

## SYNOPSIS OF THE GENUS *PLOCAMA* (RUBIACEAE) IN THE FLORA OF UZBEKISTAN

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A revision of the genus *Plocama* (Rubiaceae) in the flora of Uzbekistan is presented. This relic genus includes 7 species, and 2 of them are endemics to Uzbekistan. Main synonyms, nomenclatural types, ecological data, diagnostic key, images of species and distribution maps of the species are given.

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**Key words:** *Plocama*; endemic; Middle Asia; taxonomy; typification; geographical distribution

بررسی اجمالی جنس *Plocama* از روناسیان (Rubiaceae) در فلور ازبکستان

فورکات کازانو: مؤسسه گیاهشناسی، آکادمی علوم جمهوری ازبکستان

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مروری بر روی جنس *Plocama* از روناسیان (Rubiaceae) در فلور ازبکستان ارائه می‌گردد. این جنس رلیک، هفت گونه دارد که دو تای آنها انحصاری ازبکستان هستند. هم‌نامهای اصلی، نمونه‌های تیپ، اطلاعات بوم‌شناختی، کلید شناسایی، تصاویر و نقشه پراکندگی گونه‌ها ارائه می‌گردد.

### INTRODUCTION

The genus *Plocama* (Rubiaceae) was described by Aiton (1789). It is represented by 35 species distributed in the Old World (Backlund & Thulin 2007; Backlund & al. 2007) with the type species *P. pendula* Aiton from the Canary Islands. Most species of the genus are widespread in the Tethyan (Ancient Mediterranean) subkingdom (Takhtajan 1986) with the main center of diversity in Afghanistan and Southern Middle Asia.

Previously, 30 species of *Plocama* were regarded within the genus *Gaillonia* A.Rich. ex DC. that later has been separated into several small genera (Backlund & Thulin 2007). In the 5<sup>th</sup> volume of the Flora of Uzbekistan, only 3 species of *Gaillonia* were listed (Tscherneva 1961). Later on, I. Linczewsky (1973) described a new genus *Neogaillonia* Lincz., and 9 species were reported for the area of Soviet Middle Asia (Pachomova 1987). In 176<sup>th</sup> volume of the Flora

Iranica, Ehrendorfer & Schönbeck-Temesy (2007) listed altogether 14 species within five genera of the “*Gaillonia* complex” (*Gaillonia*, *Jaubertia* Guill., *Pterogaillonia* Lincz., *Pseudogaillonia* Lincz., and *Aitchinsonia* Hemsl.). Surprisingly, none of them were common to Afghanistan and Uzbekistan. In accordance with the latest treatment based on the molecular analyses, 9 genera (*Gaillonia* A. Rich. ex DC., *Neogaillonia* Lincz., *Jaubertia* Guill, *Crocylis* E. Mey. ex Hook.f. in Benth. & Hook. f., *Choulettia* Pomel, *Aitchinsonia* Hemsl., *Pterogaillonia* Lincz., *Pseudogaillonia* Lincz., and *Putoria* Pers.) have been placed in the genus *Plocama* (Backlund & Thulin 2007; Backlund & al. 2007). During taxonomical studies of vascular plants performed for the new edition of the Flora of Uzbekistan, one new species was described recently from Southern Pamir-Alay (Khassanov & al. 2014). Two rare and poorly known species (*P. botschantzevii* and *P. trychophylla*) were included in the Red Data Book of Uzbekistan (Khassanov & Pratov 2009). In the present contribution, the revision of the species belonging to the genus *Plocama* that occur in Uzbekistan has been undertaken.

**MATERIALS AND METHODS**

Specimens of *Plocama* were collected in June–August 2012–2016. Herbarium specimens preserved in TASH (National Herbarium of Uzbekistan) and other abroad herbaria (K, E, LE, W, and WU) have been studied and geo-referenced. Distribution maps have been created using ArcGIS 10.0 software (figs. 4-6).

**RESULTS**

*Plocama* Aiton Hort. Kew. 1: 292; 4: 508 (1789).

