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Lectotypification of two names in *Spiraea* and its distribution

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Spiraea pilosa Franch. is encompassing the high elevations (1000–3000 m) in the Tien-Shan and Pamir-Alay mountain ranges (Afghanistan, Kazakhstan, Kirgizstan, Pakistan, Tadzhikistan, and Uzbekistan). Second-step lectotype is designated here for the name *S. pilosa* Franch. and the lectotype is designated for *S. brahuica* var. *glaucophylla* Kitam., a basionym of *S. pilosa* subsp. *glaucophylla* (Kitam.) Schönb.-Tem. Distribution of *S. pilosa* subsp. *pilosa* and *S. pilosa* subsp. *glaucophylla* (Kitam.) Schönb.-Tem. is also provided.

Keywords: Kyoto University Herbarium, National Herbarium of Uzbekistan, Nuristan, *Rosaceae*, Semessan protocol**تعیین لکتوتیپ دو نام در جنس *Spiraea* و پراکنش آن**

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نازوکت دمینووا: دانشجوی دکتری، انستیتو گیاه‌شناسی، آکادمی علوم ازبکستان، تاشکند، ازبکستان**آناند کمار:** گیاه‌شناس، هرباریوم ملی تحقیقات گیاهی هندوستان، هوورا، هندوستان**ابیدجون توردیبف**✉: دانشجوی دکتری، انستیتو گیاه‌شناسی، آکادمی علوم ازبکستان، تاشکند، ازبکستان (turdiboev.obidjon@mail.ru)**محمد حامد همدرد:** کارشناسی ارشد، دیپارتمان گیاه‌شناسی دانشکده زیست‌شناسی، دانشگاه کابل، کابل، افغانستان**شبیر رادر:** محقق مرکز تلفیقی حفاظت منابع طبیعی، باغ گیاهان گرمسیری زیشوانگبانا، آکادمی علوم چین، منگلا، چین**خلاصه**

گونه *Spiraea pilosa* Franch. متعلق به گل‌سرخیان (*Rosaceae*) که در ارتفاعات ۱۰۰۰ تا ۳۰۰۰ متری رشته کوه‌های تین-شان و پامیر-آلای (افغانستان، قزاقستان، قرقیزستان، پاکستان، تاجیکستان و ازبکستان) واقع شده است همراه با نقشه پراکنش، مورد بررسی تاکسونومیک قرار گرفت. نام محل گونه مذکور، براساس منابع دقیق نام-مکان (toponym) که در پروتوکل Semessan ذکر گردیده، انتخاب شده است. به علاوه در این بررسی، نقشه پراکنش گونه مورد نظر و زیرگونه آن [*S. pilosa* subsp. *glaucophylla* (Kitam.) Schönb.-Tem] همراه با گونه‌های دیگر نیز ارائه شده است. نمونه اصلی گونه از هرباریوم (P) Muséum national d'Histoire naturelle، هرباریوم دانشگاه کیوتو (KYO) و همچنین از نمونه‌های دیگر بومی ازبکستان با استفاده از اطلاعات برخط هرباریوم (P) و هرباریوم ملی ازبکستان (TASH) مورد مطالعه قرار گرفته است. اکتونیم گونه مورد مطالعه، طبق (Thiers 2021) و پروتولوگ، نوع نمونه‌ها و اطلاعات دیگر از پایگاه برخط گیاهان جهان (POWO) مورد تجزیه و تحلیل قرار گرفته است (شکل‌های ۱-۵).

واژه‌های کلیدی: پروتوکل Semessan، گل‌سرخیان، نورستان، هرباریوم دانشگاه کیوتو، هرباریوم ملی ازبکستان

