

On the Entity of *Saussurea triptera* Maxim. var. *mikurashimensis* Kitam. (Asteraceae) from Mikurajima Island, Idzu Islands, Japan (Systematic Studies of Asian *Saussurea* (Asteraceae) IV)

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Abstract. *Saussurea triptera* Maxim. var. *mikurasimensis* Kitam. (Asteraceae) described from Mikurajima Island, the Idzu Islands, is here recognized as a distinct species, *S. mikurasimensis* (Kitam.) Kadota based on herbarium and field studies. *Saussurea mikurasimensis* is distinguished from *S. triptera* by having fleshy, dimly lustrous, mucronate involucre phyllaries and ovato-cordate leaves. *Saussurea mikurasimensis* is an endemic species of Mikurajima Island and also an endangered species.

Key words: Asteraceae, endemic species, Idzu Islands, Mikurajima Island, *Saussurea mikurasimensis*.

Introduction

This article is part of a revisional work of Asian *Saussurea* (Asteraceae) (Kadota 1987, 2004, 2007, 2008, 2009, 2011).

Genus *Saussurea* (Asteraceae) is a perennial or biennial herb and is distributed in the temperate to the subfrigid zones of the Northern Hemisphere (Lipschitz, 1962, 1979; Shih and Jing, 1999). About 40 species are recognized in Japan (Kadota, 2011). In the Idzu Islands region, central Japan, only one taxon, *S. triptera* Maxim. var. *mikurasimensis* Kitam. (1976; Fig. 1) has been known in higher parts of Mikurajima Island. *Saussurea triptera* var. *mikurasimensis* Kitam. was also similarly treated as an infraspecific taxon of *S. triptera* in having shorter involucre based on herbarium specimens (Koyama, 1994; Ohba and Akiyama, 2002).

Participating a floristic study of the Sagami Sea and Adjacent Coastal Area conducted by the National Museum of Nature and Science a field examination was done in Mikurajima Island, the Idzu Islands in November 2008. During this field studies I could observe a living material of this taxon (Fig. 2). It was clarified that the plant is

characterized by having fleshy, dimly lustrous, mucronate involucre phyllaries as well as ovato-cordate leaves with deeply cordate bases. As a result it was concluded that this taxon should be treated as a distinct species. Here this species will be described as a species, *S. mikurasimensis* (Kitam.) Kadota.

Taxonomic treatment

Saussurea DC. in Ann. Mus. Natl. Hist. Nat. Paris **16**: 156, 198 (1810) & Prodr. **VI**: 531 (1837).

Subgen. *Saussurea*: Lipsch., Fl. URSS **27**: 392 (1962) & Gen. *Saussurea* 95 (1979) – H. Koyama in K. Iwats. & al., Fl. Jap. **3a**: 153 (1885) – C. Shih & S.-Y. Jing in Y.L. Chen & C. Shih, Fl. Reipub. Popul. Sin. **78**(2): 66 (1999).

Sect. *Saussurea*: Lipsch., Gen. *Saussurea* 178 (1979) – H. Koyama in K. Iwats. & al., Fl. Jap. **3a**: 153 (1885) – C. Shih & S.-Y. Jing in Y.L. Chen & C. Shih, Fl. Reipub. Popul. Sin. **78**(2): 158 (1999).

Ser. *Amurensis* Lipsch., Fl. URSS **27**: 559 (1962) & Gen. *Saussurea* 215 (1979).