Type: *Plocama pendula* Aiton

Semishrubs and shrubs with opposite linear leaves, at base connate with stipules. Flowers bisexual, sessile in cymose inflorescence. Calyx with 4–5-lobed limb. Corolla tubular-funnel-shaped, with 4–5-lobed limb. Stamens 4–5. Style bipartite; stigma disk-shaped. Fruits dry binate nutlets.

The identification key and synopsis of *Plocama* of the flora of Uzbekistan are presented below.

- 1. Stipules uniform. Corolla 10–30 mm long. Anthers 1.5–1.8 mm long ..... 2
- Stipules not uniform; lower ones are short membranous tooth-shaped; middle and upper ones rigid and spiny, linear, narrow triangular or almost subulate. Corolla 5–8(12) mm long. Anthers 0.5–0.9 mm long. 5
- 2. Stems, leaves, corolla, ovaries and fruits densely setaceous ..... 2
- .....*P. trichophylla* (Popov ex Tscherneva) M. Backlund

& Thulin

- Stems and leaves glabrous or leaves with single, sparse setules. Ovaries and fruits glabrous or covered with very short papillae ..... 3
- 3. Calyx lobes linear or linear-triangular, glabrous, unequal, 1–3 mm long. Glabrous plant (excepting pilose corolla 10–12 mm long) ..... 3
- .....*P. inopinata* (Lincz.) M. Backlund & Thulin
- Calyx lobes triangular or triangular-subulate with ciliate margins, (0.1) 0.3–0.8 (1) mm long. Ovaries and fruits covered with very short papillae or glabrous. Corolla (10) 13–25 mm long, pilose, rarely glabrous. Stems and leaves glabrous or sometimes with sparse setules ..... 4
- 4. Inflorescence monochasial, flowers pink, ovary glabrous ..... *P. alshehbazii* F.O.Khass. & al.
- Inflorescence dichasial, flowers white-greyish, ovary covered with very short papillae..... 4
- .....*P. bucharica* (B. Fedtsch. & Des.-Shost.) M. Backlund & Thulin
- 5. Stems, leaves, ovaries and fruits glabrous. Calyx lobes shortly ciliate, narrow triangular or sometimes shortly linear. Corolla 7–9 mm long, anthers 0.8–0.9 mm long..... 5
- ..... *P. botschantzevii* (Lincz.) M. Backlund & Thulin
- Stems, leaves and stipules (excepting lower ones) setaceous, ovaries and fruits covered with very short papillae ..... 6
- 6. Stems covered by short white flat setules (nearly papillose). Lower and middle leaves and stipules covered by short setules on the outside, and by slightly longer and flat setules inside. Upper leaves glabrous or almost glabrous on the outside, and shortly pilose inside ..... *P. iljinii* (Lincz.) M. Backlund & Thulin
- Stems and leaves covered by reflexed white short setules..... 6
- .....*P. vassilczenkoi* (Lincz.) M. Backlund & Thulin

**1. *Plocama vassilczenkoi*** (Lincz.) M. Backlund & Thulin, Taxon 56: 325 (2007).

=*Neogaillonia vassilczenkoi* Lincz., Novosti Sist. Vyssh. Rast. 10: 228 (1973); Pachomova in Opred. Rast. Sred. Azii 9: 282 (1987).

Type: Middle Asia, Pamir-Alay, Uzbekistan, Ferghana distr., northern foothills of Alay range, near the road between Sarykyrgan and Ryshtan villages (in Russian), 11.05.1913, Z. Minkwitz 329 (holotype LE).

=*Gaillonia bruguieri* A.Rich. ex DC., Prodr. 4: 574 (1830); Linczewsky in Flora USSR 23: 171 (1958); Tscherneva in Flora Uzbekistana 5: 531 (1961).

