The new genus *Trisetopsis* and new combinations in oat-like grasses (Poaceae)

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Abstract: Wölk, A. & Röser, M. 2013: The new genus *Trisetopsis* and new combinations in oat-like grasses (Poaceae). Schlechtendalia **25**: 57–61.

Trisetopsis, a new genus of oat-like grasses, is described. It is related to the genus *Helictotrichon* and encompasses species of tropical and subtropical Africa, Madagascar and the Arabian Peninsula. The following new combinations are introduced: *Trisetopsis angusta*, *T. arcta*, *T. avenoides*, *T. barbata*, *T. capensis*, *T. dodii*, *T. elongata*, *T. friesiorum*, *T. galpinii*, *T. hirtula*, *T. lachnantha*, *T. leonina*, *T. longa*, *T. longifolia*, *T. mannii*, *T. milanjiana*, *T. namaquensis*, *T. natalensis*, *T. newtonii*, *T. quinqueseta*, *T. rogerellisii*, *T. roggeveldensis*, *T. turgidula*, and *T. umbrosa*. Furthermore, a provisional list of synonyms is provided.

Zusammenfassung: Wölk, A. & Röser, M. 2013: Die neue Gattung *Trisetopsis* und neue Kombinationen haferähnlicher Gräser (Poaceae). Schlechtendalia **25**: 57–61.

Trisetopsis wird als neue Gattung der haferähnlichen Gräser beschrieben. Sie ist verwandt mit der Gattung *Helictotrichon* und umfasst Arten des tropischen und subtropischen Afrika, aus Madagaskar und der Arabischen Halbinsel. Die folgenden Neukombinationen werden eingeführt: *Trisetopsis angusta*, *T. arcta*, *T. avenoides*, *T. barbata*, *T. capensis*, *T. dodii*, *T. elongata*, *T. friesiorum*, *T. galpinii*, *T. hirtula*, *T. lachnantha*, *T. leonina*, *T. longa*, *T. longifolia*, *T. mannii*, *T. milanjiana*, *T. namaquensis*, *T. natalensis*, *T. newtonii*, *T. quinqueseta*, *T. rogerellisii*, *T. roggeveldensis*, *T. turgidula*, und *T. umbrosa*. Darüber hinaus wird eine provisorische Liste von Synonymen bereitgestellt.

Key words: Aveneae, grasses, *Helictotrichon*, nomenclature, oat, Poaceae, *Trisetopsis*

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Introduction

The oat-like grass genus *Helictotrichon* Besser is delineated in most of the recent taxonomic treatments and floras rather narrowly. Many species that had been treated under this genus, since the previously overlooked name *Helicotrichon* was reintroduced (Hubbard 1936, Hutchinson & Dalziel 1936), are now accommodated under separate genera, for example, *Amphibromus* Nees, *Avenula* (Dumort.) Dumort. (≡ *Homalotrichon* Banfi, Galasso & Bracchi, nom. illegit.), *Helictochloa* Romero Zarco, or *Tricholemma* (Röser) Röser.

However, our recent investigations show that even the remainder of *Helictotrichon* is polyphyletic. The species of Africa south of the Sahara Desert (tropical and southern Africa) of the Arabian Peninsula, and Madagascar deviate from the Eurasian species of *Helictotrichon*, which encompass the type species of this genus, *H. sempervirens* (Vill.) Pilg. (≡ *Avena sempervirens* Vill.), as designated by Schweickerdt (1937).

The tropical to subtropical African, Arabian and Malagasy species form a monophyletic group distinct from *Helictotrichon* s. str. and represent a separate new genus. Results of the morphological and molecular phylogenetic studies will be reported elsewhere in detail (Wölk et al., in preparation). The description of the new genus, new combinations and provisional synonymy of the species are outlined in the following chaper.

Results

Trisetopsis Röser & Wölk, **gen. nov.**

Etym.: Composed of Triset- and -opsis, the Greek word for appearance, to denote that several species of *Trisetopsis* bear resemblance to species of *Trisetum* P. Beauv.

