



Novelties in Myanmar Umbelliferae: a new species of *Oenanthe* L. and two new floristic records

Michael G. Pimenov

Michael G. Pimenov
e-mail: mgpimenov@mail.ru

Botanical Garden, Lomonosov Moscow
State University, Moscow, Russia

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ABSTRACT

Oenanthe hortorum-natantium is described and illustrated as a new species, endemic to Myanmar (former Burma). It differs from closely related species of sect. *Dasylooma* in dissection of leaf laminas, and the form of terminal leaf segments, as well as some characters of lifeform. Two other Umbels species, widely distributed in tropical and subtropical regions, *Hydrocotyle verticillata* and *Cyclospermum leptophyllum* had been recorded for Myanmar flora for the first time.

Keywords: Apiaceae, *Oenanthe*, *Hydrocotyle*, *Cyclospermum*, Myanmar, Burma, new species, new records

РЕЗЮМЕ

Пименов М.Г. Новинки Umbelliferae Мьянмы – новый вид *Oenanthe* и две новые флористические находки. Описан и иллюстрирован новый вид *Oenanthe hortorum-natantium*, эндемичный для Мьянмы (бывшая Бирма). Он отличается от близких видов секции *Dasylooma* расчленением пластинок листьев и формой конечных листовых сегментов, а также особенностями жизненной формы. Два других вида зонтичных, *Hydrocotyle verticillata* и *Cyclospermum leptophyllum*, впервые указанные для Мьянмы, широко распространены в тропиках и субтропиках.

Ключевые слова: Апиáceе, *Oenanthe*, *Hydrocotyle*, *Cyclospermum*, Мьянма, Бирма, новый вид, новинки флоры

M.F. Watson & A. Smith (2004) had named the Umbelliferae of Myanmar (former Burma) “a last piece in the Asian puzzle” of the family. They found in British herbaria 30 additional taxa of the Umbelliferae, previously not indicated for Burmese flora. Together with additional records (Kress et al. 2003, Pimenov & Kljuykov 2004; this contribution) the family in Myanmar includes 61 registered species in 28 genera; most of which are distributed in the mountainous northern part of Myanmar, not easily accessible up to now.

During short trip to Myanmar in February 2014 (states of Rakhine, Magway and Mandalay in Lower Burma and Chan State in Upper Burma), I met only three species of the Umbelliferae in traditional “Drude’s” interpretation; all new to Burmese flora. One of these species, belonging to an affinity of *Oenanthe javanica* (Blume) DC., differs from the latter in some characters of leaf dissection and the shape of its terminal lobes, and is described here as a new species, *O. hortorum-natantium* sp.nov. Two other species from genera *Hydrocotyle* L. and *Cyclospermum* Lag., widely distributed in tropical and subtropical countries, have never been indicated for Myanmar before.

A new species of *Oenanthe* from the state of Shan (Upper Burma)

In E, SE and S Asia, there are several closely related aquatic and paludous *Oenanthe* species, belonging to sect. *Dasylooma* (DC.) Benth. et Hook. f. They include the widely spread and polymorphic *O. javanica* and more locally distri-

buted species, taxonomic relationships among which have been ambiguously treated by local taxonomists and botanists. Mukherjee & Constance (1993: 80) wrote that *O. javanica* “is an extraordinarily variable and widespread species-complex”, and Pu Fading & Watson noted (2005: 131) that its “leaf morphology is particularly variable”. Some names of species, described in the group are treated as almost indisputable synonyms of *O. javanica* (*O. laciniata* Blume (1826), *O. stolonifera* DC. (1830), *O. corticata* Edgew. (1846), *O. subpinata* (Miq.) Drude (1898), *O. japonica* (Miq.) Drude (1898), *O. kudoii* Suzuki et Yamam. (Yamamoto 1932), and *O. normanii* F.P. Metcalf (1934), although the status of some of them could be changed after deep and geographically broad revision. Relationships among other species are critical according to recent and current publications (*O. hookeri* C.B. Clarke (1879), *O. benghalensis* (DC.) Miq. (1870), *O. rosthornii* Diels (1900), *O. linearis* Wall. ex DC. (1830), *O. dielsii* H. Boissieu (1906), *O. caudata* C. Norman (1929), *O. hiepii* Pimenov & Kljuykov (2002), *O. pterocaulon* Liu Tangshui, Chao Chuan-gyng & Chuang Tsaniang (1961) and *O. alatinervis* Quin Yiyon (1989) These taxa differ from one another mainly in the shape of terminal leaf lobes. The Chinese plant author names do not abbreviated here, according to the recommendations by Xu Zhaoran & D.H. Nicolson (1992).

