

## A new subspecies of *Carex arisanensis* (Cyperaceae) from Zhejiang, China

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*Carex arisanensis* Hayata subsp. *ruianensis* Hong Wang, C. Song & X.F. Jin, *subsp. nova* (Cyperaceae) is described from Zhejiang, China, and illustrated. It differs from subsp. *arisanensis* in its 12–18 mm broad leaves, non-sheathing bracts, and three spikes, with the lowest without a peduncle. The geographic distribution of *C. arisanensis* subsp. *arisanensis* and subsp. *ruianensis* is presented on a map.

Key words: *Carex arisanensis*, Cyperaceae, new subspecies, taxonomy

Our examination of the specimens of *Carex* in ZJFC revealed two specimens that represent a previously undescribed taxon from Rui'an County of Zhejiang, China. The shapes of perigynia and achenes show that this taxon is allied to *C. arisanensis*, from which it differs in having broader leaves, bracts not sheathing, and three spikes of which the lowest is sessile. Here, we recognize it as a new subspecies in *C. arisanensis*.

***Carex arisanensis* Hayata subsp. *ruianensis* Hong Wang, C. Song & X.F. Jin, *subsp. nova* (Fig. 1)**

*A subspecies arisanensi foliis 12–18 mm latis, bracteis evaginatiss, spicis 3, infime fere epedunculatis differt.*

TYPE: China, Zhejiang, Rui'an County, Xinjian Forestry

Region, in moist place under forest, alt. 420 m, 8.V.1989 Li & Wang 0945 (holotype ZJFC; isotype ZJFC).

Perennial herb. Culms lateral, 10–20 cm tall, slender, obtusely triquetrous, with fuscous aphyllous sheaths at base. Leaves longer than culms, 35–40 cm long, 12–18 mm wide, flat. Bracts short-bladed, not sheathing. Spikes 3, subfastigate; terminal spike staminate, linear-cylindric, 6–8 mm long, subsessile; other two pistillate, approximate to staminate spike, oblong, 8–10 mm long, 4–5-flowered, sessile. Staminate glumes oblong-ovate or elliptic, membranous, fulvous, 5–6 mm long, obtuse at apex, with 3 nerves on dorsal surface. Pistillate glumes ovate or ovate-oblong, membranous, fulvous, 3–4 mm long, obtuse at apex, with 3 green nerves on dorsal surface. Perigynia longer than subtending glumes, broadly ovoid, trigonous, fulvous, 6–7 mm long, glabrous, many-nerved, with a short and attenuated stipe at base, beak ca. 2.5 mm



**Fig. 1.** *Carex arisanensis* subsp. *ruianensis* (from the holotype, drawn by Hong Wang). — **A:** Habit. — **B:** Inflorescence. — **C:** Staminate glume. — **D:** Pistillate glume. — **E:** Perigynium. — **F:** Achene.

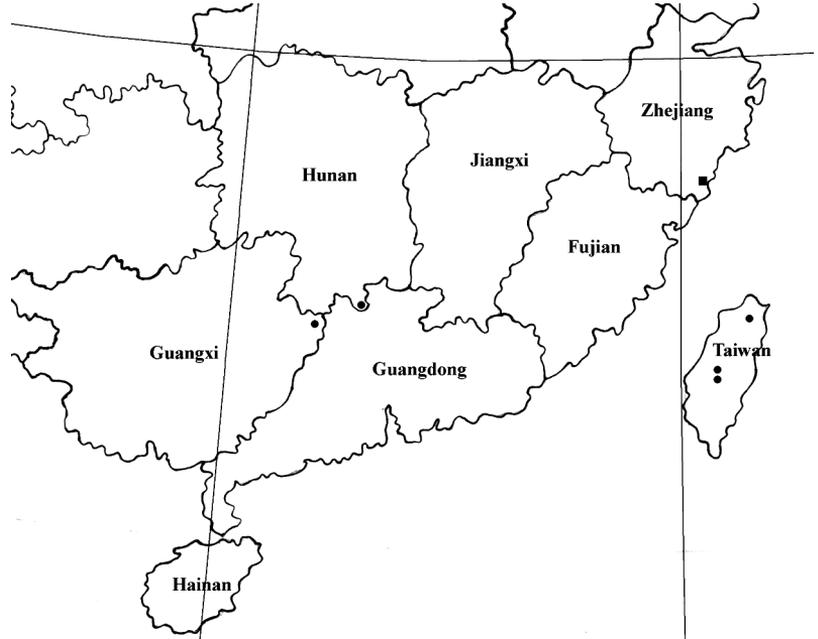
long, shortly 2-toothed at orifice. Achenes tightly enveloped, obovoid, trigonous, fulvous, 3–3.5 mm long, truncate at apex, short-stipitate at base. Styles not thickened at base. Stigmas 3. Flowering and fruiting in April–May.

*Carex arisanensis* subsp. *ruianensis* differs from subsp. *arisanensis* in its broader leaves, which are 12 to 18 mm (vs. 4 to 8 mm) wide, the bracts not sheathing (vs. the sheathes of the lowest spikes 2–4 cm long), the three spikes that are subfastigiata and aggregated at the apex of culm, and the lowest is sessile (vs. the lowest spikes on an elongated peduncle up to 10 cm long). *Carex arisanensis* subsp. *ruianensis* is also distributed more northerly than subsp. *arisanensis* (Fig. 2).

*Carex arisanensis* belongs to *Carex* sect. *Laxiflorae*, characterized by sparsely flowered spikes and rhombic and not constricted achenes. This section is close to the sect. *Rhomboidales*, from which it differs in the sparsely flowered pistillate spikes, and achenes not constricted in the mid-portion of arisises. A few species have been confused in their sectional attribution (Liang 1995, Dai *et al.* 2000).

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**Fig. 2.** Geographic distribution of *Carex arisanensis* subsp. *arisanensis* (●) and subsp. *ruianensis* (■).

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## References

- Dai, L. K., Liang, S. Y., Li, P. C. & Tang Y. C. 2000: *Carex*. — In: Dai, L. K. & Liang, S. Y. (eds.), *Flora Reipublicae Popularis Sinicae*. 12: 56–528. Sci. Press, Beijing. [In Chinese].
- Liang, S. Y. 1995: New material of *Carex* section *Rhomboidales* from China (I). — *Acta Phytotax. Sin.* 33: 484–490. [In Chinese with English summary].