Ser. *Acuminata* Kitam. in Acta Phytotax. Geo-



cm

Lectotype!
Saussurea triptera var. *mikurashimensis* Kadota
 Det. S. S. S. (11/17) Date her det.: 25.01.2008

Ex. Herb. N. Satomi
Saussurea tanaka
 Fr. et Sw.
Saussurea triptera Maxim
 var. *mikurashimensis*
 (Fr. et Sw.)
 末本館: 津波島, 津波
 (津波 700 号)
 Oct. 4, 1963 N. Satomi

Herb. Bot. Inst. Tokyo
 No. 1111
 Oct. 4, 1963



Fig. 2. Habit of *Saussurea mikurasimensis* (Kitam.) Kadota (JAPAN. Tokyo Pref., Mikurajima-mura, Izu Islands, Mikurashima Island, Mt. Nagataki-yama to Mt. O-yama, alt. 752 m, 6 Nov. 2008). Right corner inset shows a part of inflorescence.

bot. 4: 7 (1935), p. p. & in Mem. Coll. Sci., Kyoto Imp. Univ., ser. B, 13: (Compos. Jap. I) 159 (1937), p. p.

***Saussurea mikurasimensis* (Kitam.) Kadota**, stat. nov. [Figs. 1–2]

Basionym. *Saussurea triptera* Maxim. var. *mikurasimensis* Kitam. in Acta Phytotax. Geobot. 27(3–4): 120 (1976) – H. Koyama in K. Iwats. & al., Fl. Jap. IIIb: 157 (1995) – H. Ohba & S. Akiyama in Mem. Natn. Sci. Mus. Tokyo (38): 133 (2002).

Lectotype (Smirnov, 2008; designated on the herbarium sheet). JAPAN. Tokyo Pref., Mikurajima-mura, Izu Islands., Mikurajima Island, Mt. Oyama (as 'Miyama' in the protologue), alt. 700

m, N. Satomi s.n., 4 Oct. 1963, KYO !; Fig. 1).

Description. A medium-sized, herbaceous perennial, 40–55 cm tall. Rhizome oblique, 0.5–1 cm in diameter, with string-like roots. Stem erect to declining, striate, narrowly winged in the upper part or not winged, pubescent with multicellular hairs in the upper part, 2–5 times branched. Basal leaves withering at anthesis. Lower cauline leaves subcoriaceous, somewhat fleshy at the living time, ovato-cordate, 10–14 cm long, 8–10 cm wide, coarsely serrate, sparingly pubescent with multicellular hairs on both sides, deeply cordate at base, acute at apex: petioles 9–13 cm long, up to 30 cm long, amplexicaul, glabrous. Upper cauline leaves cordate, 3–7 cm long, 2–6 cm wide, coarsely serrate, acute at apex, similarly pubes-

Fig. 1. Lectotype of *Saussurea mikurasimensis* (Kitam.) Kadota (JAPAN. Tokyo Pref., Mikurajima-mura, Izu Islands., Mikurajima Island, Mt. Oyama, alt. 700 m, N. Satomi s.n., 4 Oct. 1963, KYO). Right corner inset shows a part of inflorescence.

cent to the lower cauline leaves, petiolate, amplexicaul. Flowers in October to November, with 4–7 capitula, arranged in a compact corymb; peduncles 5–10 mm long in the terminal corymb, ascending, densely pubescent with multicellular hairs. Involucres narrowly cylindrical, 5–6 mm in diameter, 12–14 mm long, sparingly arachnoid; phyllaries 5–6-seriate, fleshy and dimly lustrous in the living time; outer phyllaries ovate, 3 mm long, mucronate; inner phyllaries lanceolate, 10 mm long, acute, reddish purple along the margin; setae 5–6 mm long. Corollae pale purplish violet, 8 mm long; lobes 4 mm long; throats 1 mm long; tubes 4 mm long; anthers 5 mm long, deep purplish blue. Pappi 2-whorled, inner 8 mm long, feathery, outer 3 mm long, simple and scabrid, grayish white. Achenes 4.5 mm long, glabrous, purplish black with yellowish brown stripes on the ridges.

Japanese name. Mikurashima-tōhiren (Kitamura, 1976).

Distribution. Mikurajima Island, Idzu Islands, Japan (endemic).

