



Notes on Cyperaceae from Myanmar. Part 2

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ABSTRACT: Described as new are *Carex leptogyna* and *Carex thailandica* var. *brevirostris* of Subgen. *Vigneastra*, and *Cyperus pallidiviridis* of Sect. *Graciles* from Myanmar. In addition, taxa which are either new to Myanmar or showing significant range extensions are mentioned.

KEY WORDS: *Carex*, Cyperaceae, *Cyperus*, Myanmar.

INTRODUCTION

As a continuation of the part 1 (Koyama, 2016) of this series of papers the present part reports additional new taxa of *Carex* and *Cyperus* from Myanmar together with significant extensions of distributional ranges and new records of occurrence noted on *Carex* and *Cyperus* from Myanmar, which emanated from my studies of new Myanmar collections that are housed in the Herbarium (MBK) of the Kochi Prefectural Makino Botanical Garden. The result highlighted the necessity of continued field expeditions to Myanmar, in particular its central and northern parts, if the Botanical Garden is to compile a flora of Myanmar, since southern Myanmar, excluding the peninsular part, had been comparatively well botanized to date.

TAXONOMIC TREATMENT

Carex leptogyna T. Koyama, *sp. nov.*

Fig. 1

Differt abs Carice myosuro utriculis satis brevioribus (3 – 3.75 vs. 4 – 4.5 mm longis) maturitate recurvis praeter rostra glaberrimis, glumis foemineis late ovatis (non ellipticis neque oblongo-ovatis) quam utriculo dimidio brevioribus.

Sect. *Polystachyae* Tuckerm.

Type. MYANMAR. Chin State: Saw Long Village, Kampetlet, semi-shaded forest edge. *Matsumoto & Hong Man 084083* (MBK holotype).

Perennial robust herb with short suberect ligneous rhizomes. Culms up to 150 cm tall, ca. 5 mm thick below, many-leaved below the mid-point, trigonous, smooth, the base clothed with elongated purple-brown sheaths. Leaves linear, equaling the culm; blades 7 – 10 mm wide, gradually narrowed to long acuminate apex. Inflorescences depaniculate, 40 – 60 cm long, 4 – 6 cm broad, subcontiguous and sublax but somewhat interrupted toward base; partial panicles 5, subcontiguous, only the lowest slightly apart and on a

long-exserted peduncle. Leafy bracts ± equalling the inflorescence, gradually narrowed to long acuminate apex, the lowest long sheathing. Spikes cylindrical, 3 – 5 cm long, 5 – 6 mm thick, densely flowered; staminate part linear, 5 – 20 mm long, ca. 1 mm wide; pistillate part cylindrical, 2 – 3 times as long as the staminate part, 2 – 3 cm long, subdensely many-flowered. Pistillate glumes broadly ovate, 1.8 – 2 mm long, ca. 1.25 mm wide, membrabous, pale-brownish, acute at apex, costa 1 excurrent from the glume apex into a short awn 0.5 – 0.7 mm long. Utricles elliptical, 2.5 – 2.75 mm long, ca. 1.5 mm wide, herbaceous, hardly inflated, totally glabrous except on the beak, 2-costate, 4 – 6-nerved on dorsal and ventral sides, cuneate to base, subabruptly attenuate to apex, the beak short, 0.4 – 0.7 mm long, sparsely hispidulous on margins, the orifice obliquely truncate minutely 2-toothed. Nutlets elliptical, triquetrous, 2.5 × 1 mm in size, cuneate at base rather gradually attenuate to apex; stigmas 3. (Fig. 2)

Distribution. Known only by the collection cited above.

Remotely allied to *Carex myosurus* Nees ex Wight of India and Nepal, this new species appears to be clearcut

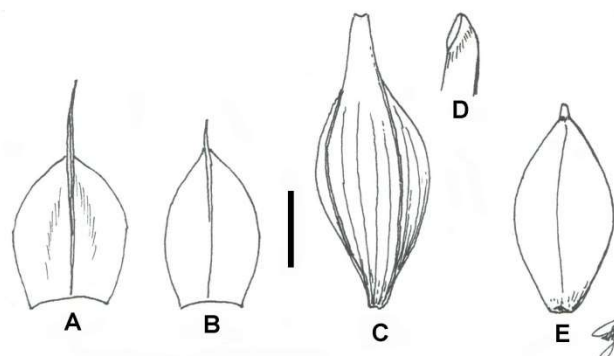


Fig. 1. *Carex leptogyna* from type. **A. B.** Pistillate glumes. **C.** Dorsal view of utricule with orifice. **D.** Utricular orifice. **E.** Nutlet. Scale bar = 1 mm. Drawn by the author.