Semishrub 15–25 cm high with multiheaded caudex. Stems rather thick, striated, rarely smooth, articulate, whitish at the base, grey-greenish above,

densely covered by reflexed white short setules. Internodes 1–3 cm long, longer than leaves. Stipules glabrous, 0.8–1 mm long, with 2–3 linear or triangular-subulate apical teeth. Leaves 0.5–1.5 (3) cm long, 1–2 mm wide, linear-lanceolate or narrow linear, flat, subulate at apex, densely covered by reflexed white short setules. Flowers numerous, in axillary and apical cymes at the nodes and at apexes of branches in upper part of stems. Bracts 5–6 mm long, 3-dissected, spiny, covered by reflexed setules. Peduncles 1.5–2 mm long, covered by reflexed setules. Bracteoles very small, similar with bracts. Calyx (1.5) 2–2.5 mm long, covered by reflexed setules; lobes (4) 5, very short, almost obsolete, triangular, with ciliate margins. Corolla 5–6 mm long, pinkish, shortly pilose, with narrow obconic tube and 5-lobed limb; lobes ca. 1 mm long, narrow triangular or narrow ovate. Stamens ca 1.2 mm long, unequal, 2 longer alternate with the corolla lobes, and 3 shorter inserted at the throat. Style up to 4 mm long; stigma glabrous. Mericarps 3–4 mm long, up to 1 mm wide, oblong or oblong-ovate, blackish, covered by tiny papillae (fig. 2).

*Phenology:* Flowering in June; fruiting in July.

*Habitat:* Gypsaceous and stony slopes (900–1000 m.s.l.).

*Distribution:* Middle Asia (Western Tien-Shan, Northern Pamir-Alay): Tajikistan, Uzbekistan (fig. 5).

*Examined specimens:* Ferghana region, Skobelevsky distr., foothills of the Alay range, stony steep slope near the village Khan-kiz, 20.07.1915, Drobow 243; Ferghana region, Vuadil, sn, 13.05.1918, Arkhangelsky; Ferghana valley, Rishtan district, mountain Pitau, pass Badamcha, 09.08.1935, Titov 504; Alay range, foothill on the northern slopes of mountain Tutak, sn, 27.06.1936, Globin; Northern foothills of the Alay range, between the rivers Sokh and Shakhimardan, Shuran-say, sn, 31.05.1938, Globin; Namangan region, Chust district, near village Mashat, 01.07.1949, Bondarenko 539; Southern part of the village Mashat, along the hill, 01.07.1949, Chevrenidi 602; 35 km from the Kuybyshev and Sokh, sagebrush-grass, 11.06.1949, Sakhobiddinov 674; Ferghana valley, on the road between the villages Pap and Gurumsaray, Tuzul-say, 8 km to Gurumsaray, 07.07.1950, Pjataeva 539; The northern slope of the Alay range, 9–10 km southern city Ferghana, by the road to Chimion, 16.05.1952, Arifkhanova 379; Alay range, river Shakhimardan, village Sadkak, sn, 25.05.1968, Khalkuziev (TASH!).

**2. *Plocama iljinii*** (Lincz.) M. Backlund & Thulin, *Taxon* 56: 324 (2007).

=*Neogaillonia iljinii* Lincz., *Nov. Syst. Vyssh. Rast.* 10: 227 (1973); Pachomova in *Opred. Rast. Sred. Azii* 9: 282 (1987).

*Type:* Middle Asia, Pamir-Alay, Uzbekistan, Ferghana region, northern foothills of Alay range, near village Kuvasay, variegated gypsaceous clays, 27.09.1938, Iljin 38 (in Russian) (holotype LE).

=*Gaillonia bruguieri* A. Rich. ex DC., *Prodr.* 4: 574 (1830); Linczewsky in *Flora USSR* 23: 171 (1958); Tscherneva in *Flora Uzbekistana* 5: 531 (1961).

*Type:* In Persia, inter Teheran et Ispahan, Olivier & Bruguier (holotype P).

Semishrub 15–25 cm high with multiheaded caudex. Stems numerous, terete, rather thick, covered by short white flat setules (nearly papillose), woody and whitish at the base, greyish or dirty green above, articulate, with opposite branches at middle and upper nodes. Internodes (1) 1.5–2 (3) cm long, longer than leaves. Leaves linear or linear-lanceolate, 1-nerved, rigid, with white spiny apex. Lower and middle leaves and stipules covered by short setules on the outside, and by slightly longer and flat setules inside. Upper leaves glabrous or almost glabrous on the outside, and shortly pilose inside. Upper and middle stipules similar to the leaves, triangular-subulate, spiny, connate with the leaves into scarious sheath, lower ones small, membranous, denticulate. Flowers numerous, in axillary and apical cymes at the nodes and at apexes of branches in upper part of stems. Ovary densely covered by white setules, oblong, 2 mm long. Calyx with 4–5 very short triangular lobes, 0.2–0.5 mm long, with ciliate margins. Corolla pinkish, 5–6 mm long, densely covered by short white setules, with obconical tube and 5-lobed limb, lobes 1.5–2 mm long. Mericarps oblong or ovate, 3–4 mm long, 1.5 mm in diam., covered by tiny papillae.