Diagnosis: This genus is mainly characterized by its lemma, which is apically deeply bifid (2-lobed) and not entire as in *Helictotrichon* s. str. The incision usually reaches down to the awn insertion. Single specimens of some species have lemmas which are less deeply cleft or even entire, whereas the other lemmas of the same specimen have typical apical incisions. The ovary

is only sparsely ciliate at the apex, not entirely hairy as in *Helictotrichon* s. str. The lodicules are narrowly to broadly ovate, apically narrowed or bi- to trifid, whereas lodicules in *Helictotrichon* s. str. are subulate with entire margins.

Type species: *Trisetopsis elongata* (Hochst. ex A. Rich.) Röser & Wölk (≡ *Danthonia elongata* Hochst. ex A. Rich.).

Trisetopsis angusta (C. E. Hubb.) Röser & Wölk, **comb. nov.**
Bas.: *Helictotrichon angustum* C. E. Hubb., Bull. Misc. Inform. Kew: 330, 1936.

Trisetopsis arcta (Cope) Röser & Wölk, **comb. nov.**
Bas.: *Helictotrichon arctum* Cope, Kew Bull. 61: 243, 2006.

Trisetopsis avenoides (Stapf ex A. Camus) Röser & Wölk, **comb. nov.**
Bas.: *Helictotrichon avenoides* Stapf ex A. Camus, Rev. Int. Bot. Appl. Agric. Trop.: 276, 1947.
= *Avenastrum humbertii* A. Camus, Bull. Soc. Bot. France 78: 9, 1931.

Trisetopsis barbata (Nees) Röser & Wölk, **comb. nov.**
Bas.: *Trisetum barbatum* Nees, Fl. Afr. Austral. Ill.: 345, 1841.
≡ *Helictotrichon barbatum* (Nees) Schweick., Bothalia 3: 190, 1937.
≡ *Arrhenatherum barbatum* (Nees) Potztal, Bot. Jahrb. Syst. 75: 328, 1951.
= *Trisetum dregeanum* Steud., Syn. Pl. Glumac. 1(3): 227, 1854.
≡ *Avenastrum dregeanum* (Steud.) Stapf, Fl. Cap. (Harvey) 7(3): 473, 1899.

Trisetopsis capensis (Schweick.) Röser & Wölk, **comb. nov.**
Bas.: *Helictotrichon capense* Schweick., Bothalia 3: 193, 1937.
≡ *Arrhenatherum capense* (Schweick.) Potztal, Bot. Jahrb. Syst. 75: 328, 1951.

Trisetopsis dodii (Schweick.) Röser & Wölk, **comb. nov.**
Bas.: *Avenastrum dodii* Stapf, Fl. Cap. (Harvey) 7: 475, 1899.
≡ *Helictotrichon dodii* (Stapf) Schweick., Bothalia 3: 197, 1937.
≡ *Arrhenatherum dodii* (Stapf) Potztal, Bot. Jahrb. Syst. 75: 328, 1951.