Fig. 2. Holotype of *Carex leptogyna* in MBK. Photo by Ms. N. Shintani.



from it in its broadly ovate and much shorter pistillate glumes that are only half as long as the subtending utricule against narrowly elliptic to lance-ovate ones in the former, which are as long as to slightly longer than the subtending utricule. The new species also comes near *Carex composita* Boott of India, southern Myanmar and Thailand in bearing the cylindrical pistillate parts of spikes. However, it is dissimilar to the latter not only in the much taller culms (150 vs. 60 cm in height) as well as in its much shorter pistillate glumes as those in the latter are lance-elliptic and slightly longer than the subtending utricule.

Section Polystachyae, to which this new species belongs, is a small group of *Vigneastra* (*Indocarex*) well characterized by the elongated and cylindrical pistillate portions of androgynous spikes as in many related sections of *Vigneastra* the staminate parts of the spikes are mostly longer than the relatively few-flowered pistillate parts.

Carex subinclinata T. Koyama in Bot. Mag. Tokyo 92: 217, f.1. 1979; Simpson & T. Koyama in Fl. Thai. 6(4): 459, f.45. 1998.

A new record of *Carex* to the flora of Myanmar. This species is well characterized by the panicles that are nodding apically as well as the short-beaked and relatively small-sized utricles, a combination of characters not seen in other species of the section *Indicae*. This species appears to be one of the taxa differentiated as an undergrowth of Dipterocarp forests in South East Asian botanical "hot spot."

Ecology. A sedge in Dipterocarp forests.

Distribution. Myanmar and Thailand (type).

Specimens examined. MYANMAR. Chin State: Magway Division, between Mindat and Kangyi. Moist slope besides stream under evergreen forest. *K. Fujikawa et al. 086139* (MBK); along Chi Chaung River, 3 miles from Mindat, Natma Taung NP, semi-evergreen forest. *K. Fujikawa et al. 090746* (MBK).

Carex thailandica T. Koyama in Bot. Mag. Tokyo 92: 220, f. 2 et 3 E-K. 1998.

var. *brevirostris* T. Koyama, var. nov.

Fig. 3

A typo differt inflorescentiis multo brevioribus fere contiguisque, glumis foemineis brevioribus (1.75 – 2 mm vs. 2.3 – 2.8 mm in longitudine) typice obovato-ovalibus, utriculis etiam brevioribus (3 – 3.2 vs. 3.2 – 3.5 mm longis) breviter (0.75 mm tantum) rostratis.

Typus. MYANMAR. Chin State: around Kampetlet, Natma Taung NP, semi evergreen forest along stream, 1,350 m alt. *Ling Shein Man 092974* (MBK, holotype; RAF, isotype).

The present new variety can be segregated from its typical phase by the shorter pistillate glumes as described in the diagnosis, which tend to be obovate oval in contrast to ovate ones in the latter as well as the shorter utricles bearing a much shorter beak. Additionally the eye-catching difference is seen in the

inflorescences that are essentially contiguous in this variety against very interrupted in the typical phase. *Carex thailandica*, as the species, always develops a well elongated rhizomes, a character that is quite uncommon in the section *Indicae*.

The occurrence of this new variety marks the range extension of *C. thailandica* into northern Myanmar from northern Thailand. This well demarcated species is another example of taxa differentiating in the Dipterocarp forests of SE Asian "hot spot" as indicated under the foregoing species.

Distribution. Myanmar and Thailand. Known only by the collections.

Ecology. A sedge in Dipterocarp forests.

