

Typification of *Cyperus bulbosus* and *C. cruentus* and their synonyms

Henry Väre

Botanical Museum, Finnish Museum of Natural History, P.O. Box 7, FI-00014 University of Helsinki, Finland (e-mail: henry.vare@helsinki.fi)

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Cyperus bulbosus Vahl, *C. cruentus* Rottb., *C. globosus* Forssk. and *C. amauropus* Steud. are typified. The lectotype of *C. bulbosus* was collected in Senegal, Galam (upper course of river Senegal) by M. Adanson in 1749–1753 and that of *C. cruentus* in Yemen, Bolghosi [Al Hadiyah] by P. Forsskål in 1763. *Cyperus amauropus* Steud. and *C. globosus* Forssk. are synonymised with *C. cruentus* Rottb. *Cyperus leptophyllus* Hochst. *nom. inval.* also represents *C. cruentus*.

Key words: *Cyperus*, nomenclature, taxonomy, typification

Typification of names in *Cyperus* section *Arenarii* is currently in progress at the Finnish Museum of Natural History, Botanical Museum (H). *Cyperus cruentus* Rottb. was tentatively placed in subgenus *Bobartia* (= *Arenarii*) by Kükenthal (1936). It was described by Rottboell (1772) based on material collected by P. Forsskål in Yemen 1763. A new combination *C. cruentus* ssp. *amauropus* (Steud.) Lye was recently made (Lye 1994). However, he recognized *C. amauropus* again as a species in *Flora of Somalia* (Lye 1995).

After studying the type specimens, I believe that *C. amauropus* and *C. cruentus* represent the same taxon. *Cyperus cruentus* was doubtfully placed in section *Arenarii* (Kükenthal 1936). The type specimen is juvenile, as already pointed out by Rottboell (1773). The lectotype of *C. amauropus* belongs to subgenus *Cyperus* (subgenus *Eucyperus* in Kükenthal 1936). Therefore these names are typified apart from subgenus *Arenarii*.

Habitually *C. cruentus* resembles *C. bulbosus* Vahl, and the lectotype specimen of *C. amauropus* was originally distributed as *C. bulbosus* Vahl var. [no name]. Therefore these two species had to be compared, and also *C. bulbosus* is typified here.

Plants were studied on herbarium sheets (B, BM, BR, C, E, G, GENT, H, HUJ, IRAN, K, LD, P, RIY, S, UPS, TUR, W). The herbarium acronyms are according to Holmgren *et al.* (1990). Concerning *C. bulbosus* only types were studied, except at H.

1. *Cyperus bulbosus* Vahl

Enumeratio Plantarum II: 342. 1805. — LECTOTYPE (designated here): Senegal. Galam, [Adanson, 1749–1753] (C!). — SYNTYPE: “India Orientalis”, [König 1767–1785] (C!).

In addition to the lectotype (Fig. 1) designated here, Vahl (1805) cited two other collections.



Fig. 1. Lectotype of *Cyperus bulbosus*.

One was taken by Thonning in Guinea (Danish Guinea = Ghana), and the other one by König in “India Orientalis”. According to Kükenthal (1936) Vahl’s *Enumeratio Plantarum* was published in 1806, but the year is uncertain. Stafleu and Cowan (1986) recommend usage of the year 1805.

Jussieu gave the lectotype specimen (“*dedit Jussieu*”) on the backside of the sheet, Fig. 2; obviously by Antoine Laurent de Jussieu 1748–1836) to Martin Vahl (1749–1804), and it was once included in Vahl’s Herbarium at C. It is thus possible that a duplicate specimen may exist in P or P-JU. Jussieu did not visit Senegal, but about 500 specimens of Michel Adanson’s (1727–1806) Senegal collections were accessible to Jussieu (Stafleu 1964: XXIX). Galam is located by the River Senegal near the borders of Gambia, Mali and Senegal.

