

## Five New Species of *Oxytropis* from the Kunlun and the Hoh Xil Mountains, NW China (Fabaceae)

Hideaki Ohba<sup>1</sup>, Shinobu Akiyama<sup>2</sup> and Su-Kung Wu<sup>3</sup>

<sup>1</sup>Department of Botany, University Museum, University of Tokyo,  
7–3–1 Hongo, Bunkyo-ku, Tokyo 113–0033, Japan.

E-mail: ohba@um.u-tokyo.ac.jp

<sup>2</sup>Department of Botany, National Science Museum,  
4–1–1 Amakubo, Tsukuba, Ibaraki 305–0005, Japan.

E-mail: akiyama@kahaku.go.jp

<sup>3</sup>Herbarium, Kunming Institute of Botany, Academia Sinica,  
Kunming, Yunnan 650204, China.

**Abstract** Five new species of *Oxytropis*, *O. flavovirens* H.Ohba, S.Akiyama & S.K.Wu, *O. friabilis* H.Ohba, S.Akiyama & S.K.Wu, *O. konlonica* H.Ohba, S.Akiyama & S.K.Wu, *Oxytropis lanceatifoliola* H.Ohba, S.Akiyama & S.K.Wu, and *O. qiemoensis* H.Ohba, S.Akiyama & S.K.Wu, are described.

**Key words:** *Oxytropis*, Kunlun, Hoh Xil, NW China, new species, taxonomy

Between 1987 and 1990 the first and third authors have surveyed the floras of the Karakorum, the Kunlun and the Hoh Xil Mountains in NW China. We have already published the first inventories of *Astragalus*, *Saxifraga* and the genera of Brassicaceae of these mountains (Ohba *et al.*, 1995 a, b; Al-Shelbaz *et al.*, 1998).

As well as *Astragalus*, *Oxytropis* in the same family Fabaceae is one of the main elements in both flora and vegetation in those mountainous regions and common in the dry gravelly or alluvial or sometimes rocky mountain slopes, plains and alpine desert, and also among rocks. *Oxytropis* consists of approximately 300 species distributed widely in the northern hemisphere and approximately 90% of the total number of the species occur in Central Asia and the adjacent regions including Tajikistan, Kyrgyzstan, Kazakhstan, Uzbekistan, Turkmenistan, west Himalaya, Tibet, NW and W China, and Mongolia. Though Shishkin and Bobrov (1948, 1972) treated the vast number of the species in the Flora of USSR, the taxonomy is still unreliable and needed to collect further materials especially from the mountainous regions of Central Asia. While studying *Oxytropis* in the collections from the Kunlun and the Hoh Xil Mountains we found five new species.

Collector names in the citation of paratype specimens are abbreviated as follows: the first W stands for S.-K. Wu, O for H. Ohba, the second W for Y.-H. Wu, and F for Y. Fei.

1) **Oxytropis flavovirens** H.Ohba, S.Akiyama & S.K.Wu, sp. nov. [Figs. 1 & 2]

In habitu speciebus serei Subcapitatae Vassilcz. in sectione Eumorpha Bunge similis sed omnibus differt combinatione foliorum usque 20 cm longorum, foliolorum 9–15-jugorum, anguste ovatorum vel lanceolatorum, 5–12 mm×3–5 mm magnorum, et florum 14–20 mm longorum.

Perennial herb, up to 35 cm tall; caudex woody with many branches; aerial stems almost absent. Stipules connate petioles in lower one third, 20–25 mm long; free part subulate to triangular, long acuminate, 10–13 mm long, green, margin and outer surface sparse to moderately villose. Leaves (5–)10–30 cm long, imparipinnate, petioles shorter than rachis; (including stipules, rachis) hairs villose, white, spreading, ca. 1 mm long. Leaflets yellowish green, 9–15 pairs, narrowly ovate to lanceolate, apex obtuse, base round, sessile, 5–12 mm×3–5 mm, white villose hairs ascending, ca. 1 mm long, sparse to moderate on upper, dense, appressed on lower surfaces.

Inflorescences axillary, pedunculate compact racemes with 5–12 flowers, rhachis short elongate, 5–10 mm long; peduncles 1.2 to 1.5 times longer than leaves, 12–35 cm long; hairs spreading, white, 1–1.2 mm long, usually conspicuous; bracts linear-subulate, 4–6 mm long, hairy.

Flowers bluish purple to purplish red, rarely white; pedicels 1–2 mm long, hairy. Calyx 6–10 mm long, (including upper part of peduncles, bracts, pedicels) blackish brown and white hairs ascending to appressed, 0.3–0.5 mm and also 1 mm long; teeth (1–)1.5–4 mm long, 1/4 to 1/2 of tube length, linear. Vexillum widely triangular ovate, apex emarginate, base tapering, 14–20 mm long, 10–14 mm wide, claw distinct ca. 6 mm long. Wings 13–16 mm long, lamina narrowly oblong to semiorbicular, apex emarginate, base with ca. 2 mm long auricles on upper side, 9–11 mm long, 4–5 mm wide; claw 5–6 mm long. Keel-petals 10–14 mm long, lamina semiorbicular, apex with 1–2 mm long mucro, (including mucro) 6–8 mm long, 3–4 mm wide; claw 5–6 mm long. Ovary with dense ca. 0.1 mm long hairs.

Holotype. China. XINJIANG: Qira Xian, Nuer, Yamei, alt. 3400 m, 2 July 1988. Wu, Ohba, Wu & Fei 2517 (fl.) (KUN; isotypes in KUN & TI).

Paratypes. XINJIANG. Pishan Xian: Buqun, 3300 m, 19 June 1988. WOWF 1868 (fl.) (KUN, TI, TNS); loc. cit., 3450 m, 19 June 1988. WOWF 1873 (fl.) (KUN, TI); loc. cit., 2900 m, 18 June 1988. WOWF 1847 (fl.) (KUN, TI); loc. cit., 2850 m, 18 June 1988. WOWF 1843 (fl.) (KUN, TI); Naoarbatibuqiong, 3400 m, 21 June 1988. WOWF 2459 (fl.) (KUN, TI, TNS); loc. cit., 3300 m, 18 June 1988. WOWF 2432 (fl.) (KUN, TI); Buqiang, 2800 m, 17 June 1988. WOWF 3006 (fl.) (KUN, TI); Naoarbatu, 2800 m, 17 June 1988. WOWF 2411 (fl.) (KUN, TI). Qira Xian: Nuer, 3800 m, 1 July 1988. WOWF 1954 (fl.) (KUN, TI); loc. cit., 3300 m, 2 July 1988. WOWF 1973 (fl.) (KUN, TI, TNS); loc. cit., 3700 m, 29 June 1988. WOWF 3041 (fl.) (KUN, TI); Nuer, Yamei, 3000 m, 3 July 1988. WOWF 2520 (fl.) (KUN, TI); loc. cit., 3400 m, 28 June 1988. WOWF 2483 (fl.) (KUN, TI); Yutian Xian: Sukepiya, 3000 m, 14 Aug. 1987. W 871016 (KUN); Kekeya, 3600 m, 4 Aug. 1987. W 870821 (KUN);

