discoveries in future.

Acknowledgements

We are grateful to Dr Hamid Nazari (Department of Biology, Faculty of Sciences, Bu-Ali Sina University, Iran) for help with the identification, Dr Bryan Drew (University of Nebraska at Kearney) for reviewing the manuscript. We would like to thank the curators of K, KUN, LE, MW, PE, and TASH for specimen access. This study was funded by the Natural Science Foundation of Yunnan Province (202001AS070016), the National Natural Science Foundation of China (No. 31872648), the "Survey of Wildlife Resources in Key Areas of Tibet (ZL202203601), and the project of "Grid mapping of the flora of Uzbekistan" (for 2021-2025), the "Taxonomic revision of polymorphic plant families of the flora of Uzbekistan" (FZ-20200929321) and Features of the formation of urban flora in different personal natural-climatic and anthropogenic conditions (on the example of Belarus and Uzbekistan) (MRB-2021-529).

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Submitted on 17 April 2023;
accepted on 29 May 2023;
published on 22 January 2024.

View publication stats