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Stapfochloa (Poaceae: Cynodonteae, Chloridinae), a new genus from Africa

Abstract

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The African endemic *Chloris lamproparia* is excluded from the genus *Chloris* and placed in the new, monotypic genus *Stapfochloa*. Its morphological characteristics and the decisive grain shape, which is not known from the related genera *Chloris* and *Tetrapogon,* are illustrated.

Chloris lamproparia Stapf shows some character combinations that are unusual for the genus *Chloris* Sw. as well as for the related genus *Tetrapogon* Desf., see Table 1. *Chloris,* in its distribution restricted to tropical and warm temperate regions of both hemispheres, "is unusually rich in mildly aberrant peripheral species" (Clayton & Renvoize 1986). In the past, several odd *Chloris* species gave raise to new genera, e.g. *Daknopholis* W. D. Clayton, or have been transferred to related genera, such as recently *C. ferruginea* Renvoize has been transferred to *Tetrapogon* as *T. ferrugineus* (Renvoize) Phillips (1987). The *Chloris* monographer Anderson (1974), fully aware of the isolated position of *C. lamproparia* within the genus *Chloris,* nevertheless treated it as a member of the "*C. ciliata* complex". But other species of this complex, such as *C. berroi* Arechav., *C. canterai* Arechav., *C. ciliata* Sw., *C. elata* Desv. (= *C. dandyana* C. D. Adams), stand quite apart from *C. lamproparia* in many respects: they are perennials of Central and South America, have firm and relative short glumes, and trigonous grains, and thus may be rightly placed in *Chloris*. Their striking resemblance with *C. lamproparia* in lemma form and indument is surely a result of parallel evolution and does not reflect close genetic relationship. *C. lamproparia* is therefore excluded from *Chloris* and placed in the new, monotypic genus *Stapfochloa* of the *Cynodonteae* subtribe *Chloridinae*. The very detailed and excellent original Latin description of *C. lamproparia* by Stapf (1912) is cited below in full wording, additional to a short Latin and a longer English diagnosis of the new genus.