Trisetopsis elongata (Hochst. ex A. Rich.) Röser & Wölk, **comb. nov.**
Bas.: *Danthonia elongata* Hochst. ex A. Rich., Tent. Fl. Abyss. 2: 419; 1851.
= *Avenastrum elongatum* (Hochst. ex A. Rich.) Pilg., Notizbl. Bot. Gart. Berlin-Dahlem 9: 518, 1926.
≡ *Helictotrichon elongatum* (Hochst. ex A. Rich.) C. E. Hubb., Bull. Misc. Inform. Kew: 335, 1936.
≡ *Arrhenatherum elongatum* (Hochst.) Potztal, Bot. Jahrb. Syst. 75: 328, 1951.
= *Trisetum neesii* Hochst. ex Steud., Syn. Pl. Glumac. 1: 227, 1854.
≡ *Avena neesii* (Hochst. ex Steud.) Hook. f., J. Linn. Soc., Bot. 7: 229, 1864.
= *Avena festuciformis* Hochst., Flora 38: 275, 1855.
= *Avena muriculata* Stapf, Bull. Misc. Inform. Kew: 291, 1897.
= *Avenastrum rigidulum* Pilg., Notizbl. Bot. Gart. Berlin-Dahlem 9: 519, 1926.
≡ *Helictotrichon rigidulum* (Pilg.) C. E. Hubb., Bull. Misc. Inform. Kew: 335, 1936.
≡ *Arrhenatherum rigidulum* (Pilg.) Potztal, Bot. Jahrb. Syst. 75: 329, 1951.
= *Avenastrum quinquenerve* Stent & J. M. Rattray, Proc. & Trans. Rhodesia Sci. Assoc. 32: 42, 1933.
= *Helictotrichon cartilagineum* C. E. Hubb., Bull. Misc. Inform. Kew: 331, 1936.
= *Helictotrichon maitlandii* C. E. Hubb., Bull. Misc. Inform. Kew: 332, 1936.
= *Helictotrichon phaneroneuron* C. E. Hubb., Bull. Misc. Inform. Kew: 332, 1936.
≡ *Arrhenatherum phaneroneuron* (C. E. Hubb.) Potztal, Willdenowia 4: 400, 1968.
= *Avena tibestica* Miré & Quézel, Bull. Soc. Bot. France 106: 135, 1959.
≡ *Helictotrichon tibesticum* (Miré & Quézel) Holub, Acta Univ. Carol., Biol.: 155, 1962.

Trisetopsis friesiorum (Pilg.) Röser & Wölk, **comb. nov.**
Bas.: *Avenastrum elongatum* (Hochst. ex A. Rich.) Pilg. var. *friesiorum* Pilg., Notizbl. Bot. Gart. Berlin-Dahlem 9: 517, 1926.
≡ *Helictotrichon friesiorum* (Pilg.) C. E. Hubb., Bull. Misc. Inform. Kew: 333, 1936.
≡ *Arrhenatherum friesiorum* (Pilg.) Potztal, Bot. Jahrb. Syst. 75: 329, 1951.

Trisetopsis galpinii (Schweick.) Röser & Wölk, **comb. nov.**
Bas.: *Helictotrichon galpinii* Schweick., Bothalia 3: 192, 1937.
≡ *Arrhenatherum galpinii* (Schweick.) Potztal, Bot. Jahrb. Syst. 75: 327, 1951.

Trisetopsis hirtula (Steud.) Röser & Wölk, **comb. nov.**
Bas.: *Trisetum hirtulum* Steud., Syn. Pl. Glumac. 1(3): 228. 1854.
≡ *Helictotrichon hirtulum* (Steud.) Schweick., Bothalia 3: 193, 1937.
≡ *Arrhenatherum hirtulum* (Steud.) Potztal, Bot. Jahrb. Syst. 75: 327, 1951.

Trisetopsis lachnantha (Hochst. ex A. Rich.) Röser & Wölk, **comb. nov.**
Bas.: *Trisetum lachnanthum* Hochst. ex A. Rich., Tent. Fl. Abyss. 2: 416, 1850.
≡ *Avena lachnantha* (Hochst. ex A. Rich.) Hook. f., J. Linn. Soc., Bot. 7: 227, 1864.
≡ *Avenastrum lachnanthum* (Hochst. ex A. Rich.) Pilg., Notizbl. Bot. Gart. Berlin-Dahlem 9: 521, 1926.
≡ *Helictotrichon lachnanthum* (Hochst. ex A. Rich.) C. E. Hubb., Bull. Misc. Inform. Kew: 335, 1936.
≡ *Arrhenatherum lachnanthum* (Hochst.) Potztal, Bot. Jahrb. Syst. 75: 328, 1951.
= *Avena rothii* Stapf, Bull. Misc. Inform. Kew: 292, 1897.

Trisetopsis leonina (Steud.) Röser & Wölk, **comb. nov.**
Bas.: *Avena leonina* Steud., Flora 12(2): 484, 1829.
≡ *Helictotrichon leoninum* (Steud.) Schweick., Bothalia 3: 191, 1937.
≡ *Arrhenatherum leoninum* (Steud.) Potztal, Bot. Jahrb. Syst. 75: 329, 1951.