Oenanthe hortorum-natantium Pimenov, sp. nov.

Holotype: MYANMAR. Shan State, Lake Inle, on “floating gardens”, 20°04'03.20" N, 96°57'07.23"E. 880 m a.s.l. 15 February 2014. M.G. Pimenov (MW) (Fig. 1).

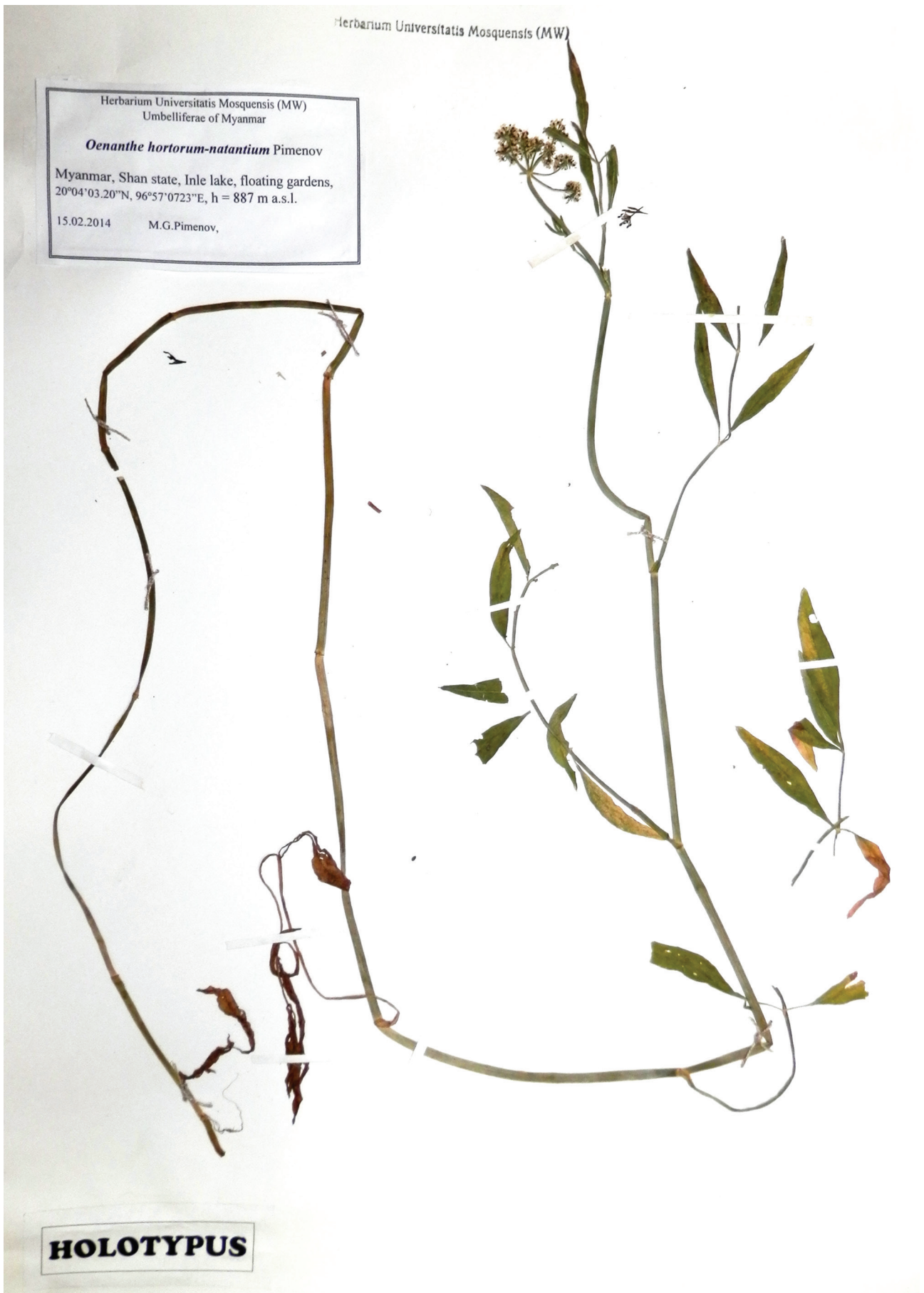


Figure 1 Holotype of *Oenanthe hortorum-natantium* Pimenov (Inle Lake)

Description: Living for a few years, biennial or probably even annual glabrous monocarpic herbs, without horizontal rhizomes and stolons, growing in “floating gardens” on the lake. Stems solitary, hollow, at the base 3–4.5 mm in diameter, stout, flexile, 20–40 cm tall, in lower part submerged in moist substrate, rooting at the lower nodes, usually a little branched only in upper part. Leaves with narrow, non-inflate sheaths and long hollow petioles; leaf blades 9–14 cm long, up to 5 cm broad, in outline narrow triangular to triangular, loose, pinnate or rarely bipinnate, with remote, narrow lanceolate terminal segments, undivided or rarely trilaciniate with two minor lateral lacinia, with integer margins, attenuated at tips. Upper cauline leaves reduced upwards. Umbels few, somewhat solitary, axillary or terminal, 28–42 mm in diameter, with 4–7 rays, subequal or moderately unequal, 7–15 mm long, somewhat scabrous in the upper part; with peduncles 3.2–6.3 cm long, bracts absent. Umbellets (Fig. 2) 4.5–6 mm in diam., with 14–22 rays, somewhat scabrous in the upper part; bracteoles numerous, linear, acute, approximately one and half shorter than umbellet rays. Flowers hermaphrodite and male. Calyx teeth prominent, narrowly triangular; petals white, glabrous, obovate, emarginate, with a narrower inflexed apex; stylopods conical, styles straight, slightly divergent. Carpophore the most probably wanting. Ovaries glabrous; fruits unknown.

Affinity: The new species belongs to sect. *Dasyloma* (DC.) Benth. et Hook. f., which includes a series of closely related East-Asian species. The new species differs from the section’s central and most widely distributed species, *O. javanica* (the only known in Myanmar up to now), in short-lived monocarpic, biennial or probably annual life-form, the absence of horizontal stolons and rhizomes, usually pinnate (against bipinnate to tripinnate) leaf blades, the shape of terminal leaf segments (narrowly lanceolate with integer margins against ovate or rhombic ovate, coarsely dentate or serrate. It was impossible to find mature or even immature fruits of the species at February for more precise diagnostics of the species in the section *Dasyloma*. I’d like to note, however, that the modern keys to *Oenanthe* species in the treatments of the genus in “Flora of China” (Pu Fading & Watson 2005) and “Umbelliferae (Apiaceae) of India”



Figure 2 Umbellet of *Oenanthe hortorum-natantium* Pimenov from holotype (Inle Lake). Male flowers are shown by arrows

(Mukherjee & Constance 1993) both are based presumably on the characters of dissection and terminal segment form of leaves.

Etymology: The species is named after its unusual habitat in horti natantes = “floating gardens”; hortorum – plur. gen. from hortus, i; natantium – plur. gen. from natus, antis.