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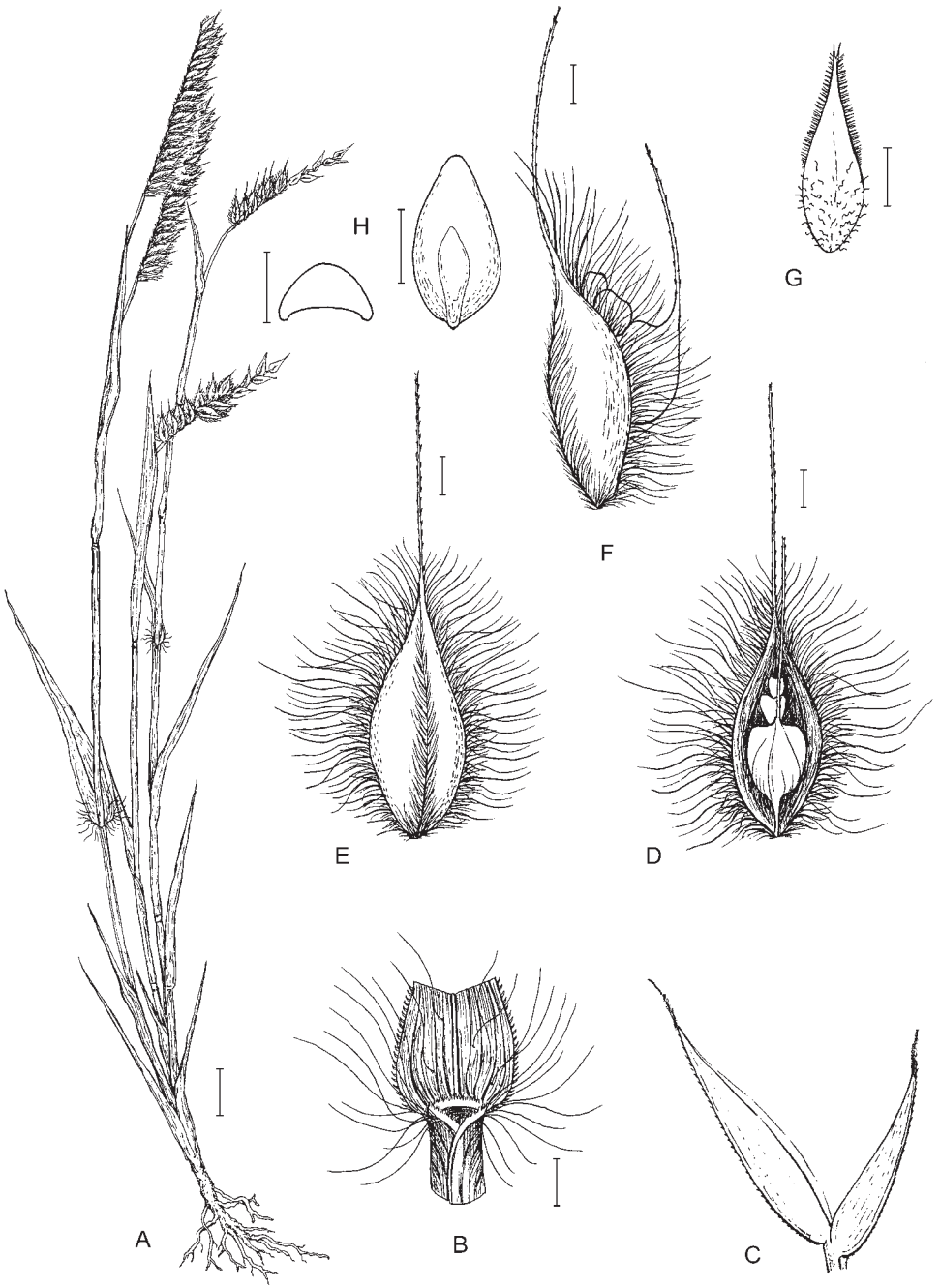


Fig. 1. *Stapfochloa lamproparia* – A: habitus; B: ligule; C: lower and upper glume; D: lowest lemma (ventral view and upper spikelets); E: lemma in dorsal view; F: lemma in side view; G: palea; H: caryopsis (dorsal view and cross section). – A-B, D-H drawn from *J. Müller H283* by Rita Lüder, C from Anderson (1974); scale bars: A = 1 cm; B-H = 1 mm.

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Stapfochloa H. Scholz, **gen. novum**
Type: *Stapfochloa lamproparia*

Differt a genere *Chloris* Sw. praecipue glumis hyalinis et longioribus, superiore flosculos superante, caryopsidibus plus minusve ventraliter concavis et a genere *Tetrapogon* Desf. flosculo fertili unico et 2-3 flosculis superioribus valde reductis sterilibus.

Monotypic genus. Differs from the genus *Chloris* Sw. by whitish glumes, similar to those of *Tetrapogon,* at least the upper longer than the florets, and by the structure of the inflorescence, with usually two racemes digitately arranged, mostly closely attached to one another and at base more or less enveloped by the leaf sheath. It differs from *Tetrapogon* Desf. by the configuration of the spikelet with only a single basal fertile floret in addition to the 2-3 much reduced distal sterile florets. It approaches *Chloris,* but has dark brown laterally compressed lemmas that are glabrous and shiny on their flanks, and has three lines of long, fine hairs along the nerves, spreading on the marginal nerves but less so on the carinal nerve. A special feature of *Stapfochloa* is its ovoid caryopsis that is broadly concave on the hilum (dorsal) side, as it is neither found in *Chloris* nor in *Tetrapogon* (Fig. 1, 2C-D).

Stapfochloa lamproparia (Stapf) H. Scholz, **comb. nova**
≡ *Chloris lamproparia* Stapf in Mém. Soc. Bot. France 8d: 220. 1912.
Holotype: [Chad], Baguirmi, emplacement de la ville de Massenia, 25.-31.8.1903, *A. Chevalier 9633bis* (P; isotype: K).