Note: It is unclear if *Avenastrum antarcticum* (Thunb.) Stapf, Fl. Cap. (Harvey) 7(3): 476, 1899, is a synonym of *Trisetopsis leonina*. The combination is based on *Avena antarctica* Thunb., Prodr. Pl. Cap.: 22, 1794, which might be a synonym of *Aira antarctica* G. Forst. (cf. Schweickerdt 1937: pp. 198f).

Trisetopsis longa (Stapf) Röser & Wölk, **comb. nov.**
Bas.: *Avena longa* Stapf, Bull. Misc. Inform. Kew: 292, 1897.
≡ *Avenastrum longum* (Stapf) Stapf, Fl. Cap. (Harvey) 7(3): 476, 1899.
≡ *Helictotrichon longum* (Stapf) Schweick., Bothalia 3: 189, 1937.
≡ *Arrhenatherum longum* (Stapf) Potztal, Bot. Jahrb. Syst. 75: 328, 1951.

Trisetopsis longifolia (Nees) Röser & Wölk, **comb. nov.**
Bas.: *Trisetum longifolium* Nees, Fl. Afr. Austral. Ill.: 348, 1841.
≡ *Helictotrichon longifolium* (Nees) Schweick., Bothalia 3: 195, 1937.
≡ *Arrhenatherum longifolium* (Nees) Potztal, Bot. Jahrb. Syst. 75: 327, 1951, nom. illegit., non Dulac 1867.
= *Avena caffra* Stapf, Bull. Misc. Inform. Kew: 293, 1897.
≡ *Avenastrum caffrum* (Stapf) Stapf, Fl. Cap. (Harvey) 7(3): 477, 1899.

Trisetopsis mannii (Pilg.) Röser & Wölk, **comb. nov.**
Bas.: *Avenastrum mannii* Pilg., Notizbl. Bot. Gart. Berlin-Dahlem 9: 520, 1926.
≡ *Helictotrichon mannii* (Pilg.) C. E. Hubb., Bull. Misc. Inform. Kew: 334, 1936.
≡ *Arrhenatherum mannii* (Pilg.) Potztal, Bot. Jahrb. Syst. 75: 329, 1951.

Trisetopsis milanjiana (Rendle) Röser & Wölk, **comb. nov.**
Bas.: *Bromus milanjianus* Rendle, Trans. Linn. Soc. London, Ser. 2, 4: 59, 1894.
≡ *Helictotrichon milanjianum* (Rendle) C. E. Hubb., Bull. Misc. Inform. Kew: 334, 1936.

≡ *Arrhenatherum milanjianum* (Rendle) Potztal, Bot. Jahrb. Syst. 75: 329, 1951.
= *Avenastrum majus* Pilg., Notizbl. Bot. Gart. Berlin-Dahlem 9: 519, 1926.
= *Avenastrum mannii* Pilg. var. *angustior* Pilg., Notizbl. Bot. Gart. Berlin-Dahlem 9: 521, 1926.

Trisetopsis namaquensis (Schweick.) Röser & Wölk, **comb. nov.**
Bas.: *Helictotrichon namaquense* Schweick., Bothalia 3: 189, 1937.
≡ *Arrhenatherum namaquense* (Schweick.) Potztal, Bot. Jahrb. Syst. 75: 329, 1951.
= *Trisetum barbatum* Nees var. *minus* Nees, Fl. Afr. Austral. Ill.: 345, 1841.

Trisetopsis natalensis (Stapf) Röser & Wölk, **comb. nov.**
Bas.: *Avenastrum caffrum* (Stapf) Stapf var. *natalensis* Stapf, Fl. Cap. (Harvey) 7(3): 477, 1899.
≡ *Helictotrichon natalense* (Stapf) Schweick. Bothalia 3: 194, 1937.
≡ *Arrhenatherum natalense* (Stapf) Potztal, Bot. Jahrb. Syst. 75: 329, 1951.