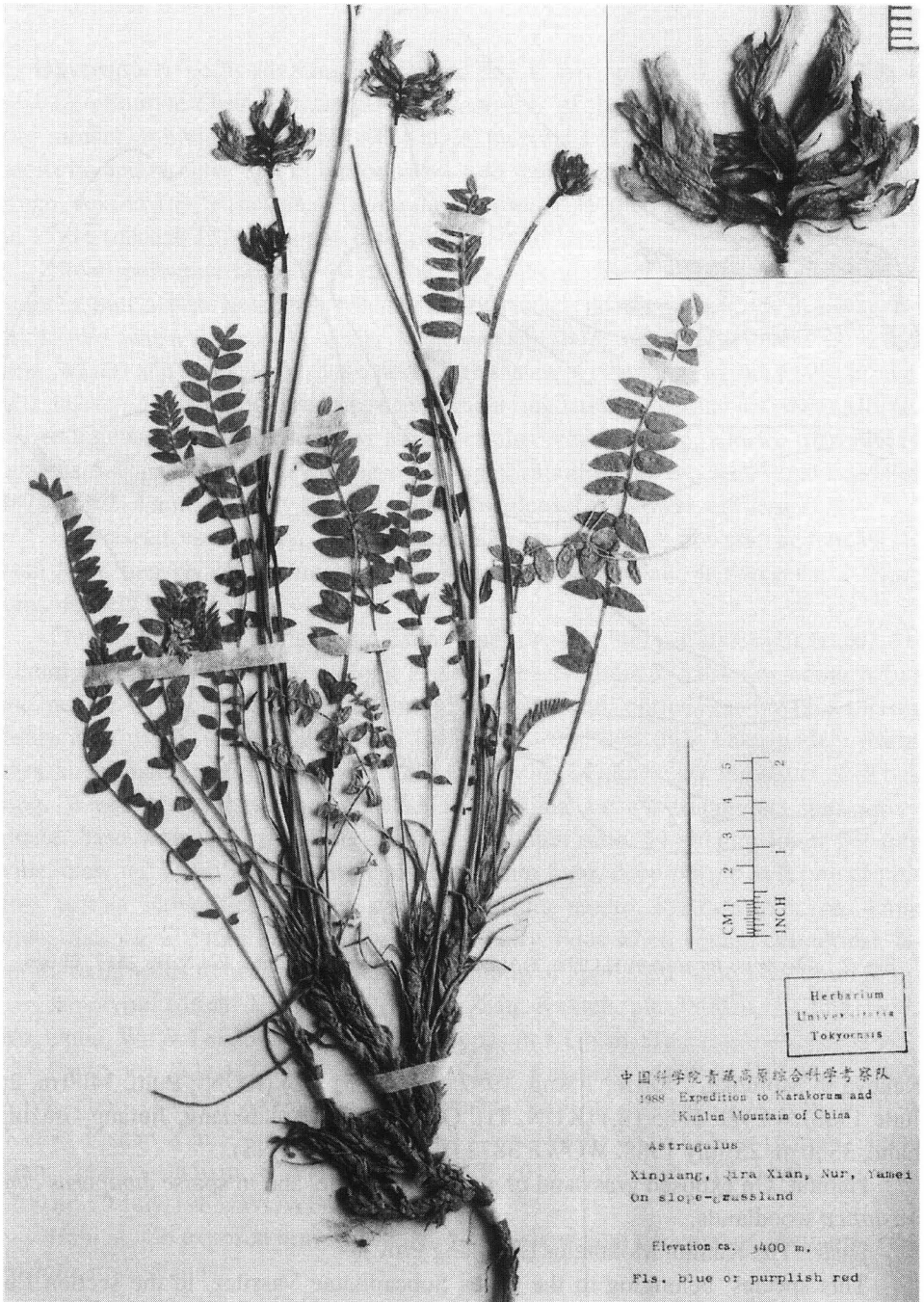


Fig. 1. *Oxytropis flavovirens* H.Ohba, S.Akiyama & S.K.Wu (Wu, Ohba, Wu & Fei 2517, TI-isotype).

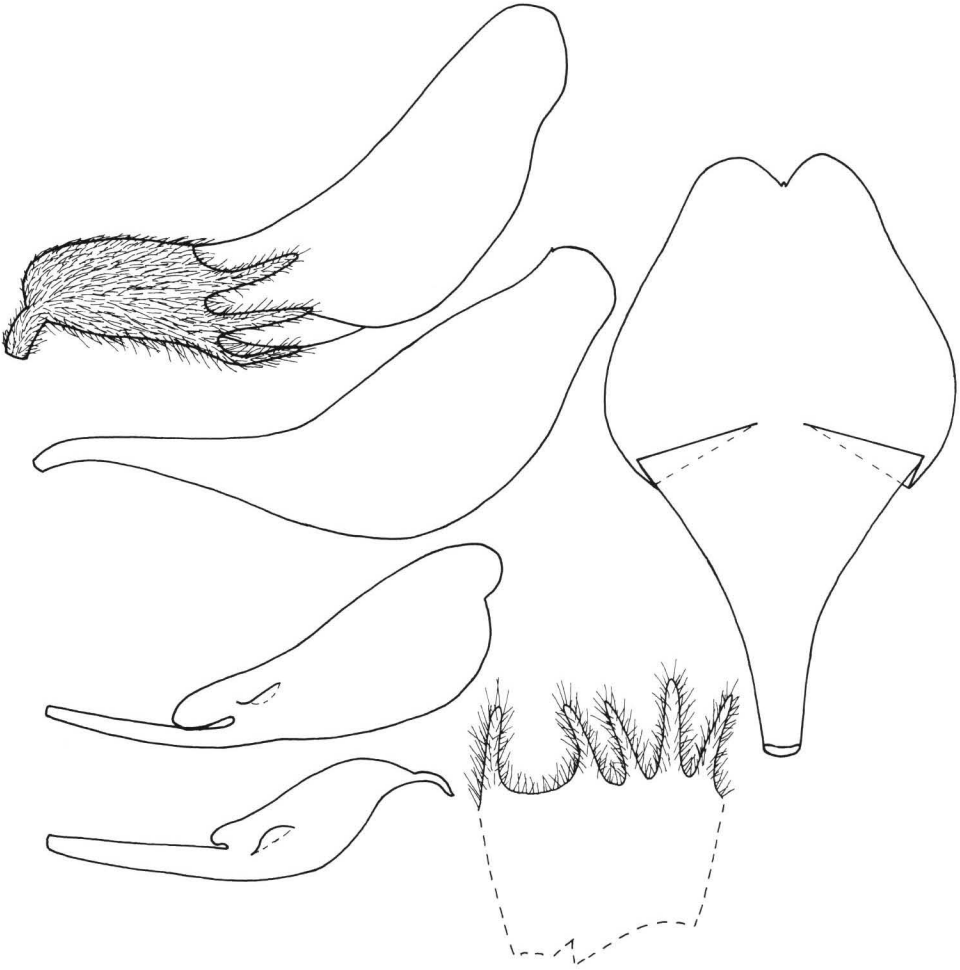


Fig. 2. *Oxytropis flavovirens* H.Ohba, S.Akiyama & S.K.Wu (Wu, Ohba, Wu & Fei 2517, TI-isotype). All.  $\times 4$ .