*Phenology:* Flowering in May–June; fruiting in July–August.

*Habitat:* Stony slopes, pebbles and conglomerates (500–1000 m.s.l.).

*Distribution:* Ferghana valley (foothills of Alay range): Kyrgyzstan, Uzbekistan (fig. 5).

*Examined specimens:* Fergana valley, basin of Shakhimardan, 2 km nearby village Dam-kul, 03.03.1931, sn, Felshau (TASH!).

**3. *Plocama botschantzevii*** (Lincz.) M. Backlund & Thulin, *Taxon* 56: 323 (2007).

=*Neogaillonia botschantzevii* Lincz., *Novosti Sist. Vyssh. Rast.* 10: 232 (1973); Pachomova in *Opred. Rast. Sred. Azii* 9: 282 (1987).

*Type:* Middle Asia, Pamir-Alay, Southern Uzbekistan, Surkhandarya region, southern gypsaceous foothills of Kuhitang range, southern village Aktash, ca. 1000

m.s.l., 15.06.1971, V. Botschatzev (in Russian) (holotype LE).

=*Gaillonia bruguieri* A.Rich. ex DC., Prodr. 4: 574 (1830); Novosti Sist. Vyssh. Rast. 23: 171 (1958); Tscherneva in Flora Uzbekistana 5: 531 (1961).

*Type*: In Persia inter Teheran et Ispahan, Olivier & Bruguier (holotype P).

Semishrub 15–30 cm high with woody twisted and branched caudex. Stems numerous, terete, glabrous, woody at the base, articulate, shortly branched, brownish-greyish, whitish at the nodes. Leaves glabrous, narrow linear or linear-subulate, acuminate, 1-nerved, with reflected margins. Upper and middle stipules similar to the leaves, subulate-lanceolate, spiny, connate with the leaves into scarious sheath, lower ones small, membranous, denticulate. Flowers numerous, sessile, closed by the bracts. Calyx cyathiform, covered by reflected setules, 1.5–2 mm long, with very short narrow triangular or sometimes shortly linear lobes, 0.5 mm long. Corolla brownish-greyish, 7–8 mm long, pilose, 5-lobed; lobes 1.5–2 mm long, obtuse. Mericarps glabrous, brownish-greyish, 3.5–4 mm long.

*Phenology*: Flowering in June; fruiting in July.

*Habitat*: Gypsaceous and stony slopes (500–900 m.s.l.).

*Distribution*: Middle Asia (Southern Pamir-Alay): Turkmenistan, Uzbekistan (fig. 6).

*Examined specimens*: Kuhitang range, 7 km southern village Aktash, colored clays, 450 m.s.l., 12.05.1985, sn, Khassanov; Termez district, northern city Termez on the road to the village Kaftarhana, 02.02.1941, Gomolitsky 411 (TASH!).

**4. *Plocama alshehbazii*** F.O. Khass., Khamraeva, Khuzhan. & Achilova, Stapfia 101: 25 (2014).

*Type*: Uzbekistan. Kelif-Sherabad range; 25 km eastern town Baissun, grey clays; N 38 04 50 89, E 67 26 26 77; 15.06.2013, Khassanov & al. (type TASH, isotype MBG).

Semishrub 20–45 cm high. Roots are blackish-brownish. Stems are glabrous, greenish or dark greenish. Leaves are glabrous, 2–4 cm long, 1–1.5 mm wide, opposite, fused, without stipules. Inflorescence monochasial, flowers sessile. Bracts are greenish, glabrous, 5–6 mm long, 1 mm wide. Calyx blackish, 2.5–3 mm long, with 5 unequal lobes 0.5 mm long, ciliate on the top. Corolla 25–30 mm long, initially yellowish, later pinkish, glabrous, 5-lobed; lobes 3–3.5 mm long, ciliate on the top. Stamens 5, exposed. Stigma 2-lobed, exposed. Ovary glabrous. Mericarps glabrous, brownish, 4–5 mm long, 1.5 mm wide (fig. 3).