Description (Stapf 1912, as *Chloris lamproparia*). – "*Gramen* annuum, circiter 3 dm. altum. *Culmi* fasciculati, graciles, teretes, erecti vel suberecti, 4-5-nodi, internodiis magis minusve exsertis, laeves, glabri. *Foliorum* vaginae teretes vel infimae subcompressae, summa spathaceo-inflata, laeves, glabrae praeter os barbatum; ligulae membranaceae, brevissimae, ciliolatae; laminae lanceolato-lineares, longe in apicem acutum, 7-9.5 mm latae, planae, supra basin versus laxe pilosae, pilis tenuissimis e tuberculis ortis ad 4 mm longis, superne et ad margines asperulae, nervis primariis utrinque 3, secundariis 4-5 arctis prominulis interjectis. *Racemi* spiciformes, digitati, 2-3-ni, ad 4 cm longi, densi, diu vel perpetuo in vagina summa magis minusve inclusi; rhachis gracilis, scabrida, internodiis circiter 1 mm longis; pedicelli brevissimi. *Spiculae* fere 4 mm longae, aristatae, anthoecio fertili unico, ceteris 3 sterilibus rudimentariis in clavam

Table 1. Main characters of *Stapfochloa* and the related genera *Chloris* and *Tetrapogon.*

	Stapfochloa	***Chloris***	***Tetrapogon***
Spikelike (digitate-subdigitate) racemes	(1-)2(-4), closely attached	2- several, ± spaced	1 or 2, closely attached
Glumes	thin (papery)	rather firm (cartilaginous)	thin (papery)
Upper glume	longer than florets	as long as or shorter than florets	longer than florets
Fertile florets/spikelet	1	1, rarely 2	(1-)2-5
Sterile florets/spikelet	2-3	2-4(-6)	2-4
Glume shape of fertile and sterile florets	dissimilar	± dissimilar	± similar
Marginal lemma nerves of fertile floret(s)	long-hairy entirely	glabrous or partly hairy, rarely entirely hairy	glabrous to densely hairy
Caryopsis	ovate(-elliptic), concave-(sub)convex	elliptic, often trigonous	ovate, plano-convex

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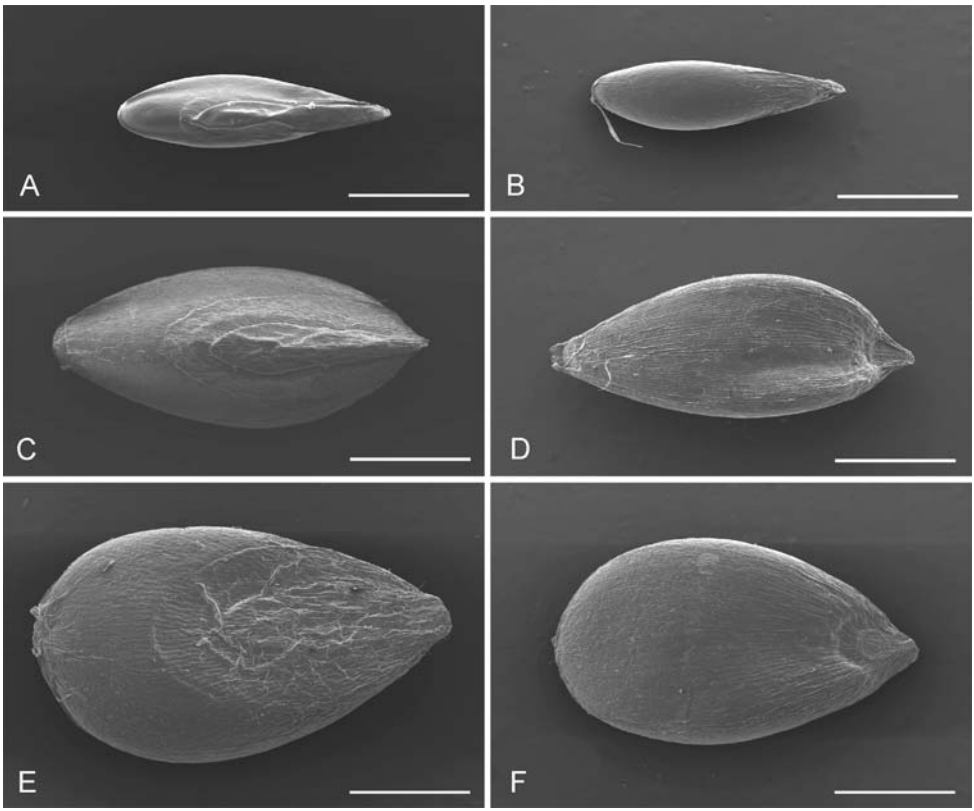