Kekeya to Momoke, 2700 m, 7 Aug. 1987. W 870951 (fl.) (KUN); Pulu, 3400 m, 26 June 1988. WOWF 3685 (fl.) (KUN, TI). Qiemo Xian: Aqianxiang, Jiefang Grazing Land, 3350 m, 25 July 1988. WOWF 3872 (fl.) (KUN, TI, TNS).

Habitat: On exposed grassland or slopes, river side, and in sparse *Juniperus centrasiatica* woodlands.

Distr.: The Kunlun Mountains (Xinjiang Prov.).

This species, belonging to the series *Subcapitatae* Vassilcz. in the section *Eumorpha* Bunge, differs from all the known species in having leaves attaining 20 cm long with 9–15 paired ovate to lanceolate 5–12 mm long, 3–5 mm wide leaflets, and

1.4–2 cm long flowers.

2) ***Oxytropis friabilis*** H. Ohba, S. Akiyama & S. K. Wu, sp. nov. [Figs. 3 & 4]

Ex affinitate *Oxytropis ketmenicae* Saposhn., ab hac planta in parte vegetativa toto minore, foliolis 5–7 (non 10–12)-jugis, racemis 1–3 (nec 4–8)-floribus, bracteis pedicello aequilongis; sed in reproductiva toto majore, calyce 10–13 (nec 9–10) mm longo, vexillo 18–21 (nec ca. 15) mm longo, alis 15–19 (nec 14–15) mm longis, carina 15–16 (nec ca. 13) mm longa bene differt.

Small perennial herb, 7–10 cm tall, aerial stem absent; caudex slender, buried. Stipules thin membranaceous, connate in both side, connate to petioles in lower two third; free part triangular, 2–4 mm long, densely hairy on margin (hairs ca. 1 mm long, white) and sparsely on outer surface (hairs ca. 1 mm long, white, rarely brownish). Leaves 2–5 cm long, imparipinnate; (including stipules, peduncles) hairs ascending to appressed, white, ca. 1 mm long; petioles 3–6 mm long, shorter than rachis. Leaflets 5–7 pairs, ovate to oblong-ovate, apex round or obtuse, base round, sessile, 3–7 mm × 2–4 mm, sparsely hairy on upper and densely on lower surfaces.

Inflorescences axillary, pedunculate racemes with 1–3 flowers; peduncles 4–9 cm long, densely hairy; bracts narrowly ovate or lanceolate, herbaceous, 2–5 mm long, densely hairy.

Flowers suberect, pedicels ca. 2 mm long, densely hairy. Calyx cylindrical, 10–13 mm long, teeth 1/3 to 1/2 as long as tube, linear-subulate; hairs (including bracts and pedicels) blackish brown, ascending or appressed, curled, ca. 0.6 mm mixing rarely with white, straight, ca. 1 mm long hairs. Vexillum light blue, widely ovate, apex emarginate, tapering to claw, 18–21 mm × 11–14 mm; claw indistinct, 6–8 mm long. Wings 15–19 mm long, purplish red, lamina narrow triangular, apex emarginate, base with ca. 2 mm long auricle on upper side, 11–14 mm long, 5–6 mm wide, claw ca. 7 mm long. Keel-petals 15–16 mm long, deep purple at terminal portion, lamina semiorbicular, apex with ca. 1.5 mm mucro, 8–9 mm long, ca. 4 mm wide, claw ca. 6.5 mm long. Ovary densely hairy. Pods when young, cylindrical, tapering to upwards to beak, hairs dense, ascending or appressed, white, ca. 1 mm long.

Holotype. China. XINJIANG: Hotan Xian, Kaxtax, alt. 3800 m, 10 July 1988. Wu, Ohba, Wu & Fei 2565 (fl.) (KUN; isotypes in KUN & TI).

Paratypes. XINJIANG. Taxkorgan Xian: Kalaqigu, 4500 m, 16 Aug. 1989. WWF 5056 (KUN). Aketao Xian: Aketashi, 3200 m, 25 June 1987. W 870198 (KUN). Pishan Xian: Naoarpati, 3000 m, 17 June 1988. WOWF 2421 (KUN). Hotan Xian: Kaxtax, 3850 m, 8 July 1988. WOWF 2013 (fl.) (KUN, TI, TNS); loc. cit., 3700 m, 10 July 1988. WOWF 2041 (fl.) (KUN, TI).

Habitat: On exposed gravelly slopes or grassland, and the edge of *Juniperus centasiatica* woodlands.

Distr.: The Kunlun Mountains (Xinjiang Prov.).