*Phenology*: Flowering in June; fruiting in July–August.

*Habitat*: Grey clays (1000–1200 m.s.l.).

*Distribution*: Endemic to Uzbekistan (Southern Pamir-Alay: Kelif-Sherabad range) (fig. 6).

*Examined specimens*: Kelif-Sherabad range, 25 km eastern town Baissun, grey clays; N 38 04 50 89, E 67 26 26 77; 15 July 2013, Khassanov & al. (TASH!).

**5. *Plocama inopinata*** (Lincz.) M. Backlund & Thulin, Taxon 56: 324 (2007).

=*Gaillonia inopinata* Lincz., Bot. Mater. Gerb. Bot. Inst. Komarova Akad. Nauk USSR 22: 216 (1963).

=*Neogaillonia inopinata* (Lincz.) Lincz., Novosti Sist. Vyssh. Rast. 10: 232 (1973); Pachomova in Opred. Rast. Sred. Azii 9: 283 (1987).

*Type*: Middle Asia, South-eastern Tajikistan, Koikitau Mountains western from the village Khoshady, stony slopes near the crest of the ridge, ca. 800 m.s.l., 19.05.1960, Botschantsev, Egorova 164 (holotype LE).

Semishrub 10–15(20) cm high with thick woody root and multiheaded caudex. Stems numerous, terete, rather thin, glabrous, woody and whitish at the base, green or brownish-greyish above, articulate, shortly branched at the nodes. Internodes longer than leaves. Leaves sessile, linear, 8–15 (20) mm long; stipules similar to the leaves, subulate-lanceolate, connate with the leaves into scarious sheath, lower ones denticulate. Flowers slightly longer than bracts. Calyx cyathiform, glabrous, 1.5–2 mm long, with 4–5 inequal, linear or linear-triangular lobes, 1–3 mm long. Corolla brownish-greyish, 7–10 mm long, densely pilose, 5-lobed; lobes 2–3 mm long, lanceolate or narrow ovate, obtuse. Ovary glabrous. Mericarps glabrous, brownish-greyish, 2–3 mm long, with short teeth on the top.

*Phenology*: Flowering in May; fruiting in June–July.

*Habitat*: On the stony slopes and limestone rocks (500–1200 m.s.l.).

*Distribution*: Middle Asia (Southern Pamir-Alay): Tajikistan, Uzbekistan (fig. 6).

*Examined specimens*: Foothills near the city Bishkent, 28.04.1914, Kultiassov 540; Foothills near the city Bishkent, 29.04.1914, Kultiassov 617 (TASH!).

**6. *Plocama bucharica*** (B.Fedtsch. & Des.-Shost.) M. Backlund & Thulin, Taxon 56: 323 (2007).

=*Gaillonia bucharica* B.Fedtsch. & Des.-Shost., Rastit. Turkest.: 708 (1915); Linczewsky in Flora USSR 23: 170. (1958); Tscherneva in Flora Uzbekistana 5: 532 (1961).

=*Neogaillonia bucharica* (B.Fedtsch. & Des.-Shost.) Lincz., Novosti Sist. Vyssh. Rast. 10: 230 (1973); Pachomova in Opred. Rast. Sred. Azii 9: 283 (1987).

*Type*: Described from the southern slopes of Karatau range (Tajikistan), B.Fedtschenko (holotype LE).

