

NEW ADDITIONS OF AQUATIC PLANTS IN TAIWAN:
POTAMOGETON MAACKIANUS (POTAMOGETONACEAE)
AND *UTRICULARIA MINOR* (LENTIBULARIACEAE)

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Abstract

Potamogeton maackianus A. Benn. and *Utricularia minor* L. were recently found at Shen-mi-hu, Ilan County, Taiwan. The present study provides taxonomic descriptions and a line drawing. Furthermore, associated plants of the two newly recorded species are reported. Keys to the species of each genus are also given.

In examining the collections of Dr. Kuang-yang Lue in the lake Shen-mi-hu, Ilan County, the authors found a specimen of *Potamogeton* distinctly different from all previously recognized species of the genus in Taiwan (Yang, 1978). Since no reproductive materials were available on the specimens for examination, a field trip was made to the lake in May, 1986. As a result, the authors not only obtained the flowering and fruiting specimens of *Potamogeton*, but also found another aquatic species new to the flora of Taiwan. The two new records are described as follows.

1. *Potamogeton maackianus* A. Benn. in Journ. Bot. **42**: 74, 1904; Ohwi, Fl. Jap. (English ed.) 122. 1965. (Fig. 1) 微齒眼子菜

A perennial submerged herb with slender stems. Leaves alternate, linear, 2.5-5.5 cm long, 2-3 mm wide, sessile, 3- or 5-veined, minutely serrulate, broadly projected at apex, adnate to stipules at base; stipules 6-7 mm long, membranous. Inflorescence a spike of ca. 3 flowers, 3-4 cm long; peduncles ca. 2.5 cm long; flowers small; fruits ovoid, slightly compressed, ca. 3 mm long, keeled.

Phenology and Distribution. This species was reported to flower from May

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Fig. 1. *Potamogeton maackianus* A. Benn. (微齒眼子菜): 1. vegetative parts, 2. leaf, 3. stipule adnate to leaf base, 4. flower, 5. fruit, 6. stamen.

through September in Japan (Ohwi 1995). The geographical distribution is mainly in temperate Asia including Mainland China, Korea, Japan, and Siberia (Ohwi, 1965).

Specimen Examined. TAIWAN: Ilan County, Shen-mi-hu (ca. 1100 m in altitude), Nan-ao. Yang *s.n.*, May 31, 1986 (TAIF).

Habitat. Plants grow in deeper water of the lake shore. Associated plants include *Sparganium fallax* Graebner, *Ludwigia ovalis* Miq., *Galium trifidum* L., *Potamogeton octandrus* Poir., *Potamogeton crispus* L., *Spirodela punctata* (G.F.W. Meyer) Thompson, *Spirodela polyrhiza* (L.) Schleid., *Callitriche palustris* L., *Schoenoplectus mucronatus* (L.) Palla ssp. *robustus* (Miq.) T. Koyama, *Oenanthe javanica* (Bl.) DC., and *Utricularia minor* L.

Notes. Eight species of the genus *Potamogeton* were recognized in Taiwan (Yang, 1978). This new addition can be easily distinguished from *P. distinctus* A. Benn. *P. octandrus* Poir., and *P. cristatus* Regel & Maack by having monomorphic leaves; from *P. malaiianus* Miq., *P. crispus* L., *P. pusilla* L., and *P. oxyphyllus* Miq. by having leaf-base adnate to stipule; from *P. pectinatus* L. by having obtuse and linear leaves. An artificial key to the species of *Potamogeton* from Taiwan is given as follows:

1. Leaves monomorphic, submerged.
 2. Leaf-base adnate to the stipules.
 3. Leaves linear, obtuse at apex.....*P. maackianus*
 3. Leaves thread-like, acute at apex.....*P. pectinatus*
 2. Leaf-base free from the stipules.
 4. Leaves serrulate.
 5. Leaves petiolate.....*P. malaiianus*
 5. Leaves sessile.....*P. crispus*
 4. Leaves entire.
 6. Margins of stipules united.....*P. pusilla*
 6. Margins of stipules free.....*P. oxyphyllus*
1. Leaves dimorphic, floating and submerged.
 7. Floating leaves more than 4 cm long.....*P. distinctus*
 7. Floating leaves less than 3.5 cm long.
 8. Fruit-back entire or obtusely toothed.....*P. octandrus*
 8. Fruit-back cristate.....*P. cristatus*

2. *Utricularia minor* L., Sp. Pl. 18. 1753; Taylor in Fl. Malesiana ser. I, 8(2): 299, 1977. 小狸藻

Floating or submerged aquatic herbs with slender stems. Leaves less than 1 cm long, sparsely toothed, dichotomously branched, the ultimate segments flattened. Traps rather few, obliquely ovoid, shortly stalked, the mouth with simple hairs

on the lateral and two long branched hairs on the upper. Flowers unknown in our plants.

Distribution. Circumboreal, extending southwards into the Himalaya, Burma, and Malesia (Taylor, 1977).

Specimen Examined. TAIWAN: Ilan County, Shen-mi-hu, Nan-ao. Yen *s.n.*, May 31, 1986 (TAIF).

Habitat. The plant grows in shallow water of the lake shore. Associated plants are the same as those of the previous species.

Notes. Seven species of *Utricularia* are reported in Taiwan (Hsiao, 1978), namely, *U. australis* R. Br., *U. aurea* Lour., *U. caerulea* L., *U. exoleta* R. Br., *U. minor* L., *U. tenuicaulis* Miki, and *U. uliginosa* Vahl. This additional species is similar to *U. exoleta* R. Br. by having shallowly dichotomously forked leaves on the stolons, but differs by the leaves having flattened ultimate segments and microsetate apices. A key to the species of *Utricularia* from Taiwan is given as follows:

1. Plants creeping on wet grounds; leaves simple.
 2. Leaves orbiculate; seeds with numerous apically glochidiate processes
..... *U. striatula*
 2. Leaves linear or spatulate; seeds not as above.
 3. Calyx and the tip of pedicel papillose; bracts medifixed..... *U. caerulea*
 3. Calyx and the tip of pedicel smooth; bracts basifixed..... *U. uliginosa*
1. Plants submerged; leaves dissected.
 4. Leaves dichotomously 1- to 5-times forked.
 5. Ultimate segments of leaves terete *U. exoleta*
 5. Ultimate segments of leaves flattened *U. minor*
 4. Leaves pinnately dissected.
 6. Leaves with foliose setulose stipule-like segments at base *U. aurea*
 6. Leaves without stipule-like segments at base.
 7. Bracts orbicular, auriculate at base *U. australis*
 7. Bracts ovate, not auriculate at base..... *U. tenuicaulis*

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臺灣兩種新紀錄水生植物：微齒眼子菜與小狸藻

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最近在本省宜蘭縣南澳鄉神秘湖發現了兩種本島以往未曾記載之水生維管束植物，學名分別為 *Potamogeton maackianus* A. Benn. (微齒眼子菜) 和 *Utricularia minor* L. (小狸藻)。本報告對其形態作一描述，並附微齒眼子菜之繪圖，其伴生之水生植物亦一併列出。各屬中種之檢索表亦提供為鑑定之用。