*Oxytropis ketmenica* Saposhn. described from the Tien Shan Mountains is close-

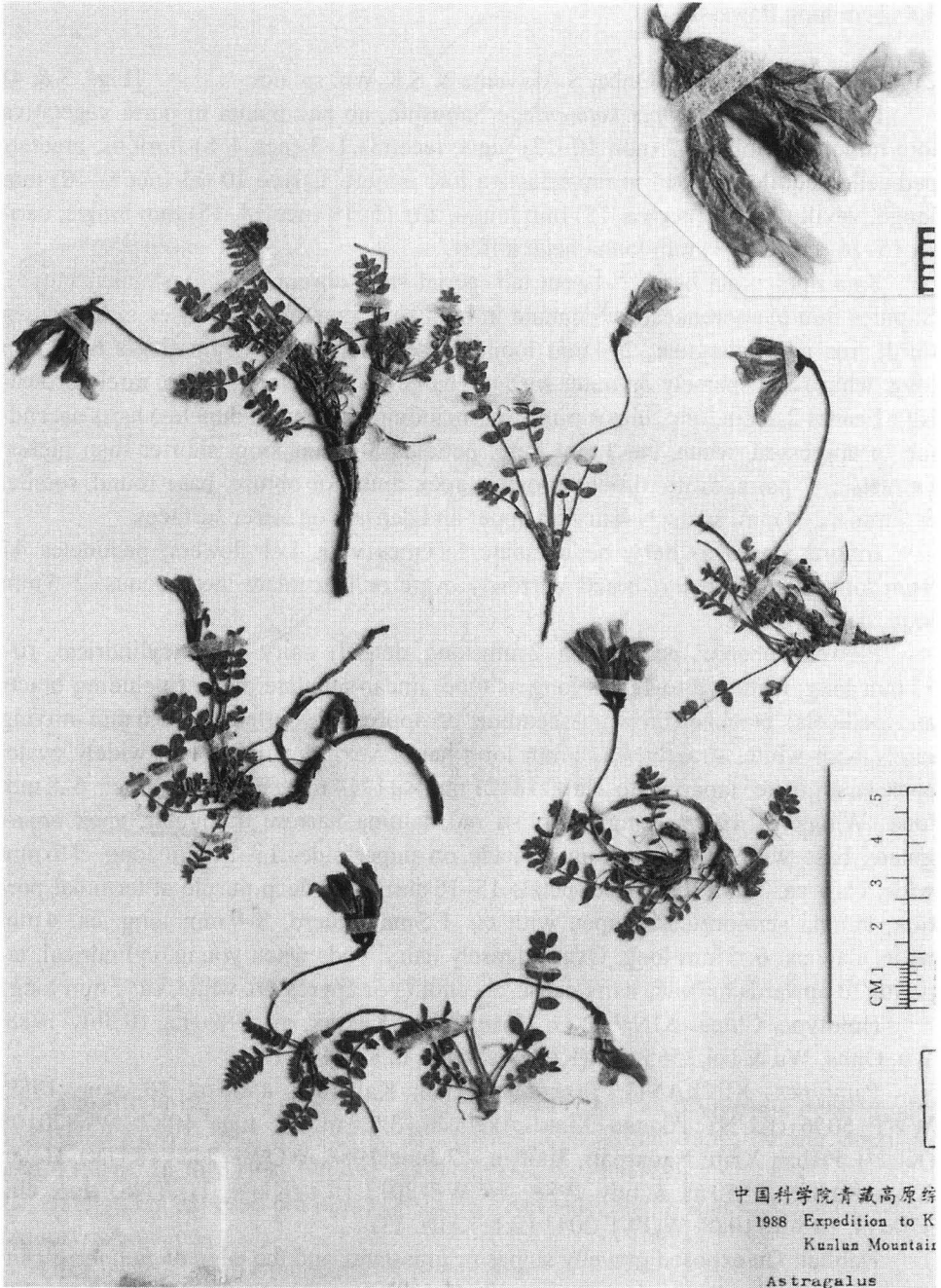


Fig. 3. *Oxytropis friabilis* H.Ohba, S.Akiyama & S.K.Wu (Wu, Ohba, Wu & Fei 2565, TI-isotype).



Fig. 4. *Oxytropis friabilis* H.Ohba, S.Akiyama & S.K.Wu (Wu, Ohba, Wu & Fei 2565, TI-isotype). All.  $\times 4$ .

ly related to this species and differs by the 10–12-paired leaflets, the 4–8-flowered racemes, the bracts as long as pedicels, and the flowers with calyx 9–10 mm long, vexillum ca. 1.5 cm long, wings 1.4–1.5 cm long and keel-petals ca. 1.3 cm long.

- 3) ***Oxytropis konlonica*** H.Ohba, S.Akiyama & S.K.Wu, sp. nov. [Figs. 5 & 6]  
*Oxytropis platonychia* Bunge similis, sed ample differt; stipulis ad 10 mm

longis triangularibusque, calyce 6–7 mm longi pilis nigrofuscis ca. 0.8 mm longis vestiti, foliis anguste ovatis vel lanceolatis 4–9 mm longis 1.5–3 mm latis, supra sparse vel moderate, infra dense pilosis (pilis ad 1 mm longis albis adpressis), luginibus cylindricis, ad 3 cm longis 9 mm latis pilis nigrofuscis ca. 4 mm longis adpressis sparse vestitis.

Acaulescent caespitose, stoloniferous perennial herb; caudex woody with many short divisions produced from numerous long stolons. Stipules thin herbaceous, amplexicaul, connate nearly one third to two third at stem side and basally at petiole side and with petiole; free part triangular, 3–5 mm long, sparsely to densely whitish hairy on outer surface. Leaves 1–8 cm long, prostrate, imparipinnate, grayish green, petioles shorter than rachis; (including stipules, rachis, peduncles) hairs ascending, white, 0.8–1 mm long. Leaflets 6–12 pairs, narrowly ovate or lanceolate, apex rounded or obtuse, base rounded or short attenuate, nearly sessile, 4–9 mm × 1.5–3 mm; hairs white, appressed, 0.8–1 mm long, sparsely to moderately on upper surface and densely on lower surface.

Inflorescences axillary, pedunculate racemes with 3–6 flowers; peduncles usually longer than leaves, 1.5–9 cm long, densely hairy; bracts subulate, thin, 2–3 mm long in flowering, then to 4 mm long, hairy.

Pedicels ca. 1 mm long in flower, 2–3 mm in fruit, densely hairy. Calyx tubular-campanulate, 5–6 mm long; (including pedicels, bracts) hairs blackish brown, appressed, ca. 0.3 mm long; tube 3.0–3.5 mm long; teeth 2.0–2.5 mm long, linear-subulate. Vexillum widely ovate, apex retuse, base tapering, ca. 7.5 mm × 5 mm. Wings shorter than vexillum, longer than keel-petals, ca. 7 mm long; lamina oblong, apex minutely retuse, base auriculate on upper side; claw little shorter than lamina, ca. 3 mm long. Keel-petals semiorbicular, ca. 6 mm long, apex with ca. 0.5 mm mucro, claw nearly as long as lamina, ca. 3 mm.

Pods cylindrical, purplish brown, both attenuate, 2.5–3.5 cm long, 0.7–1 cm wide, nearly sessile; hairs blackish brown, ca. 0.5 mm long, grooved along ventral (lower) suture, many seeded in two rows. Seeds ca. 2 mm long and wide, brown, smooth.

Holotype. China. QINGHAI: Golmud Xian, the Tibet highway 920 km from Qinghai, alt. 4500 m, 6 September 1988. Wu, Ohba, Wu & Fei 2811 (fr.) (KUN; isotype in TI).

Paratypes. XINJIANG. Ruoqiang Xian: Mt. Qimantag, 4600 m, 9 Aug. 1988. WOWF 3973 (fr.) (KUN, TI, TNS); N slope of Qimantag Mountains, 4300 m, 9 Aug. 1988. WOWF 2670 (fr.) (KUN, TI); Qimantag, 4300 m, 9 Aug. 1988. WOWF 2169 (fr.) (KUN, TI, TNS); Yueyawan, 5000 m, 20 Aug. 1988. WOWF 2737 (fr.) (KUN, TI); Hasheklei river, 4720 m, 19 Aug. 1988. WOWF 4155 (fr.) (KUN, TI); A pass between Yaziquan and Aqqikkol Hu, 4450 m, 23 Aug. 1988. WOWF 2292 (fr.) (KUN, TI, TNS); Nuztag, SE of Xuezhaobi, 5200 m, 20 Aug. 1988. WOWF 2257 (fr.) (KUN, TI). TIBET. Ritu Xian: Nongmucuo, 5300 m, 2 Sept. 1987. W 871310 (fr.)