Specimens examined. JAPAN. Tokyo Pref., Mikurajima-mura, Mikurajima Island, Sato to Mt. O-yama, 30 July 1967, fl. bud, S. Masuda 937 (TNS 844143); Mikurajima Island, 30 July 1967, fl. bud, S. Masuda 186 (TNS 844142); Mikurajima Island, Mt. Nagataki-yama to Mt. O-yama, 33°52'22.9"N 139°36'50.0"E, along a trail surrounded by *Sasa jotanii*, in a half shady place, alt. 752 m, 6 Nov. 2008, Y. Kadota 089110 (TNS 777791; Fig. 2).

Note. As already pointed out by Kitamura (1976) *S. mikurasimensis* is characterized by having ovato-cordate leaf blades. Such a kind of leaf-blade shape is not found in *S. triptera* and its allied species. The somewhat fleshy, dimly lustrous, mucronate involucreal phyllaries (squamae) are also characteristic of *S. mikurasimensis* (Figs. 1, 2). This type of involucreal phyllaries is equally observed in *S. hosoiana* Kadota and *S. neichiana* Kadota (Kadota, 2008). The latter two species are endemic to Tohoku District, northern Japan, and grow in the maritime region. Hence the presence of fleshy and lustrous involucreal phyllaries is in

common to the littoral species in the genus *Saussurea*.

During the survey in Mikurajima Island executed in November 2008 only a plant of *S. mikurasimensis* was collected exclusively from the site (alt. 752 m; Fig. 2) near Mt. O-yama which is located at the central part of the island. The stand was surrounded by evergreen broad-leaved forest and *Sasa johtanii* (a small bamboo) and belongs to the warm temperate zone. *Saussurea mikurasimensis* is also characteristic of the habitat preference because the most Japanese *Saussurea* species occur in the cool temperate to the subfrigid zones. *Saussurea mikurasimensis* is regarded as an endangered species since this is uncommon and is currently observed only at a sole locality in Mikurajima Island, Idzu Islands, central Japan.

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伊豆諸島・御蔵島特産ミクラシマトウヒレン（キク科）の実体（アジア産トウヒレン属の分類学的研究 IV）

門田裕一

御蔵島から記載されたキク科トウヒレン属のミクラシマトウヒレン（ミクラジマトウヒレン）はこれまでヤハズヒゴタイの変種 *Saussurea triptera* Maxim. var. *mikurasimensis* Kitam. として扱われてきた。しかしながら、標本調査と 2008 年に実施した現地調査の結果、独立種として認識することが正しいという結論に達したので、ここで新種ミクラシマトウヒレン *Saussurea mikurashimensis* (Kitam.) Kadota の新名を提唱した。

原著者の北村（1976）が指摘しているように、本種の根生葉の葉身は特徴的なもので、卵状心形で葉脚も深い心形となり、ヤハズヒゴタイとその近縁種には見られないものである。総苞片は 5–6 列であるが、やや肉質で、鈍い光沢が認められる。ヤハズヒゴタイの総苞片は草質で光沢は全くなく、この点でもミクラシマトウヒレンとは明らかに異なっている。このような総苞片をもつものはツガルトウヒレン *S. hosoiana* Kadota やハチノヘトウヒレン *S. neichiana* Kadota がある (Kadota, 2008)。これらの二種はいずれも海岸生であり、沿海地に生育するトウヒレン属の種に共通した特徴と考えることができる。

2008 年に御蔵島において実施した現地調査では、長滝山登山口から御山に至る標高 752 m の一ヶ所で、しかも 1 個体しか見出すことができなかった。ここは常緑広葉樹林とミクラザサに被われたところであり、気候帯では暖温帯に所属する。この産地はこれまでにミクラシマトウヒレンが得られている産地の近傍である。日本産トウヒレン属の種はいずれも温帯以上の地域に見られるため、生育地に関しても、ミクラシマトウヒレンは異色ということができる。また、これまでに採集された標本の数が少なく、現地調査で 1 個体しか得られなかったため、本種は絶滅危惧種の一つと考えられる。