Trisetopsis newtonii (Stapf) Röser & Wölk, **comb. nov.**
Bas.: *Avena newtonii* Stapf, Bull. Misc. Inform. Kew: 291, 1897.
≡ *Helictotrichon newtonii* (Stapf) C. E. Hubb., Bull. Misc. Inform. Kew: 334, 1936.
≡ *Arrhenatherum newtonii* (Stapf) Potztal, Willdenowia 4: 400, 1968.

Trisetopsis quinqueseta (Steud.) Röser & Wölk, **comb. nov.**
Bas.: *Avena quinqueseta* Steud., Flora 12(2): 485, 1829.
≡ *Avenastrum quinquesetum* Stapf, Fl. Cap. (Harvey) 7(3): 475, 1899.
≡ *Helictotrichon quinquesetum* (Steud.) Schweick., Bothalia 3: 188, 1937.
≡ *Arrhenatherum quinquesetum* (Steud.) Potztal, Bot. Jahrb. Syst. 75: 328, 1951.
= *Trisetum steudelii* Nees, Linnaea 7: 308, 1832.

Trisetopsis rogerellisii (Mashau, Fish & A. E. van Wyk) Röser & Wölk, **comb. nov.**
Bas.: *Helictotrichon rogerellisii* Mashau, Fish & A. E. van Wyk, Bothalia 40: 179, 2010.

Trisetopsis roggeveldensis (Mashau, Fish & A. E. van Wyk) Röser & Wölk, **comb. nov.**
Bas.: *Helictotrichon roggeveldense* Mashau, Fish & A. E. van Wyk, Bothalia 40: 179, 2010.

Trisetopsis turgidula (Stapf) Röser & Wölk, **comb. nov.**
Bas.: *Avena turgidula* Stapf, Bull. Misc. Inform. Kew: 293, 1897.
≡ *Avenastrum turgidulum* Stapf, Fl. Cap. (Harvey) 7(3): 474, 1899.
≡ *Helictotrichon turgidulum* (Stapf) Schweick., Bothalia 3: 196, 1937.
≡ *Arrhenatherum turgidulum* (Stapf) Potztal, Bot. Jahrb. Syst. 75: 328, 1951.
= *Trisetum antarcticum* Nees, Linnaea 7: 307, 1832, nom. illegit., non Trin. 1931.
= *Trisetum imberbe* Nees, Fl. Afr. Austral. Ill.: 347, 1841.
≡ *Helictotrichon imberbe* (Nees) Veldkamp, Blumea 28: 342, 1983.

Trisetopsis umbrosa (Hochst. ex Steud.) Röser & Wölk, **comb. nov.**
Bas.: *Trisetum umbrosum* Hochst. ex Steud., Syn. Pl. Glumac. 1: 227, 1854.
≡ *Avenastrum umbrosum* (Hochst. ex Steud.) Pilg., Notizbl. Bot. Gart. Berlin-Dahlem 9: 521, 1926.
≡ *Helictotrichon umbrosum* (Hochst. ex Steud.) C. E. Hubb., Bull. Misc. Inform. Kew: 334, 1936.
≡ *Arrhenatherum umbrosum* (Hochst. ex Steud.) Potztal, Bot. Jahrb. Syst. 75: 328, 1951.
= *Trisetum biflorum* Hochst., Flora 38: 275, 1855.
= *Helictotrichon umbrosum* var. *micrantherum* C. E. Hubb., Bull. Misc. Inform. Kew: 334, 1936.
= *Helictotrichon thomasii* C. E. Hubb., Bull. Misc. Inform. Kew: 500, 1936.

References

Schweickerdt, H. G. W. J. 1937: A revision of the South African species of *Helictotrichon* Bess. ex Schultes. Bothalia **3**: 185–203.

Hubbard, C. E. 1936: The species of *Helictotrichon* in tropical Africa. Bulletin of Miscellaneous Information, Royal Gardens, Kew: 380–385.

Hutchinson; J., & Dalziel, J. M. 1936: Flora of west tropical Africa. Vol. 2(1). First edition. London, Crown Agents for the Colonies.

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