Fig. 5. *Oxytropis konlonica* H.Ohba, S.Akiyama & S.K.Wu (Wu, Ohba, Wu & Fei 2811, TI-isotype).

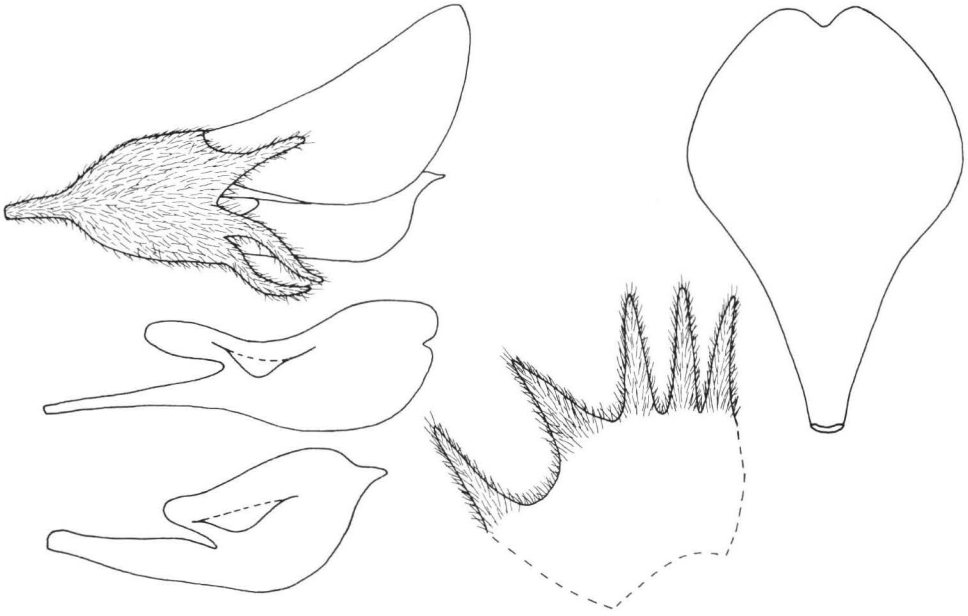


Fig. 6. *Oxytropis konlonica* H.Ohba, S.Akiyama & S.K.Wu (K-924, KUN). All.  $\times 8$ .

(KUN). HOK XIL MTS. Taiyanghu, 5050 m, 2 Aug. 1990. K-924 (fl. & fr.) (KUN); Kusaihu, 4750–4800 m, 11 Aug. 1990. K-456 (fr.) (KUN); Leixiewudan, 4900 m, 27 July 1990. K-886 (fl. & fr.) (KUN); Mazhangcuoqin, 4900 m, 29 June 1990. K-698 (KUN).

Habitat: On gravelly or rocky slopes, and among rocks.

Distr.: The Kunlun and the Hoh Xil Mountains (Xinjiang, Qinghai and Tibet Prov.).

This new species is similar to *Oxytropis platonychia* Bunge known from central Asia (Tien Shan and Pamir-Alai), but differs in having triangular 1 cm long stipules, narrowly ovate to lanceolate leaflets with sparsely to moderately hairy upper surface and densely pilose lower surface, 6–7 mm long calyx with 0.8 mm long blackish brown persistent hairs, and also cylindrical 3.5 cm long and 9 mm wide pods with sparse blackish brown appressed hairs. In *O. platonychia* the stipules are short ovate, the leaflets are oblong to ovate, greyish tomentose on both surfaces, the calyx covers with both long white soft hairs and short black hairs, and the pods are ovate to oblong-ovate, 2–3 cm long, (0.8–)1–1.5 cm wide with long white hairs and short black hairs.

4) *Oxytropis lanceatifoliola* H. Ohba, S. Akiyama & S. K. Wu, sp. nov.

[Figs. 7 &amp; 8]

Species, ut videtur, habitu *Oxytropis leptophyllae* (Pallas) DC. similis, sed plantis brevi caulibus, leguminibus 10–13 (non 20–30) mm longis uniloculatis, stipulis amplexicaulibus (basi exceptio) nec connatis petiolo, bractis lineari-subulatis nec oblong-ovatis admodum diversa. *Oxytropis hypoglottoidis* (Baker) Ali et *O. glareosa* Vass. similis, sed ab illa plantis caudicum breviorum, toto dense sericeo adpressis albo-pubescentibus, petiolis 5–7 (nec 0.5–1.9) cm longis, foliolis angustissime lanceolatis vel linearibus, calycis dentibus tubo prope aequilongis, vexillo ca. 8 (nec ca. 10) mm longo; ab hac foliis usque ad 10 (nec 2–5) cm longis, foliolis nec ovatis nec oblongis, 12–14 (nec 3–7) mm longis 2–4 (nec 1–2) mm latis, racemis compactis, vexillo spatulato nec orbiculari, leguminis sutura ventrali nec canaliculato omnino differt.

Perennial herb ca. 15 cm tall, densely hairy; hairs spreading, somewhat curled, soft, white, to 2 mm long. Stems short, less than 5 cm long, woody, deeply buried, branched. Stipules amplexicaul, connate lower two third to half at stem side, basally connate at petiole side or free; free part 4–5 mm long, triangular, acuminate, green, hairs dense, white, soft, 0.8–1.2 mm long. Leaves 7–10 cm long, imparipinnate; petiole 5–7 cm long, nearly as long as to longer than rachis; (including rachis) usually hairs soft, white, ca. 1 mm long. Leaflets 7–9 pairs, opposite, very narrowly lanceolate or linear, apex acute, base rounded, sessile, 12–14 mm × 2–4 mm, on both surfaces dense to moderate hairs appressed, white, 0.8–1 mm long.

Inflorescences pedunculate compact racemes with 15–20 flowers; peduncles slightly longer than leaves, to 12 cm long; hairs usually dense, ascending or spreading, white in lower part, blackish towards apex, ca. 1 mm long; bracts linear-subulate, green, densely hairy.

Pedicels ca. 1 mm long, densely hairy. Calyx campanulate, 5–6 mm long, (including bracts and pedicels) densely hairy with white woolly, 1–2.5 mm long, ascending to spreading hairs and blackish brown, ascending, ca. 0.5 mm long hairs; teeth 2.5–3 mm long, nearly as long as tube, linear-subulate. Corolla ? purplish. Vexillum spatulate, apex slightly retuse, base tapering, ca. 8 mm long. Wings ca. 7.2 mm long, lamina narrowly oblong, apex round, claw ca. 3.5 mm long. Keel-petals slightly shorter than wings, ca. 6.7 mm long, semiorbicular, apex with ca. 2 mm long mucro, claw ca. 3.3 mm long. Ovary (also pod) dense hairy with white ascending, 1–1.5 mm long hairs, and blackish ca. 0.5 mm ascending hairs.