Additional collections studied. MYANMAR. Chin State: along roadside between Kampetlet and 10 miles base camp of Natma Taung (Mt. Victoria), 2080 – 2660 m alt. *Fujikawa et al. 089606* (MBK); ca. 1 mile walk down from Kampetlet. Secondary forest. *Kuroiwa et al. 051341* (MBK).

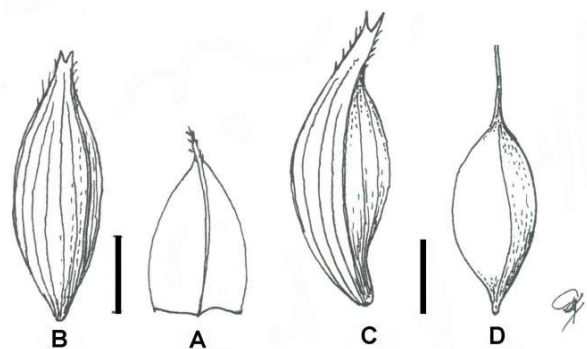


Fig. 3. *Carex thailandica* var. *brevirostris* from type. **A.** Pistillate glume. **B. C.** Dorsal (**B**) and lateral (**C**) views of utricule. **D.** Dorsal view of nutlet. Scale bars = 1 mm. Drawn by the author.

Carex pterocaulos Nelmes in Hooker, Icon. Pl. 35: t. 3467. 1947, in Mem. Mus. Nat. Hist. Nat. [Paris] n.s. B, 4(2): 159. 1955; Raymond in Mem. Jard. Bot. Montreal 53: 76. 1959, in Dansk Bot. Ark. 23: 261. 1965; Simpson & T. Koyama in Fl. Thai. 6 (4): 470, f. 47. 1998.

The new collections cited below mark a range extension of this species from southern Myanmar and adjoining Thailand to northern Myanmar.

A peculiar morphological feature of this taxon is seen in the inflorescences. They frequently consist of a single terminal bisexual spike, occasionally bearing one or two spikes at or near the base of culms quite apart from the terminal spike. As shown in the Fig. 47B of Simpson & T. Koyama (op. cit. 1998) the terminal spikes of this species are always subtended by 2 or 3 leafy bracts that are empty without lateral spikes. This condition would have taken place through the complete reduction of 2 or 3 upper lateral spikes and shortening of those upper internodes of the inflorescence, which caused the pseudo-whirl of upper leafy bracts below the



terminal spike. This should be an additional character of the section Radicales.

Distribution. Myanmar (type) and northern Thailand.

Ecology. A sedge in Dipterocarp forests.

Additional collections examined. MYANMAR. Chin State: Saw Long Village, Kampetlet, valley at forest edge, semi-shade. *Matsumoto et al. 084081* (MBK, RAF); ditto, ca. 3,000 ft. *Ling Shein Man 087969* (MBK, RAF); Natma Taung NP, around Kampetlet, 1350 m, semi-evergreen forest. *Ling Shein Man 092978* (MBK, RAF).

***Cyperus pallidiviridis* T. Koyama, sp. nov. Fig. 4**

Ex affinitate Cyperi flaccidi R. Br. a qua anthesis quasicapitatocontractis (non explicatis) cum radiis brevissimis, glumis longioribus (1.5 vs. 1.0 mm in longitudine) et acheniis ovalibus non obovatis satis differt.

Sect. Graciles.

Type. MYANMAR. Bago Division: in the border area with Rhakain State, in semi-evergreen forest at 430 m alt. *Sugawara et al. 036513* (holotype in MBK; isotype in RAF).