Semishrub 30–60 cm high with thick woody root and multiheaded caudex. Stems numerous, thin,

glabrous and smooth, whitish in the lower part, green or dark green above, with opposite branches in the nodes. Internodes (1) 3–6 mm long. Stipules scarious, glabrous, 1–2.5 mm long, with 5 (6) linear-subulate unequal teeth. Leaves 1–3 (4) cm long, 1 mm wide, narrowly linear, with reflexed margins, dark green, glabrous or sometimes with sparse setules. Bracts 7–8 mm long, linear or linear-subulate. Flowers in the cymose terminal inflorescence. Calyx 2–3.5(4) mm long, lobes triangular or triangular-subulate with ciliate margins, (0.1) 0.3–0.8 (1) mm long. Corolla (10) 13–25 mm long, whitish-greyish, densely and shortly pilose; tube narrow conical, lobes 5.2–2.5 mm long, narrow triangular, with an incurved tip. Stamens ca. 1 mm long, unequal, 2 longer alternate with the corolla lobes, and 3 shorter inserted at the throat. Style 1.2–2.2 mm long, excluded; stigma glabrous. Mericarps 4–5 mm long, 1.5–2 mm wide, oblong or oblong-ovate, covered with tiny papillae or glabrous, blackish, shining (fig. 1).

*Phenology.* Flowering in May–June; fruiting in June–July.

*Habitat.* Gypsaceous slopes, outcrops of sandstones and red clays (500–900 m.s.l.).

*Distribution.* Middle Asia (Southern Pamir-Alay): Tajikistan, Uzbekistan (fig. 4).

*Examined specimens:* Bukhara, Baissun, red slopes, 06.06.1897, Lipsky; Babatag range, between villages Suljum and Chinara-Sokhta, 28.06.1914, Popov 367; Baissun, red western slopes, 04.06.1930, Lepeshkin; S-W Pamir-Alay, Babatag range, red slopes between villages Petamazar and Duob, 04.06.1936, Lepeshkin, Mukhamedzhanov 409; Northern red slopes of mountain Buryutakht, 04.06.1941, Popova 632; S-W Pamir-Alay, Tschulbair range, foothills, 2.5–4 km to the west of village Oibaryk, red sandstones, 07.07.1940, Archereev 174; Baissun expedition, to the south of village Baissun, gypsaceous slope, 1105 m.s.l., 10.08.1940, Popova 311; S-W from Kafrun, on gypsaceous foothills, 13.08.1940, Popova, Vassilkovskaja 214; Southern Uzbekistan, Tschulbair

range, foothills, river Tentaksai, stream Garmaly, near spring Khodzhaipak, red sandstones and clays, 26.05.1977, Botschantsev 401; Pamir-Alay, colored clays between Baissun and Shurchy, 14.05.1989, Kamelin, Khassanov 383 (TASH!).

**7. *Plocama trichophylla*** (Popov) M. Backlund & Thulin, *Taxon* 56: 325 (2007).

=*Gaillonia trichophylla* Popov ex Tscherneva in *Flora Uzbekistana* 5: 642 (1961).

=*Neogaillonia trichophylla* (Popov ex Tscherneva) Lincz., *Novosti Sist. Vyssh. Rast.* 10: 231 (1973); Pachomova in *Opred. Rast. Sred. Azii* 9: 283 (1987).

*Type:* Near village Katta-Kamysh, on the salty slopes, 02.05.1915, Popov 393 (in Russian) (holotype TASH).

Semishrub 20–40 cm high. Roots woody, thick. Stems numerous, woody and whitish at the base, brownish-grey above, branched, articulate, densely covered by long reflected setules. Leaves flat, linear-lanceolate, densely setaceous, reflected, 1-nerved, connate with stipules into the sheaths. Stipules 5–6 mm long, 3-dissected, spiny, covered by reflected setules. Bracts almost twice shorter than flowers. Calyx cyathiform, covered by long setules, 4 mm long, 3–4-lobed; lobes lanceolate, 2 mm long, ciliate at the margins. Corolla 20 mm long, whitish-greyish, densely setaceous; 5-lobed; lobes 3–4 mm long, linear-lanceolate, obtuse, slightly incurved. Mericarps 5–6 mm long, oblong-cylindrical, greyish, densely setaceous.

*Phenology:* Flowering in May; fruiting in June.

*Habitat:* Outcrops of saliferous clays and sandstones in the foothills (500–1200 m.s.l.).

*Distribution:* Endemic to Uzbekistan (Southern Pamir-Alay, Kelif-Sherabad range) (fig. 4).

*Examined specimens:* Baisuntau Mountains, village Aktash, road Aktash-Sherabad, colored clays, 24.05.1972, Nabiev, Shermatov, Kazakbaev 277; Kuhitang range, 6–7 km by the road from village Aktash to Baldir, colored clays, 20.05.1978, Nabiev, Li, Zuckerwanik 416 (TASH!).