Habitat: The habitat of the new species is very unusual; and may well be described as exotic. It grows in the so called “floating gardens” (Fig. 3) or “floating vegetable gardens” on Lake Inle, creating together with lacustrine dwellings an inimitable unique scenery. Similar floating gardens are known in Southern Asia only near Srinagar (Jammu and Kashmir State, India).

Phenology: Collected in February in the state of budding or flowering, the species presumably blooms until autumn, bearing fruits in April–November.

Note: A small series of specimens of a new *Oenanthe* species has been collected in locus classicus; unfortunately, the majority of them were lost to a fire in the Moscow University Botanical Garden.

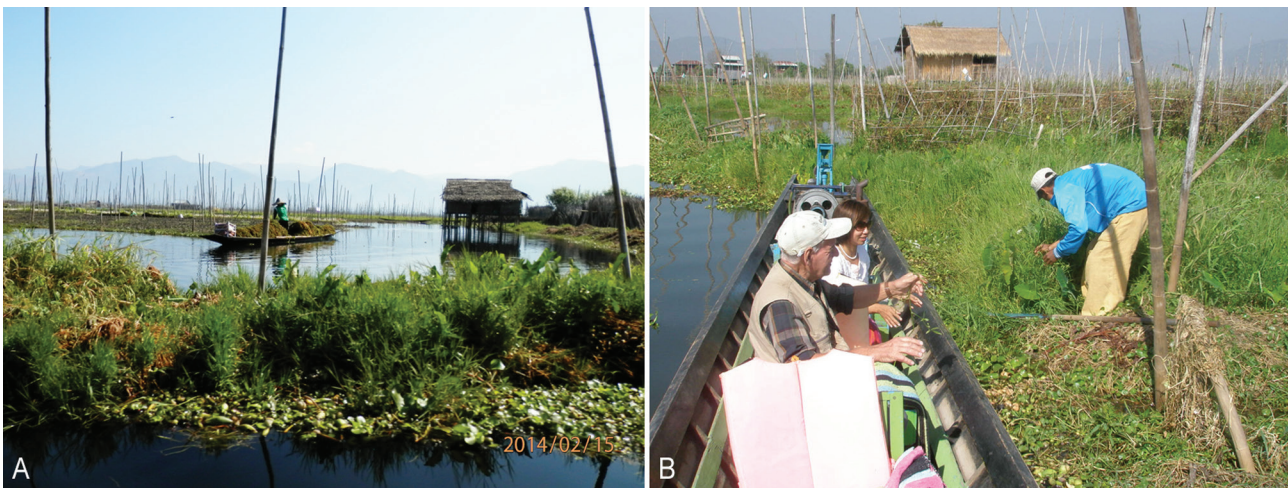


Figure 3 Floating gardens of Inle Lake – a habitat of *Oenanthe hortorum-natantium* in the classic locality (A) and collecting the type specimens (B)

Two species of the Umbelliferae new for the flora of Myanmar

Hydrocotyle verticillata Thunb., Diss. *Hydrocotyle* 2: t. 5. 1778

Type: Country is not indicated, presumably Cape [SOUTH AFRICA] (Thunberg 6722 UPS, designated by Burtt, 1991: 219).

= *Hydrocotyle vulgaris* auct. non L.: Buvalda, 1936: 133; 1949: 115; 1951: 60.

Studied specimens: MYANMAR. Shan State, Pindaya, adventive plant on the meadow on the shore of small lake near Pidah-Lin Caves, 20°55'42.68" N, 96°40'17.48" E. 14.02.2014. M.G. Pimenov (MW) (Fig. 4); Shan State, Inle Lake, near tourist bungalows, 20°04'03.20" N, 96°57'07.23"E. 15.02.2014. M.G. Pimenov (MW); Rakhine State, coast of Bay of Bengal near Ngapali. 18°25'01.64" N, 94°17'52.46" E. 19.02.2014. M.G. Pimenov (MW).