Small soft annual tufted with fibrous roots only. Culms 2.5 – 6 (rarely up to 10) cm tall, 0.25 – 0.5 mm thick, 3-sided, smooth, not enlarged at base. Leaves basal, 2 or 3 to a culm; sheath pale with purplish-brown nerves; blades linear, flattish, overtopping the culm, 6 – 8 cm long, 1 – 1.5 mm wide, not septate-nodose, tapering above to acute apex. Bracts (2 or) 3, leaf like, exceeding the anthela, the lowest much overtopping the anthela, 4 – 7 cm long, 1.25 – 2 mm wide, gradually tapering to a long acute apex. Anthelas turbinate, 10 – 15 mm long, 15 – 30 mm wide, densely 3- or 4-spicate; rays very abbreviated, 5 – 8 mm long, densely bearing 10 to 20 spikelets, sometimes the lowest 2 or 3 spikelets forming a digitate cluster. Spikelets lance-oblong to lanceolate, 3.5 – 4 mm long, 1 – 1.2 mm wide, subdensely bearing 10 to 20 (rarely to 30) flowers. Glumes elliptic, strongly folded, 1.25 – 1.5 mm long, 1 mm wide, the sides thinly membranous, pale straw-colored with reddish-brown stains toward the base; the costa broadly green, sub-3-nerved, projecting from subacute glume apex into an upright mucro ca. 0.25 mm long. Nutlets oval to somewhat obovate-elliptic, 3-sided, 0.75 mm long, 0.4 – 0.5 mm wide, olivaceous to light brown, minutely puncticulate; style 1 mm long; stigmas 3. (Fig. 5)

Distribution. Known only by the type collection.

Ecology. Wet grassy spot in semi-evergreen forests.

This new small umbrella sedge resembles *Cyperus flaccidus* of Japan and adjacent southern Korean Peninsula. At a glance *C. pallidiviridis* can easily be differentiated from the latter by its contracted inflorescences with extremely short umbel rays in contrast to open anthelate ones with elongated umbel rays in the latter. More definite differences can be seen in the floral glumes and achenes. While the floral glumes of the new species bear the sides that are tinged with reddish-brown below the midway toward the base

and the costa projecting beyond the glume apex into essentially upright mucro, in the glumes of *Cyperus flaccidus* the sides of glumes are hardly colored and the apices of the costas are excurrent from the glume apex into a recurved mucro. In addition in the new species two to three involucral bracts surpass the anthela, but in *Cyperus flaccidus*, as a rule only one lowest bract much overtop the sutending anthela, and hence the anthela tends to be somewhat quasi-lateral.

Phytogeographically the section Graciles, to which the new species and its allies belong, is essentially Australian. *Cyperus pallidiviridis* and *Cyperus flaccidus* are the only two disjunctly distributed taxa in continental Asia.

Additional collection examined. MYANMAR. Sagain Division: between Monywa and Yagyi, in *Dipterocarpus tuberculatus* forest at 273 m alt. *Kobayashi et al. 031642* (Paratype in MBK).



Fig. 4. *Cyperus pallidiviridis* from type. **A.** Spikelet. **B.** Mature nutlet with style. Scale bar = 1 mm. Drawn by the author.

Cyperus amabilis Vahl, Enum. Pl. 2: 318. 1806; C.B. Clarke in Journ. Linn. Soc. 20: 283. 1863, ditto 21: 85. 1884, Fl. Brit; Ind. 6: 593. 1893; E.G. Camus, Fl. Gen. I.-C. 7: 45. 1912; Kükenth, Pflanzenr. 4(20) 101 Heft: 263 f. 29 A-D & 265. 1936.

--- *Cyperus microstachyus* Vahl, Enum. Pl. 2: 20. 1931.

New record to the flora of Myanmar. This cosmopolitan species is rather common in tropical America and Africa,



Fig. 5. Holotype specimen of *Cyperus pallidiviridis* in MBK. Photo by Ms. N. Shintani.



but is quite scarce in tropical Asia, where it has so far been recorded by very few specimens India and Vietnam as cited below.

The Myanmar record cited here, therefore, fills the gap of its distribution between India and Indo-China.

Although at a glance *Cyperus amabilis* is very similar to *C. cuspidatus* and *C. castaneus*, which are better known from southern and southeastern Asia. It sharply differs from the latter two in having only mucronate glumes in contrast to awned or cuspidate ones in the latter two.

Distribution. Cosmotropic.

Ecology. Coastal wetlands.

Specimens examined. MYANMAR. [Southern Myanmar.] Ramoll Is., near Kyaukpyu, sea level, slacks by the sea. *Wallace 471* (BM). INDIA, Chota Nagpor, 400 – 600 m alt. *C.B. Clarke 24899* (K); Moradabad, *Thomson 393* (K); VIETNAM. Saigon sine loco speciali. *Lefevre s.n.* (P).

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LITERATURE CITED

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