Introduction

The genus *Spiraea* L., commonly known as meadowsweet, represents deciduous shrubs of the family *Rosaceae*, subfamily *Amygdaloideae* (formerly *Spiraeoideae*), tribe *Spiraeae* (Potter *et al.* 2007). The genus is widespread in the temperate and the subtropical zone of the northern hemisphere ranging from 80–120 species (Drábková *et al.* 2017). The genus has the richest species diversity in China and Taiwan with 70 autochthonous species (Lu & Crinan 2003) while Uzbekistan is represented by five species only (Pojarkova 1955). Chemical compounds, taxonomic changes, nomenclatural and new species of the members of this genus, have been recently studied in several publications (Hu *et al.* 2016a,b, Drábková *et al.* 2017, Xu *et al.* 2017, Kostikova *et al.* 2019, Businsky 2020, Shabbiret *et al.* 2020, Kostikova *et al.* 2021, Ma *et al.* 2021). Studies have been carried out to fix the nomenclature of *S. pilosa* Franch. and its single synonym as well as *S. pilosa* subsp. *glaucophylla* (Kitam.) Schönb.-Tem.

Materials and Methods

The present study is based on an analysis of relevant taxonomy literature (Franchet 1883, Lipsky 1905, Pojarkova 1939, 1955, Kitamura 1960, Breckle *et al.* 2013). For this purpose, the original materials of *S. pilosa* Franch. from the herbarium of the Muséum national d'Histoire naturelle (P), Kyoto University Herbarium (KYO), and also other *Spiraea* specimens native to the flora of Uzbekistan using online herbarium databases of P, and National Herbarium of Uzbekistan (TASH) (Acronyms according to Thiers 2021) along with the protologue of each name were studied.

Results and Discussion

- Historical background

Franchet (1883) in the protologue of *Spiraea pilosa* cited “Sjémessan; 26 aout, n. 403” where 403 refers to the collection number of Capus. Pojarkova (1939) stated that, the type locality Sjémessan could be referred to as Semessan, located in Western Tien-Shan. As a result of the authors’ search for geoinformation sources (Google Earth 2020, ArcGis 2020), the toponym of this name was identified. Semessan [Semizsazsay] is a small river, located in the Pskem valley of Uzbekistan. According to Lipsky (1905), Sjémessan and Sjémessan are obviously Semessan near Pskem valley. The climatic conditions of said place are favorable for this species. Besides, according to the published data, *Spiraea pilosa* also grows in Pskem valley in Western Tien-Shan (Tojibaev 2010).

- Typification

Pojarkova (1939) cited “Type: Western Tien-Shan (Semessan), kept in Paris”. As there is no evidence that, Franchet used only one specimen for describing the species, the indication of type by Pojarkova must be accepted as inadvertent lectotypification following Art. 7.11 (Turland *et al.* 2018). According to Stafleu & Cowan (1976), Adrien Rene Franchet mainly worked and preserved the type specimens at P. There are two specimens present at P (P03649851, P03649852) and, therefore, it cannot be ascertained which one of the two specimens at P is to be accepted as the lectotype. Thus, the type citation by Pojarkova (1939) has been considered here as first-step lectotypification and P03649851 bearing original brown paper cutting with collection locality is designated here as second-step lectotype following Art. 9.17 (Turland *et al.* 2018).

Identification key for *Spiraea pilosa* subspecies

1. Branches pubescent when young; leaves villous on both surfaces or densely pubescent on lower surfaces; inflorescences ± villous; pedicels up to 16 cm long subsp. *pilosa*
- Branches glabrous when young; leaves glabrous on both surfaces and sparsely hairy near the margins; inflorescences sparingly pubescent to subglabrous; pedicels up to 0.8 cm long subsp. *glaucophylla*

Spiraea pilosa Franch., Ann. Sci. Nat., Bot. sér. 6, 16: 282 (1883)

Type (first-step lectotype, designated by Pojarkova 1939: 300): “Western Tien-Shan (Semessan). Type kept in Paris”; second-step, designated here: Uzbekistan: “Sjemessan [Semizsazsay], 26.8.1881, G. Capus, 403”, P barcode: P03649851 [photo!] (Fig. 1); Isolectotype P barcode: P03649850 [photo!]

= *Spiraea brahuica* Boiss. var. *hindukushiensis* Kitam., Fl. Afghanistan (1960) 184.

