

WHAT IS *CYNODON RADIATUS* ROTH EX R. & S. (POACEAE) ?

R. NOWACK

Rijksherbarium / Hortus Botanicus, Leiden, The Netherlands

SUMMARY

Cynodon radiatus Roth ex R. & S. is the correct name for *C. arcuatus* Presl (Poaceae).

Roemer and Schultes (1817) described *Cynodon radiatus*, basing themselves on a manuscript by A.W. Roth, copying Roth's brief diagnosis and comment. It was compared to *Cynodon dactylon*, differing by its larger habit, the number and direction of the spikes, and the glabrous blades and sheaths.

This was of course insufficient to be able to deduce whether this was a mere form of *C. dactylon* or indeed a distinct species.

In 1821 Roth described it more extensively, but his work is rare and therefore difficult to consult. Here, he described a very curious inflorescence with a terminal peduncled spike surrounded by a whorl of 7 sessile ones. Otherwise it seemed obvious that a species of *Cynodon* was involved. Anyway, the species was nearly completely forgotten afterwards. Only Sprengel (1825) gave it a new combination in *Digitaria*, but, as Henrard (1950) pointed out, this was done without good reason.

When I studied the genus *Cynodon* for the Flora Malesiana, I noted that Jansen (msc.) cited the name in synonymy under *C. dactylon*, but especially the number of the spikes reminded me more of *C. arcuatus* Presl (1830). As *C. radiatus* is older than the latter combination, it seemed sufficiently important to check the type, a Heyne collection from India. Through the kind cooperation of Dr. H. Scholz, Berlin, this type was received on loan, for which I am most grateful.

Heyne's specimen indeed has the type of inflorescence Roth described: a whorl of patent spikes, spikeled to base, and a central one, more or less upright and naked in the lower 6 mm. Otherwise in all diagnostic characters it is a true *C. arcuatus*. So, unfortunately, Roth based his description on a specimen with a minor abnormality of one spike, which certainly is no species character. In conclusion, the combination *Cynodon arcuatus*, which was used for more than 160 years, has to be replaced. The species is of insufficient economic value to have its name conserved under the present rules of the Code.

Cynodon radiatus is morphologically very similar to *C. dactylon* and it is not surprising that Henty (1969) regarded it as a subspecies of the latter, using a combination suggested by Dr. J.H. Kern on a label from Leiden. De Wet & Harlan (1970) have made an intensive study of hybridization and genetic boundaries in *Cynodon* and observed that *C. radiatus* is quite isolated from all other species. I therefore have maintained it as a species at their suggestion.

Cynodon radiatus Roth ex R. & S.

Cynodon radiatus Roth ex R & S., Syst. Veg. 2 (1817) 411; Roth, Nov. Pl. Sp. (1821) 38. — *Digitaria radiata* Spreng., Syst. Veg. 1 (1825) 272. — Type: *Heyne s. n.*, in Hb Roth (B, holo).

Cynodon arcuatus Presl, Rel. Haenk. 1 (1830) 290. — *Cynodon dactylon* (L.) Pers. subsp. *arcuatus* (Presl) Kern ex Henty, Bot. Bull., Lae 1 (1969) 57. — Type: *Haenke s. n.* (PR, holo; MO).

Perennial, stoloniferous, rhizomes absent, mat-forming. *Culms* erect, geniculate, 0.1–0.4(–0.9) m long. Ligule membranous, collar-shaped, 0.2–0.5 mm long, with few longer hairs. *Leaves* glabrous, blades linear-lanceolate, flat, 4–14(–18) cm by (1)–4–7(–9) mm, auricles usually glabrous. *Spikes* in 1 whorl, 5–8(–11), slender, flexuous, erect to patent, 6–12 cm by 0.6–1.5(–1.8) mm. Rachis margins scabrous. *Spikelets* 1.9–2.5 mm long. Lower *glumes* 0.6–1.2 mm long; upper glumes 0.7–1.5 mm long. *Lemmas* 1.8–2.5 mm long, hairs sometimes club-shaped (25×!). *Anthers* 0.5–0.7 mm long.

Chromosomes – $2n = 36$.

Distribution – Madagascar, Comores [Bossler, Mém. ORSTOM 35 (1969) 93], India, South-east Asia, Burma, Australia (Northern Territory); Malesia: Java [Banten (Rangkasbitung), Ceribon, Magelang, Kediri, Besuki], Celebes (Bolang Mongondom), Philippines (Luzon, Mindanao), Moluccas (Halmahera), Lesser Sunda Islands (Bali, Flores, Alor, Timor), Papua New Guinea (introduced in Morobe Province).

KEY TO THE SPECIES

1a. Rhizomes present. Culms 0.1–0.2 m long. Blades 1.5–2.5 mm wide. Spikes 3–6, 1–6 cm by 1.2–2 mm, not flexuous. Anthers 0.8–1.5 mm long

Cynodon dactylon

b. Rhizomes absent. Culms 0.2–0.4 m long. Blades 4–7 mm wide. Spikes 5–8, 6–12 cm by 0.6–1.5 mm, flexuous. Anthers 0.5–0.7 mm long

Cynodon radiatus

REFERENCES

- HENRARD, J.T. 1950. Monograph of the genus *Digitaria*: 616. Leiden.
 HENTY, E.E. 1969. A manual of the grasses of New Guinea. Bot. Bull., Lae 1: 57.
 PRESL, K. 1830. Reliquiae haenkeanae 1: 290. Prague.
 ROEMER, J.J., & J.A. SCHULTES. 1817. Systema Vegetabilium 2: 411. Stuttgart.
 ROTH, A.W. 1821. Novae Plantarum Species praesertim Indiae Orientalis: 38. Halberstadt.
 SPRENGEL, C. 1825. Systema Vegetabilium 1: 272. Göttingen.
 WET, J.J.M. DE, & J.R. HARLAN. 1970. Biosystematics of *Cynodon* L.C. Rich. (Gramineae). Taxon 19: 565–569.