Pods thin, vesicular, ovoid, apex acute with short beak (ca. 2 mm long), base attenuate with ca. 1 mm long stipe, 11–13 mm long, 4.5–5.5 mm wide, densely hairy, unilocular, dorsal and ventral sutures not grooved, one-seeded. Seeds ca. 2.8 mm × 2 mm, dark brown, smooth.

Holotype. China. XINJIANG: Ruoqiang Xian, Yixiakepati, alt. ca. 4100 m, 27 August 1988. Wu, Ohba, Wu & Fei 4281 (after fl. & fr.) (KUN; isotypes in KUN &

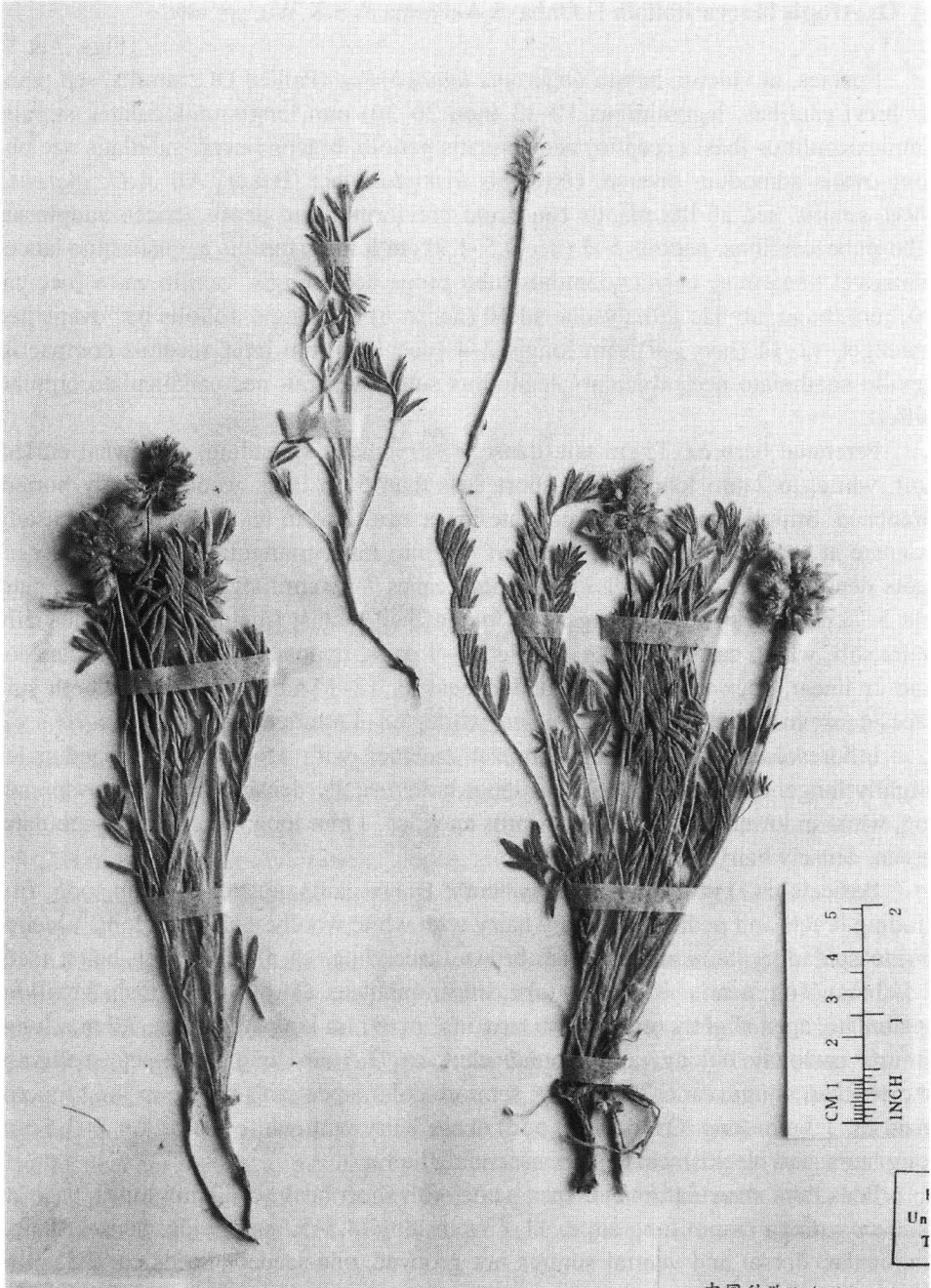


Fig. 7. *Oxytropis lanceatifoliola* H.Ohba, S.Akiyama & S.K.Wu (Wu, Ohba, Wu & Fei 4281, TI-isotype).

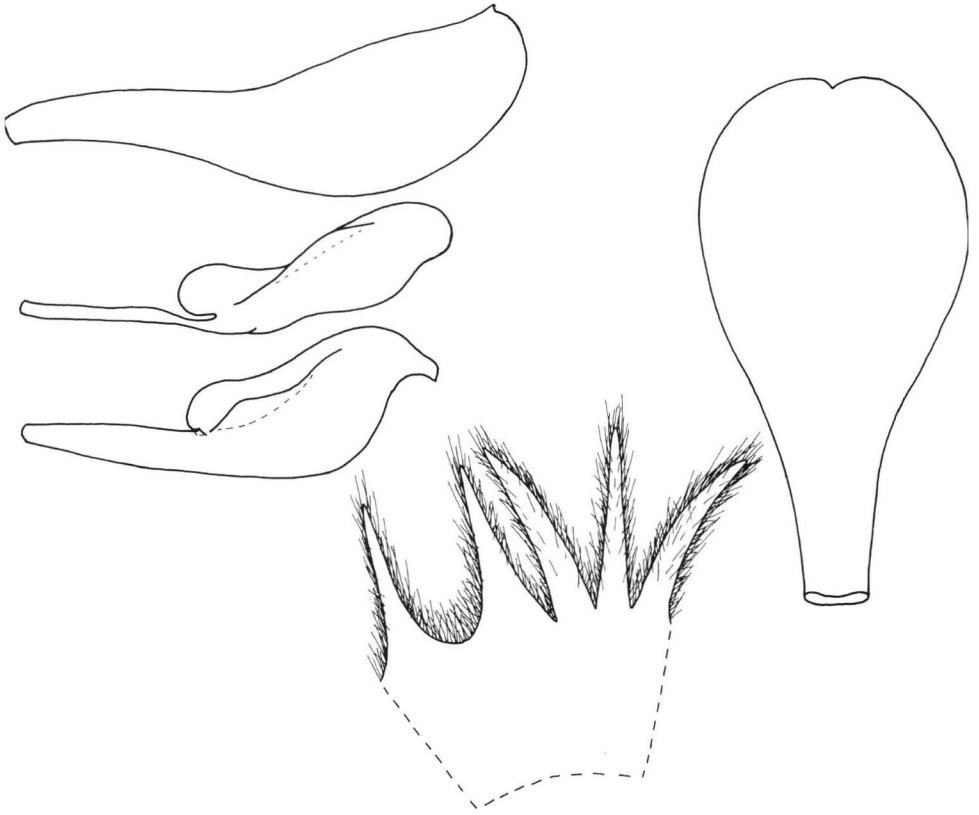


Fig. 8. *Oxytropis lanceatifoliola* H.Ohba, S.Akiyama & S.K.Wu (Wu, Ohba, Wu & Fei 4281, TI-isotype). All.  $\times 8$ .