Fig. 2. SEM photographs of caryopses. – A-B: *Chloris gayana* Kunth; C-D: *Stapfochloa lamproparia* (Stapf) H. Scholz; E-F: *Tetrapogon cenchriformis* (A. Rich.) W. D. Clayton. – Scale bars: 700 µm.

turbinatam compactam rhachillae internodio tenaci crassiusculo insedentem aggregatis. *Glumae* admodum inaequales, a latere visae oblique lineari-lanceolatae, acutae, hyalinae, albidae, 1-nerves, in nervo parce scaberulae, inferior ad 3 mm longa, superior ad 7 mm longa. *Anthoecium* infimum cleistogamum. *Valva* a latere visa oblique semi-elliptica, acuta, fere 4 mm longa, 2 mm lata, demum coriacea et castanea, laevissima et nitidula, secundum nervos barbato-ciliata, pilis niveis marginalibus ad 2 mm longis patulis, dorsalibus brevibus faciebus adpressis, sub imo apice aristata, arista setiformi 4-5 mm longa recta. *Palea* valvam aequans, breviter bifida, ad carinas dense ciliolata. *Antherae* 0.3-0.5 mm longae. *Stigmata* perlaxe plumosa, gracillima, cum staminibus perpetuo inclusa. *Anthoecia* sterilia, ad valvas reducta; infimum 1 mm longum, a latere visum late obovato-cuneatum, truncatum, arista ad 3 mm longa munitum, caetera minora, exaristata, brevissima exserta. *Caryopsis* oblongo-ovoidea, subtriquetra, in dorso concavo, 2 mm longa. *Embryo* fere 1 mm longus, scutello anguste oblongo."

For English descriptions see, e.g., Clayton (1972), Renvoize (1974) and Phillips (1995), under *Chloris lamproparia*.

Specimens seen. – Niger: Kaka-Tondi, station 57/35, 3.8.1981, *E. Boudouresque H5587* (B). – Burkina Faso: Province Oudalan, east of the town, 14°26'N, 0°13'W, 4.9.1999, open savanna on sandy peneplain, *J. Müller H283* (B); Mamassi N Gangani, peneplain, sandy foot of a granitic outcrop, 14°48.1'N, 0°05.3'W, 26.8.2000, *J. Müller H637a* (FR).

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The species is often confused with *Tetrapogon cenchriformis* (A. Rich.) W. D. Clayton. It is rare, but widely distributed in the Sahel zone in N Africa and in semiarid regions of tropical NE Africa. In addition to the above reports from Chad, Niger and Burkina Faso, *Stapfochloa lamproparia* is recorded from Cameroon, Mali, Nigeria, Sudan, Tanzania, Uganda (Clayton 1972, Anderson 1974, Renvoize 1974 under *Chloris*). For occurrences in Burkina Faso and Chad see also Lebrun & al. (1972, 1991). Although the species is recorded from Niger, Poilecot (1999) does not mention it for this country.

Stapfochloa lamproparia normally grows in open savannas, which are grazed by cattle and small ruminants, on shallow sandy soils over rock.

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