Type: Afghanistan: Nuristan: Between Trokikorl and Chatrass, 1.8.1955, S. Kitamura s.n. (Holotype: KYO00029129 [photo!]) (Fig. 2)

Distribution: Middle Asia (Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan), Afghanistan, and Pakistan (Fig. 4)

Notes: The name *Spiraea brahuica* var. *hindukushiensis* Kitam. was described from Nuristan, Afghanistan and Kitamura (1960) stated in the protologue that the type is deposited at Kyoto University Herbarium. Thus, authors of the paper communicated with the curator of Kyoto University Herbarium and could trace single specimen which was collected from “Nuristan: Between Trokikorl and Chatrass” by Kitamura. Therefore, the specimen (KYO00029129) would be the holotype of the name.

Spiraea pilosa subsp. *glaucophylla* (Kitam.) Schönb.-Tem., Fl. Iranica 66: 9 (1969)

Basionym: *Spiraea brahuica* var. *glaucophylla* Kitam., Fl. Afghanistan: 184 (1960)

Type (Lectotype, designated here): Afghanistan. Nuristan, Between Voma and Trokikorl, 31.7.1955, S. Kitamura s.n. (KYO00028996 [photo!]) (Fig. 3); Isolectotype KYO00028997 [photo!]; Additional Syntype: Between Siyagird and Charikar, 11.7.1955, S. Kitamura s.n. (KYO00028998 [photo!])

Distribution: Endemic to Afghanistan (Fig. 5)

Notes: Kitamura (1960) described *S. brahuica* var. *glaucophylla* from Afghanistan. Later, Schönbeck-

Temesy (1969) elevated this variety to subspecies and made the new combination *S. pilosa* subsp. *glaucophylla* (Kitam.) Schönb.-Tem., which is now considered as an accepted name (POWO, 2022). Kitamura cited “Nuristan: Between Voma and Trokikorl (31.7.1955, S.K.-Typus in Herb. Univ. Kyoto), and between Siyagird and Charikar (11.7.1955, S.K.)” in the protologue of *S. brahuica* var. *glaucophylla*. The specimens collected between Voma and Trokikorl on 31.7.1955 by S. Kitamura were cited as “Typus in Herb. Univ. Kyoto”. Authors of the paper, communicated with the Curator of the Kyoto University Herbarium for type specimens and could trace two specimens collected between Voma and Trokikorl (KYO00028996 and KYO00028997), and one specimen collected between Siyagird and Charikar (KYO00028998). Both specimens (KYO00028996 and KYO00028997) bear annotation ‘*S. pilosa* subsp. *glaucophylla* Kitam.’ in Kitamura’s own handwriting. Therefore, it cannot be ascertained which one of the specimens was selected as a holotype by Kitamura. However, the sticker of “Holotype” and “Isotype” were pasted on the specimens KYO00028996 and KYO00028997, respectively by an unknown person, which cannot be accepted as the choice of Kitamura. These specimens are syntypes under Art. 40.2 (Turland *et al.* 2018) and lectotypification is required. Therefore, authors designate here the best well-preserved specimen bearing annotation of diagnostic characters (KYO00028996) as the lectotype.