TI).

Habitat: On dry alluvial slopes.

Distr.: The Kunlun Mountains (Xinjiang Prov.).

This species is similar to *Oxytropis leptophylla* (Pallas) DC. of Dauria (East Siberia), and differs in having short stems up to 5 cm long, shorter unilocular pods 1–1.3 cm long, linear-subulate bracts and amplexicaul stipules except for the basal leaves. Though the similarity to *Oxytropis hypoglottoides* (Baker) Ali from West Himalaya is also pointed out, the habit with dense sericeous appressed white hairs throughout the body, the leaves with longer petioles attaining 5–7 cm long, narrowly lanceolate to linear leaflets, and the flowers with calyx lobes as long as its tube, and ca. 8 mm long vexillum are diverse from the present new species. Our species also differs from *Oxytropis glareosa* Vassilcz. ranging from Dzungaria-Tarbagatai to Dauria through Mongolia by the longer leaves up to 10 cm long, the very narrowly leanceolate to linear (never ovate or oblong) 1.2–1.4 cm (not 3–7 mm long), 2–4 mm

(not 1–2 mm) wide leaflets, the compact racemes, the spatulate (not orbicular) vexillum and the ventrally not canaliculate pods.

5) ***Oxytropis qiemoensis*** H.Ohba, S.Akiyama & S.K.Wu, sp. nov. [Figs. 9 & 10]

Habitu *Oxytropis penduliflorae* Gontsch. similis, sed foliis ad 10 (nec 10–33) cm longis, foliolis 9–11 (nec 16–25)-jugis, calycis dentibus tubo non aequilongis, 2–3-plo brevioribus, leguminibus 14–18 (nec 10–12) mm longis, biloculatis prominenter differt.

Perennial herb; caudex woody with many short divisions, aerial stem absent. Stipules connate petioles in lower half to one third, 10–14 mm long; free part triangular, acuminate, densely white-hairy, first green, ca. 7 mm long. Leaves 7–10 cm long, imparipinnate, petioles 3–4 cm long, shorter than rachis; (including rachis) hairs dense, white, spreading, 1–1.5 mm long. Leaflets 9–11 pairs, narrowly ovate to lanceolate-ovate, apex obtuse, base round, nearly sessile, 10–11 mm×4–5 mm, yellowish green, on both surfaces dense spreading to ascending white hairs 1–2 mm long.

Inflorescences axillary, pedunculate compact racemes with 6–12 flowers; peduncles slightly longer than leaves, up to 12 cm long, densely hairy, with 1–1.5(–3) mm long spreading white straight soft hairs mixing with blackish appressed to spreading 0.5–1 mm long hairs in upper part; bracts linear-lanceolate, 5–6 mm×0.5–1 mm, densely hairy outside.

Flowers nodding, pedicels ca. 1 mm long, densely hairy. Calyx tubur, ca. 10 mm long; (including bracts, pedicels) ascending hairs 0.5–1(–3) mm long, blackish, mixing with white hairs; teeth linear, 3–4 mm long. Corolla bluish purple ? or white. Vexillum spatulate, apex retuse, base round and tapering to claw, 15–16 mm long, ca. 8 mm wide, claw 5–6 mm long. Wings ca. 12 mm long, lamina semiorbicular, apex truncate with minute notch, 7–8 mm long, claw ca. 6 mm long. Keel-petals ca. 11 mm long, lamina oblong, apex obtuse, with 0.5 mm long mucro, claw ca. 6 mm long. Ovary and style densely hairy.

Pods conspicuously biloculate, thick herbaceous, linear-oblong, apex acute with short beak, base round, 14–18 mm long, 4–5 mm wide, hairs appressed to ascending, curled, blackish brown, 0.4 mm long, 6–10-seeded. Seeds orbicular, ca. 1.1 mm×1 mm, brownish, smooth.

Holotype. China. XINJIANG: Qiemo Xian, Kongqibulaker, alt. 4100 m, 26 July. 1988. Wu, Ohba, Wu & Fei 2109 (fl.) (KUN; isotype in TI).

Habitat: On soiled slopes.

Distr.: The Kunlun Mountains (Xinjiang Prov.).

This is related to *Oxytropis penduliflora* Gontsch. of Central Asia (Tien Shan and Ozungaria-Tarbagatai) but different in having the leaves ca. 10 cm (not 10–35 cm) long with 9–11 (not 16–25)-paired leaflets, the calyx lobes as long as 1/2 or 1/3 length of the tube, and the bilocular pods 1.4–1.8 cm (not 1–1.2 cm) long.