Fig. 1. Image of *Plocama bucharica* (B. Fedtsch. & Des.-Shost.) M. Backlund & Thulin.



Fig. 2. Image of *Plocama vassilczenkoi* (Lincz.) M. Backlund & Thulin.



Fig. 3. Image of *Plocama alshehbazii* F. O. Khass., Khamraeva, Khuzhan. & Achilova.

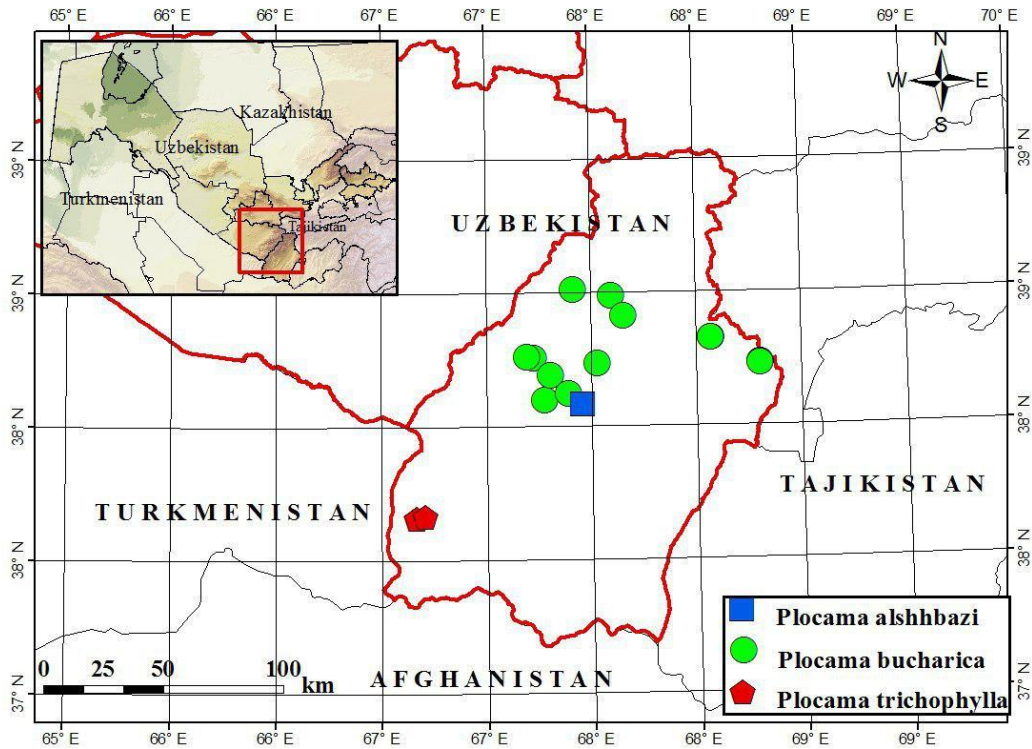


Fig. 4. Distribution map of *Plocama alshhbazi*, *P. bucharica* and *P. trichophylla*.