Distribution in Asia: E Tropical (Papua – New Guinea, Indonesia, Myanmar).

Distribution outside Asia: Europe, Africa, Australia and Oceania, N, Central and S America.

Note 1: The collected specimens clearly differ from other local species of *Hydrocotyle* in shield-shaped (peltate) leaves with petioles attached in the central part of the lamina, which lacks grooves. Their characters clearly match those of two exceedingly similar species, *H. vulgaris* L. and *H. verticillata*, sometimes the latter regarded as a variety of the first (see, Eichler 1987). At February the plants were without inflorescences, and for identification of the Myanmar specimens in such phonological stage, the indumentum of petioles in their upper part seems appeared to be the most significant diagnostic feature. The species differ also in the number of lamina veins, but with incomplete delimitation (8–13 in *H. verticillata* and 6–10 in *H. vulgaris*) (Cannon 1967, Gonçalves 1978). Having glabrous petioles, our gatherings are to be identified as *H. verticillata*. The species is a pantropical weed, presumably of American origin, widely



Figure 4 *Hydrocotyle verticillata* Thunb. (Myanmar, near Pindaya)

distributed from Australia, Polynesia, New Guinea, Indonesia (recorded there under the name of *H. vulgaris*, Buvalda (1936, 1949, 1951), Israel, Madagascar, South and Tropical Africa to North, Central and South America. It is also a popular commercial water plant for aquariums. *H. vulgaris* is mainly an European species, reaching eastwards the Caucasus and the Iranian coast of the Caspian Sea. Recently, *H. verticillata* was found as an adventive plant in some other countries of South Asia, Bangladesh (Khatun et al. 2010) and Singapore (Lim et al. 2014). It seems, its range is not limited only to Asia: there have been new records for Europe too (Carretero 1997).

Note 2: Here, *Hydrocotyle* had been traditionally regarded as a member of Umbelliferae (Apiaceae), but molecular data (Plunkett & Lowry 2001, Plunkett et al. 2004, Chandler & Plunkett 2004) revealed its more close affinity to Araliaceae. However, there is a considerable difference, both molecular and morphological, between *Hydrocotyle* and Apioideae + Saniculoideae, but the morphological hiatus with Araliaceae is not lesser than with the core Umbelliferae. At present, some authors (mainly florists) classify *Hydrocotyle* as Umbelliferae/Apiaceae, whereas others consider it as Araliaceae. In our purely floristic note on *Hydrocotyle* it would be better to follow the traditional viewpoint.

Cyclospermum leptophyllum (Pers.) Sprague ex Britt. et P. Wilson, J. Bot. 61: 131. 1923

Type: AMERICA. “Ins. St. Dominica”, Poiseau (syntype P).

Studied specimens: MYANMAR. Shan State, Pindaya, weed on the meadow on the shore of small lake near Pidah-Lin Caves, 20°55'42.68" N, 96°40'17.48" E. 15.02.2014. M.G. Pimenov (MW); Shan State, between Aungban and Heho, railway embankment. 20°39'14.99" N, 96°57'07.23" E. 15.02.2014. M.G. Pimenov (MW) (Fig. 5).

Distribution in Asia: Northern [Russia (Krasnodar Territory), Georgia], Eastern [China (Jiangsu, Anhui, Hubei, Fujiang, Taiwan, Guangxi Zhuang A.R., Guangdong), Japan (Honshu, Shikoku, Kyushu, Ryukyu Islands)], South-Eastern [Indonesia, Malaysia, Myanmar], Southern [India (Uttaranchal, Punjab), Sri-Lanka, Pakistan], South-Western [Iran (Gilan), Israel]. The area seems to be expansible.

Distribution outside Asia: Europa, Africa, N. America, Central America, South America, Australia and Oceania.

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Figure 5 *Cyclosporum leptophyllum* (Pers.) Sprague ex Britt. et P. Wilson (Myanmar, between Aungban and Heho)

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