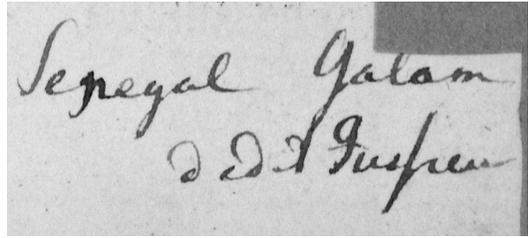


Fig. 2. Backside of the lectotype of *Cyperus bulbosus*, showing the collection locality Galam and that Jussieu had had it at his disposal.

Christian Friedrich Schumacher (1757–1830) had at his disposal some specimens collected by Johann Gerhard König (Junghans 1961: p. 312), one of which is most likely a syntype of *C. bulbosus*. The syntype sheet bears on the backside the annotations “India Orientalis” and “*Cyperus bulbosus*, *C. bulbifer* Koenigii” by Schumacher. “*Cyperus rotundus* L.” has been added later. This sheet was also once in the Vahl Herbarium. Schumacher published new species based on samples collected in Danish Guinea by Paul Erdmann Isert and Peter Thonning. The Thonning specimen of *Cyperus bulbosus* has not been found. It was perhaps destroyed, as his private herbarium burned in 1807 (Junghans 1961, 1962). Duplicates of Thonning’s herbarium were at Vahl’s disposal (Junghans 1961), and are today at C.

Cyperus bulbosus is widely distributed in subtropical and tropical regions from W Africa east to Australia.

2. *Cyperus cruentus* Rottb.

Descriptiones plantarum rariorum iconibus illustrantium: 17. 1772. — LECTOTYPE (designated here): [Yemen], Bolghosi [Al Hadiyah], [Forsskål, 1763] (C!).

SYNONYMS: *Cyperus globosus* Forssk., *Flora Aegypti-aco-Arabica*: 13. 1775; *Cyperus amauropus* Steud., *Synopsis Plantarum Cyperacearum*: 33. 1855; *Cyperus cruentus* Rottb. subsp. *amauropus* (Steud.) Lye, *Lidia*: 131. 1994; *Cyperus leptophyllus* Hochst. in Steud., *Synopsis Plantarum Cyperacearum*: 33. 1855, *nom. inval.*

Rottboell (1772) first described *C. cruentus* and then provided more details and drawings (Rottboell 1773: figs. 1 and 4 in table 5). Figure 4 in Rottboell (1773) is almost identical with the lectotype (Fig. 3). It represents a juvenile



Fig. 3. Lectotype of *Cyperus cruentus*.

specimen, as stated by Rottboell (1773) already. The specimen represented in Fig. 1 has not been found.

Rottboell (1772) described *C. cruentus* from material collected by Forsskåhl in Bolghosi (Fig. 4), Yemen, in 1763: “culmo triquetro, involucri polyphylo longo; umbella simplici, spicis conglomeratis; flosculis sulcato-punctatis”. In the detailed description for *C. cruentus*, Rottboell (1773) wrote: “ad basin bulbosi”, which does not fit the lectotype very well. The base of the stem is rather, at most, semibulbous, covered by basal sheaths (Fig. 3), not like e.g. in *C. bulbosus* Vahl (Fig. 5), and a bulb was not illustrated in Rottboell (1773: table 5, figs. 1 and 4). The two species are perhaps closely related (see Kükenenthal 1936: p. 123, fig. 15). Kükenenthal (1936) considered *C. cruentus* as a dubious taxon, but as there is no annotation by him on the sheet,



Fig. 4. Backside of the lectotype of *Cyperus cruentus*, indicating the collection locality Bolghosi.



Fig. 5. Bulbous base of *Cyperus bulbosus* (lectotype).

he most probably did not study the lectotype. This specimen was once in *Herbarium Vahlia-num*, later in General Herbarium at C, and was then reinserted in *Herb. Forsskålii* as No. 1188. Perhaps this was why Christensen (1922) and Kükenenthal (1936) had not the type specimen at their disposal. *Cyperus leptophyllus* Hochst. is an unpublished herbarium name by C. F.



Fig. 6. Lectotype of *Cyperus amauropus*.

Hochstetter, only given as a synonym in Steudel (1855) for his *C. amauropus*, and is therefore *nom. inval.* (Greuter *et al.* 2000: art. 32.1.).