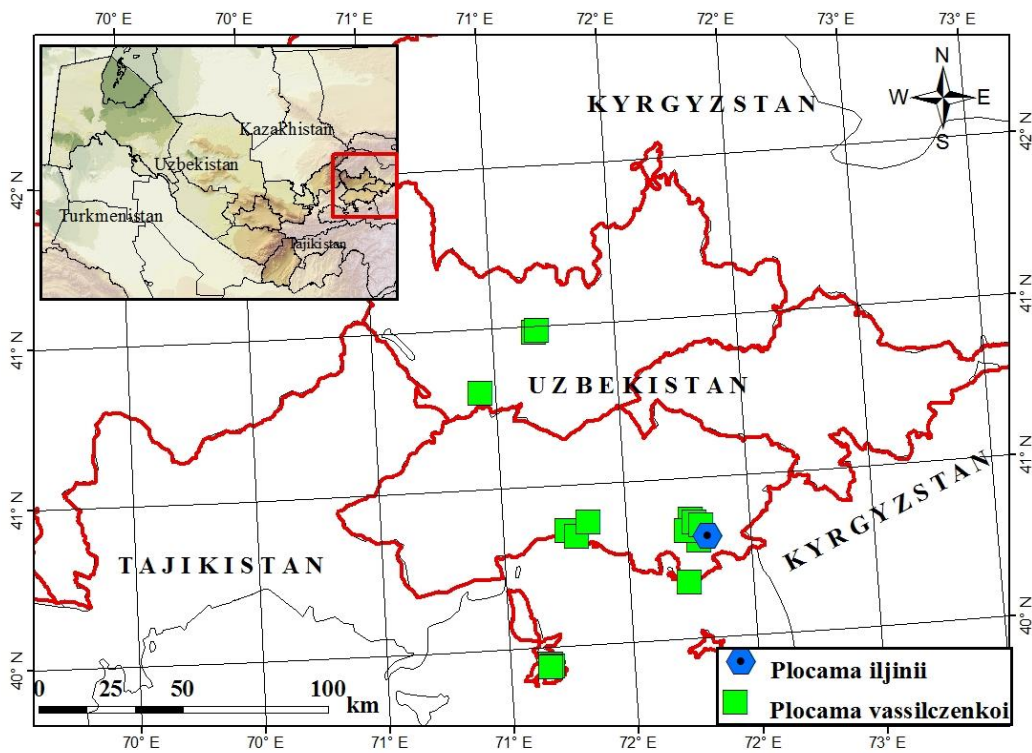


Fig. 5. Distribution map of *Plocama iljinii* and *P. vassilzenkoi*.

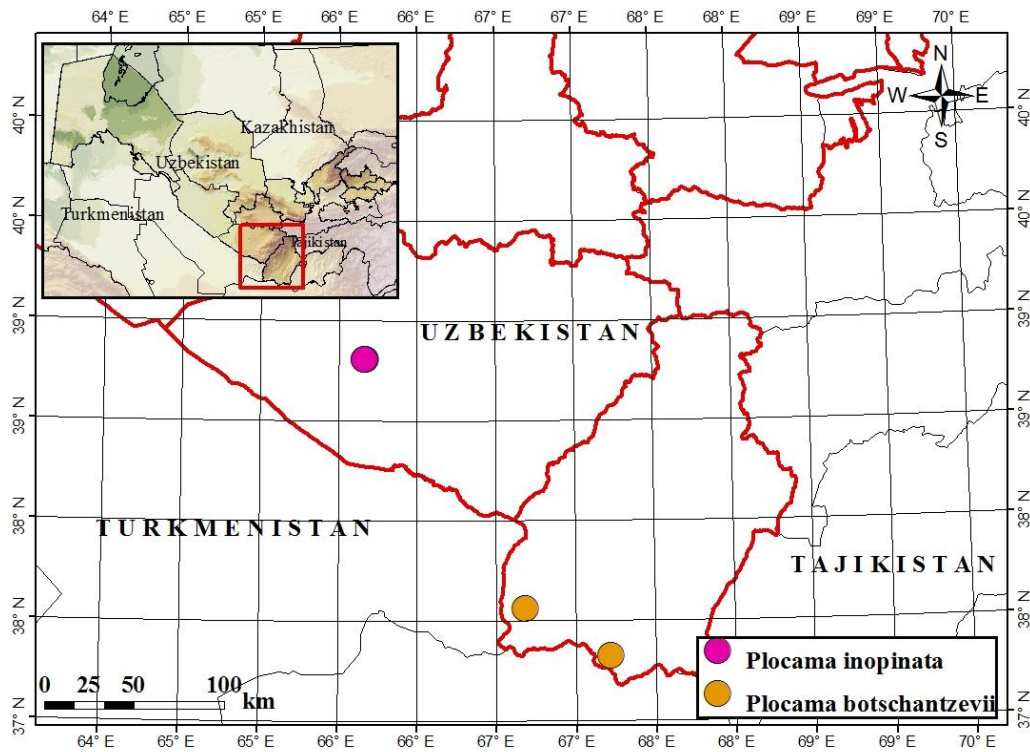


Fig. 6. Distribution map of *Plocama botschantzevii* and *P. inopinata*

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