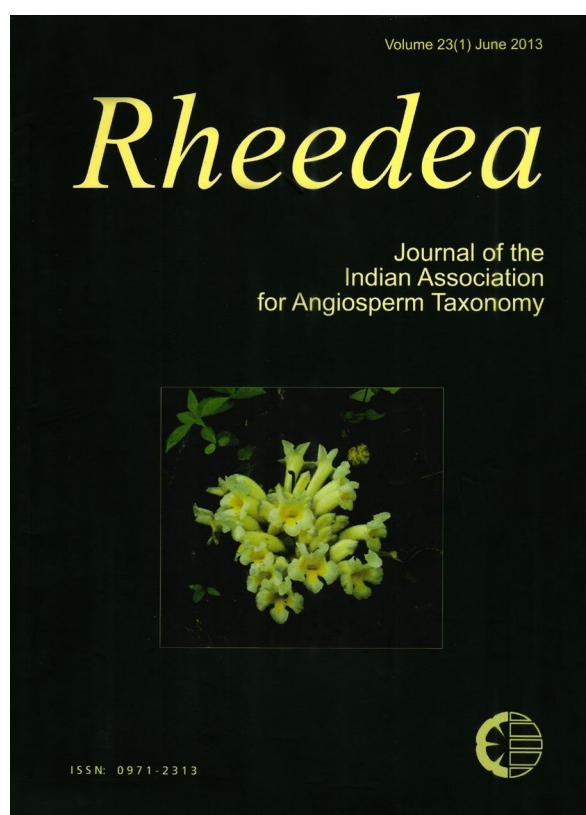




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Pycnus flavidus (Cyperaceae) – a highly variable species in India

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Abstract

Different varieties of *Pycnus flavidus* (Retz.) T. Koyama reported from India were all found to be based on continuous variations of morphological characters. Hence all are treated here as *P. flavidus*.

Keywords: Cyperaceae, *Pycnus flavidus*, India, polymorphism

Introduction

Pycnus flavidus (Retz.) T. Koyama is a widely distributed annual sedge found in southern Europe, Africa, central and southern Asia, and Australia. In India, it is distributed throughout the country and shows high degree of polymorphism. The habitats vary from moist grass fields, rice fields, banks of canals, lakes to puddles and roadsides. It occurs at wide range of altitudes up to 2500 m. Many varieties have been described under *P. flavidus* due to the high degree of morphological variation, namely, *P. flavidus* var. *erectus* (C.B. Clarke) Karthik., *P. flavidus* var. *khasianus* (C.B. Clarke) Karthik., *P. flavidus* var. *nilagiricus* (Hochst. ex Steud.) Karthik. and *P. flavidus* var. *strictus* (Lam.) Karthik. Specimens of these taxa though appear to be different, have many transitions. A detailed study of specimens in Kew from different regions of the country revealed continuous variation for a range of characters. For example, the size of the plant varies from 12 cm to 135 cm. The variation in the arrangement of the spikelets resulted in giving different appearances to the inflorescence in different specimens (Fig.1a,b). Twisted, curved or sickle-shaped spikelets are often met with (Fig.1c). The size of the spikelets varies from 1- 3.5 cm in length and 1-3 mm in width (Fig. 1 d). Although the spikelets in *P. flavidus* var. *khasianus* are longer, a combination of other characters does not warrant a varietal status to it.

Similarly, the colour of the spikelets varies from straw to blackish-brown with many intermediate shades in specimens from all the regions. Kern (1974) mentioned that *Cyperus nilagiricus* was

based mainly on the dark colour of the glumes, but Clarke (1884) included all specimens with narrow spikelets of different colours. Kern, *l.c.* also observed that colour of the spikelets vary independently of its width.

The spikelet colour in *P. flavidus* cannot be a good character unlike in *P. stramenius* which always bears straw-coloured spikelets and *P. malabaricus* bearing blackish or dark reddish brown spikelets. It may be noted that *P. flavidus* var. *strictus* has straw-coloured spikelets. Again, the varietal status cannot be based on this character since straw-coloured spikelets are not restricted to this variety.

In most specimens, the spikelets are parallel-sided almost throughout their length. But, in certain specimens, the spikelets are found to be narrowed in the distal half of the inflorescence. The spikelets usually have smooth sides because of the tightly packed glumes. But, there are specimens with loosely-arranged spreading glumes giving a scabrous appearance to the spikelet. Therefore, variation in the size, shape and colour of the spikelets cannot be utilized for delimiting infraspecific taxa within *P. flavidus*.

The size and shape of the glumes are also highly variable (Fig.1e). In *P. flavidus* var. *nilagiricus* they are c. 2 x 1 mm and in var. *khasianus* 2.5-3 x c. 1.5 mm. But, again there are intermediates with the length varying from 2-2.5 mm.

The size, shape and colour of the nutlets also show



Fig. 1. *Pycnus flavidus* (Retz.) T. Koyama: **a.** Loosely arranged spikelets on long peduncles; **b.** Crowded spikelets on short peduncles; **c.** Curved or sickle-shaped spikelets; **d.** Spikelets of different size and shades; **e.** Glumes of different size; **f.** Nuts of different size and colours.

much variation (Fig.1f). Nutlet size varies from 1-1.2 x 0.5-0.8 mm and the shape is usually obovate, but at times oblong-obovate or oblique at one side. The nutlets are usually dark brown when mature but, at times, they are yellowish-brown.