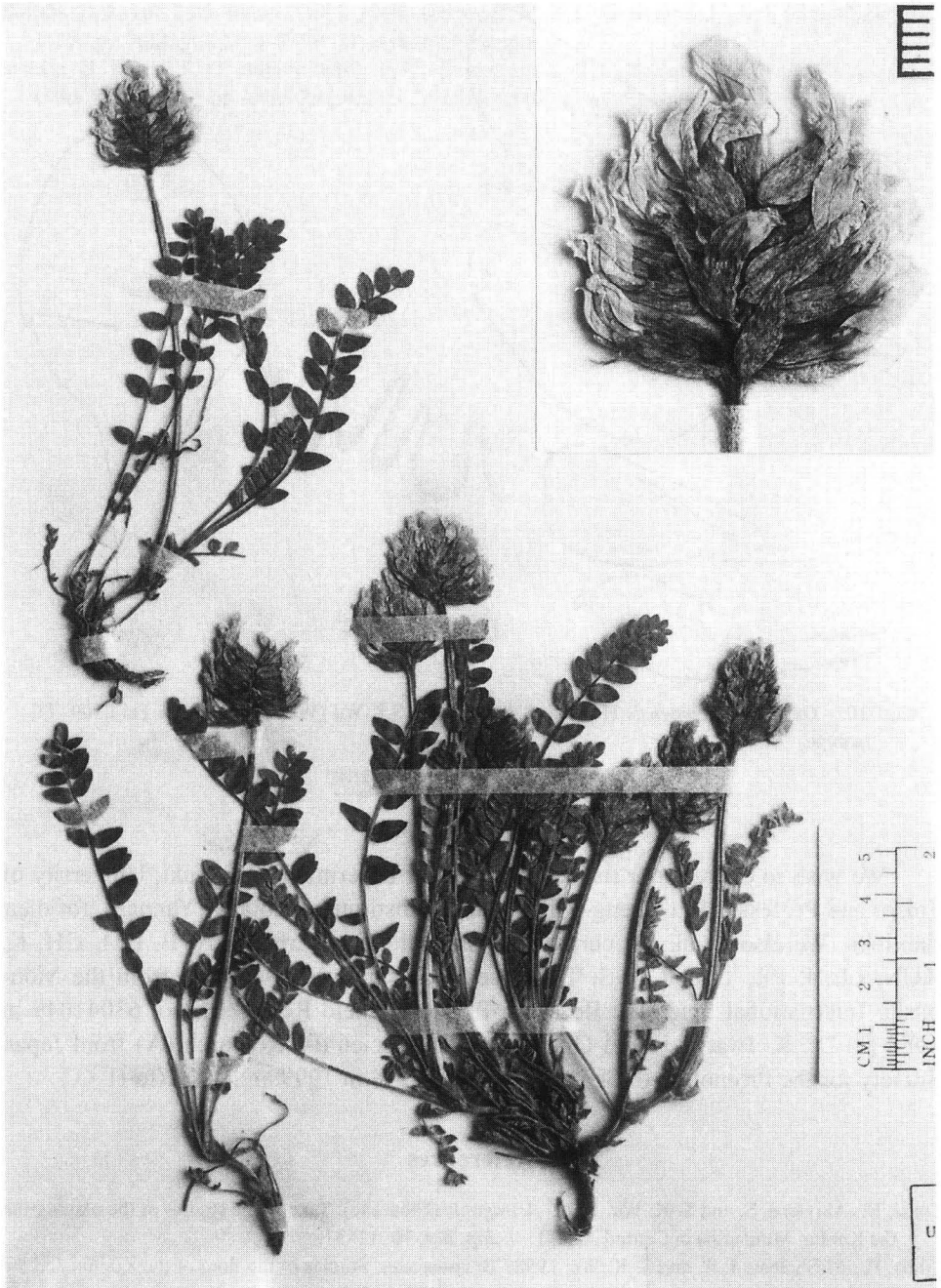


Fig. 9. *Oxytropis qiemoensis* H.Ohba, S.Akiyama & S.K.Wu (Wu, Ohba, Wu & Fei 2109, TI-isotype).

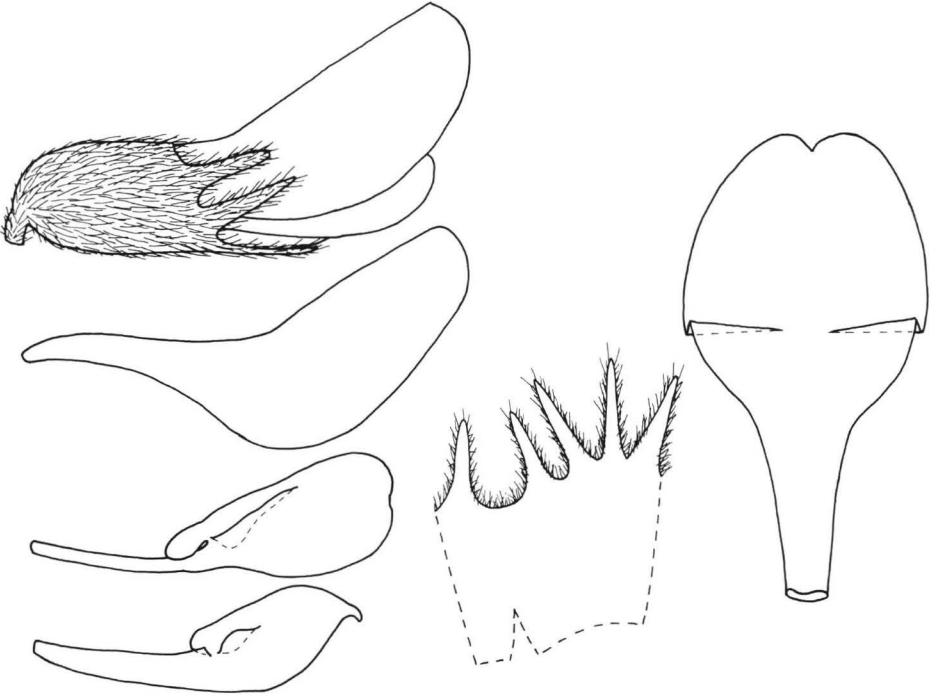


Fig. 10. *Oxytropis qiemoensis* H.Ohba, S.Akiyama & S.K.Wu (Wu, Ohba, Wu & Fei 2109, TI-isotype). All.  $\times 4$ .

### Acknowledgement

We wish to express our thanks to Professor Emeritus K. Iwatsuki, University of Tokyo and Professor Wu Cheng-Yih, Kunming Institute of Botany (Yunnan), for their facilities. We also thank the curators of the following herbaria, A, B, BM, GH, K, KUN, LE, P, PE, TI and TNS. This study was supported by Grant from the Monbusho International Scientific Research Program (Field Research), no. 63041049 in 1988 (to Dr. K. Iwatsuki) and Grant-in-Aid for Scientific Research (A) from Japan Society for the Promotion of Science, no. 11691178 in 1999 and 2000 (to H. O.).

### References

- Ohba, H., Akiyama, S. and S.-K. Wu. 1995. *Astragalus* (Fabaceae): Taxonomic studies of the plants from the Kunlun Mountains in Central Asia, 1. *J. Jap. Bot.* **70**: 11–31.
- Ohba, H., Al-Shelbaz, I. A. and S.-K. Wu. 1998. Brassicaceae: Studies of the flora of the Kunlun and the Karakorum Mountains, Central Asia, 3. *J. Jap. Bot.* **73**: 325–331.
- Ohba, H., Wu, S.-K. and S. Akiyama. 1995. *Saxifraga*: Studies of the flora of the Kunlun and the Karakorum Mountains, Central Asia, 2. *J. Jap. Bot.* **70**: 225–232.



- Shishkin, B. K. and E. G. Bobrov (eds.). 1948. *Oxytropis*. In: V. L. Komarov (ed. gen.), Flora SSSR. **13**: 1–229 pp. Akademii Nauk SSSR, Moskva and Leningrad.
- Shishkin, B. K. and E. G. Bobrov (eds.). 1972. *Oxytropis*. In: V. L. Komarov (ed. gen.), Flora of the U.S.S.R. **13**: 3–176 pp. Israel Program for Scientific Translations, Jerusalem.