Cyperus cruentus is apparently very rare, currently known from Yemen (Forsskål collection), Ethiopia (Schimper collection, *see below C. amauropus* Steud.) and Zimbabwe (H), the latter being named as *C. leptophyllus* Hochst. It is likely that more specimens determined as *C. leptophyllus* exist in herbaria, and it thus may be more widely distributed in W Africa.

2a. *Cyperus globosus* Forssk.

Flora Aegyptiaco-Arabica: 13. 1775. — LECTOTYPE (designated here): [Yemen], Bolghosi [Al Hadiyah], [Forsskål, 1763] (C!).

On the lectotype sheet of *C. globosus* Vahl has written “*Cyperus globosus* Forssk. Cent. 1.

pag. 13 and *C. cruentus* Rottb. Descript. pag. 21 t. 5 f. 4 planta junior”. Bolghosin (on the backside of the sheet, Fig. 4) is in the vicinity of Hadie [Al Hadiyah] (Forsskål 1775, map 1), the latter being mentioned as the collection site in the description of *C. globosus* (Forsskål 1775). Niebuhr, who wrote *Flora Aegyptiaco-Arabica* on the basis of notes by Forsskål, has combined these two sites. The lectotype sheet represents also the lectotype of *C. cruentus*, which thus has the priority as an older name.

2b. *Cyperus amauropus* Steud.

Synopsis Plantarum Cyperacearum: 33. 1855. — LECTOTYPE (designated here): Abyssinicum [Ethiopia], ad latera montium districtus Schoata [Sokota], 12.VII.1838 Schimper, U[nio] i[tiner]. 1842 [no.] 1391 (P!; islectotype P!).

Both the lectotype (Fig. 6) and the islectotype represent mature plants. The inflorescence is well developed (Fig. 7), unlike in the lectotype specimen of *C. cruentus* Rottb (Fig. 8). The structural similarity is seen especially by comparing the islectotype of *C. amauropus* (Fig. 7b) and the lectotype of *C. cruentus* (Fig. 8). The general morphology indicates that the names represent a single taxon. *Cyperus cruentus* Rottb. (1772) has priority over *C. globosus* Forssk. (1775). The lectotype specimen, U. i. no 1391, was originally distributed as “*C. bulbosus* Vahl var.” [no name]. The inflorescence of *C. cruentus* (Fig. 7) and *C. bulbosus* (Fig. 9) are similar, but the basal parts are different. Lye (1995) considers *C. amauropus* to be a robust species, but at least the lectotype specimen is rather small-sized in all aspects.

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Fig. 7. Inflorescence of *Cyperus amauiopus*: — a: lectotype; — b: isolectotype.



Fig. 8. Inflorescence of *Cyperus cruentus* (lectotype).

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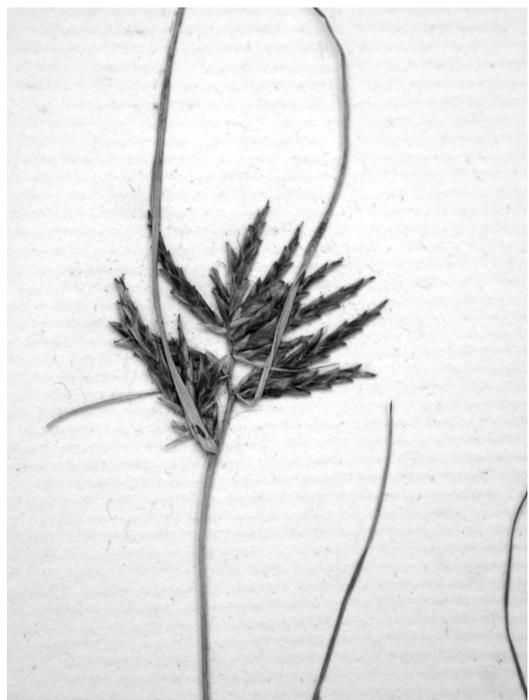


Fig. 9. Inflorescence of *Cyperus bulbosus* (lectotype).

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