Considering the high degree of variation within the collections of *Pycnus flavidus* in India, it is opined to treat the species *sensu lato* by merging all the infraspecific taxa described from India under the name, with the relevant synonymy, as follows:.

***Pycnus flavidus* (Retz.) T. Koyama in J. Jap. Bot. 51: 313. 1976.**

Cyperus flavidus Retz., Obs. Bot. 5: 13. 1788. Type: INDIA, Tranquebar, Koenig; *C. globosus* All. Auct. Fl. Pedem. 49. 1789, non Forssk; *C. strictus* Lam., Tabl. Encycl. 1: 146. 1791; *C. capillaris* J. Koenig ex Roxb., Fl. Ind. 1: 194.1820; *C. strictus* Roxb., Fl. Ind. ed. 1: 203. 1820 (*nom. illeg.*). *Pycnus globosus* (All.) Reichb., Fl. Germ. Excurs 140. 1830. *Cyperus nilagiricus* Hochst. ex Steud., Syn. Pl. Glumac. 2: 2. 1854; *C. nilagiricus* var. *pauperior* Boeckler in Linnaea 35: 458. 1868; *C. globosus* var. *strictus* (Lam.) C.B. Clarke in J. Linn. Soc., Bot. 20: 280. 1883; *C. globosus* forma *hasianus* C.B. Clarke in J. Linn. Soc., Bot. 21: 48. 1884; *C. globosus* forma *cinnamomeus* C.B. Clarke in J. Linn. Soc., Bot. 21: 49. 1884; *C. globosus* var. *nilagiricus* (Hochst. ex Steud.) C.B. Clarke in J. Linn. Soc., Bot. 21: 49. 1884; *Pycnus capillaris* (Koenig. ex Roxb.) Nees ex C.B. Clarke in Hook.f., Fl. Brit. India 6: 591. 1893; *P. globosus* var. *erectus* C.B. Clarke in J. Linn. Soc., Bot. 34: 15. 1898. *P. globosus* var. *nilagiricus* (Hochst. ex Steud.) C.B. Clarke in J. Linn. Soc., Bot. 36: 204. 1903; *P. globosus* var. *strictus* (Roxb.) C.B. Clarke in J. Linn. Soc., Bot. 36: 205. 1903; *P. strictus* (Lam.) Alston in Trimen, Handb. Fl. Ceylon 4 (Suppl.): 307. 1931; *P. nilagiricus* (Hochst. ex Steud.) Schischk. in V.L. Komarov (ed.) Fl. URSS 3: 6. 1935; *Cyperus globosus* var. *erectus* (C.B. Clarke) Kük. in H.G.A. Engler (ed.), Pflanzenr., IV, 20(101): 356. 1936; *C. flavidus* var. *erectus* (C.B. Clarke) Korla. in Bull. Bot. Surv. India 9: 236. (1967) 1968; *C. flavidus* var. *hasianus* (C.B. Clarke) Korla. in Bull. Bot. Surv. India 9: 237. (1967) 1968; *Pycnus flavidus* var. *erectus* (C.B. Clarke) Karthik. in Karthik. et al., Fl. Ind. Enum. - Monocot. 65. 1989; *P. flavidus* var. *hasianus* (C.B. Clarke) Karthik. in Karthik. et al., Fl. Ind. Enum. - Monocot. 65. 1989; *P. flavidus* var. *nilagiricus*

(Hochst. ex Steud.) Karthik. in Karthik. et al., Fl. Ind. Enum. - Monocot. 65. 1989; *P. flavidus* var. *strictus* (Lam.) Karthik. in Karthik. et al., Fl. Ind. Enum. Monocot. 65. 1989.

Fig. 1

Specimens examined (at Kew): INDIA, **Andhra Pradesh:** Kurnool district, J.S. Gamble 10887, March 1883; Warangal district, Jan. 1985. P.S. Reddy 751. **Assam:** Upper Assam, Jenkins 571. **Bihar:** Banari, Ranchi, 13.10.1955, S.K. Mukherjee 4035. **Himachal Pradesh:** Kurarsi, 8000ft, Chamba, 16.9.1896, G.A. Gammie 18595. **Jammu & Kashmir:** Shalimar Gardens, 3.7.1947, R.R. Stewart 23014. **Karnataka:** Mysore, 3000 ft, Oct. 1910, A. Meebold 11427; Markanahalli, Hassan district, 24.10.1971, D.H. Nicolson et al. HFP 2317. **Kerala:** Munnar, 24.11.1979, E. Govindarajulu 15425. **Maharashtra:** College of Science premises, Nagpur, 10.7.1961, V.P. Donde D-5B; Pashan, near Poona, 31.12.1971, S.S. Hooper 101/71. **Meghalaya:** Khasia, Hooker f. & Thomson s.n.; Nurtung (?), 4000ft, Khasia 01.9.1886, C.B. Clarke 4479. **Orissa:** Bhalupodar valley, Sambalpur, 14.7.1950, H.F. Mooney 3926. **Punjab:** Karnal, 15.10.1887, J.R. Drummond 25042. **Uttar Pradesh:** Pilibhit, 12.6.1898, Inayat 22856; Basti, 17.7.1976, D.C. Saini s.n. **Tamil Nadu:** Road to Avalanche from Ootacamaund, Nilgiri district, 4.10.1982, J. Klackenberg & R. Lundin 243b.

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