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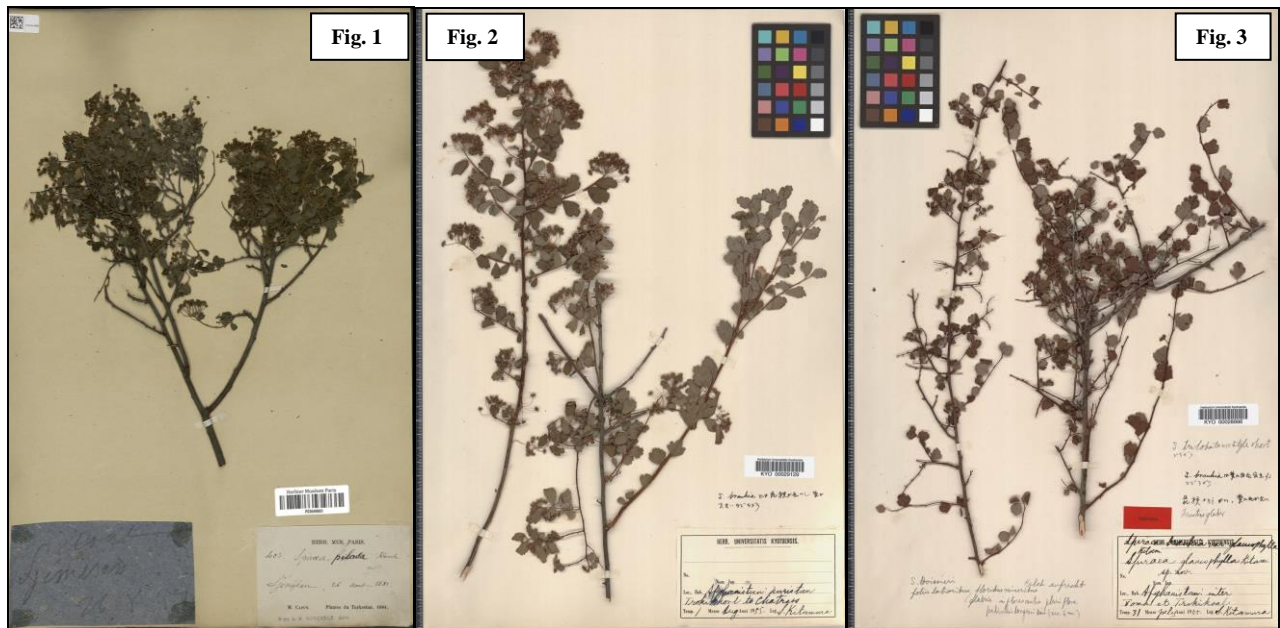


Fig. 1. Second-step lectotype of *Spiraea pilosa* Franch. (P03649851). © Muséum national d'Histoire naturelle (Available at <http://coldb.mnhn.fr/catalognumber/mnhn/p/p03649851>).

Fig. 2. Holotype of *Spiraea brahuica* Boiss. var. *hindukushiensis* Kitam. (KYO00029129). © Kyoto University Herbarium, Kyoto (Reproduced with the permission).

Fig. 3. Lectotype of *Spiraea brahuica* var. *glaucophylla* Kitam. (KYO00028996). © Kyoto University Herbarium, Kyoto (Reproduced with the permission).

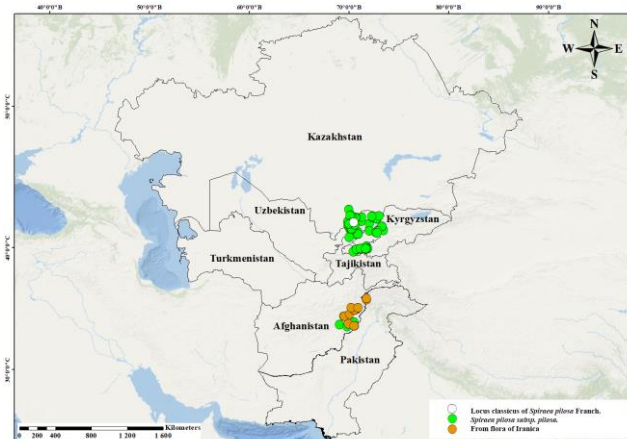


Fig. 4. Distribution of *Spiraea pilosa* subsp. *pilosa*.

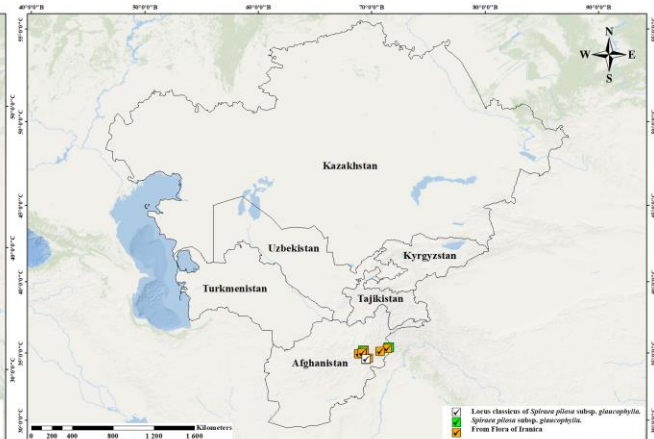


Fig. 5. Distribution of *Spiraea pilosa* subsp. *glaucophylla*.

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