
***Crassiphycus* Guiry, Gurgel, J.N.Norris & Fredericq, *gen. nov.*, a replacement name for *Crassa* Gurgel, J.N.Norris & Fredericq, *nom. inval.* (*Gracilariaceae*, Rhodophyta), with some additional nomenclatural notes**

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The recently introduced genus name *Crassa* Gurgel, J.N.Norris & Fredericq (in Gurgel *et al.*, 2018: 10) is not validly published as it coincides with a Latin technical term (*crassus* -a, -um: = thick) in contravention of Art 20.2 (ICN, Turland *et al.* 2018). Below we propose a replacement name, ***Crassiphycus***, together with the necessary new combinations. Those proposed by Gurgel *et al.* (2018) in the invalid name *Crassa* are also invalid (Art 35.1 ICN, Turland *et al.* 2018).

Crassiphycus* Guiry, Gurgel, J.N.Norris & Fredericq, *gen. nov.

Replaced name: *Crassa* Gurgel, J.N.Norris & Fredericq (in Gurgel *et al.* 2018: 10).

Diagnosis as for *Crassa* in Gurgel *et al.* (2018: 10).

Type: ***Crassiphycus corneus*** (J.Agardh) Gurgel, J.N.Norris & Fredericq, *comb. nov.*

Basionym: *Gracilaria cornea* J.Agardh, *Species genera et ordines algarum*: 598, 1852.

Synonyms: *Crassa cornea* (J.Agardh) Gurgel, J.N.Norris & Fredericq, in Gurgel *et al.* 2018:10, *nom. inval.* *Hydropuntia cornea* (J.Agardh) M.J.Wynne 1989: 476.

Note: ICN Art. 62 (Turland *et al.*, 2018) specifies that generic names ending in *-phycos* or *-phycus*, although originally neuter in Greek, are to be treated as masculine “in accordance with [botanical] tradition.”

Crassiphycus birdiae (E.Plastino & E.C.Oliveira) Gurgel, J.N.Norris & Fredericq, *comb. nov.*

Basionym: *Gracilaria birdiae* E.Plastino & E.C.Oliveira, *Phycologia* 41: 390, 2002.

Synonym: *Crassa birdiae* (E.Plastino & E.C.Oliveira) Gurgel, J.N.Norris & Fredericq, in Gurgel *et al.* 2018:11, *nom. inval.*

Crassiphycus caudatus (J.Agardh) Gurgel, J.N.Norris & Fredericq, *comb. nov.*

Basionym: *Gracilaria caudata* J.Agardh, *Species genera et ordines algarum*: 598, 1852. Synonym: *Crassa caudata* (J.Agardh) Gurgel, J.N.Norris & Fredericq, in Gurgel *et al.* 2018: 10, *nom. inval.*

Crassiphycus changii (B.-M.Xia & I.A.Abbott) Gurgel, J.N.Norris & Fredericq, *comb. nov.*

Basionym: *Polycavernosa changii* B.-M.Xia & I.A.Abbott, *Phycologia* 26: 407 and 409, 1987.

Synonyms: *Crassa changii* (B.-M.Xia & I.A.Abbott) Gurgel, J.N.Norris & Fredericq, in Gurgel *et al.* 2018:10, *nom. inval.* *Hydropuntia changii* (B.M.Xia & I.A.Abbott) M.J.Wynne 1989: 476.

Crassiphycus crassissimus (P.Crouan & H.Crouan) Gurgel, J.N.Norris & Fredericq, *comb. nov.*

Basionym: *Plocaria crassissima* P.Crouan & H.Crouan, in Schramm & Mazé *Essai de classification des algues de la Guadeloupe*: 20, 1865.

Synonym: *Hydropuntia crassissima* (P.Crouan & H.Crouan) M.J.Wynne 1989: 477.

Crassiphycus firmus (C.F.Chang & B.-M.Xia) Gurgel, J.N.Norris & Fredericq, *comb. nov.*
 Basionym: *Gracilaria firma* C.F.Chang & B.-M.Xia, *Studia Marina Sinica* 11: 143, 1976.
 Synonym: *Crassa firma* (C.F.Chang & B.-M.Xia) Gurgel, J.N.Norris & Fredericq, in Gurgel *et al.* 2018:11, *nom. inval.*

Crassiphycus proliferus (Harvey) Gurgel, J.N.Norris & Fredericq, *comb. nov.*
 Basionym: *Rhodymenia prolifera* Harvey, *Algae*. In: *The botany of the Antarctic voyage....*:249, 1855.

Synonyms: *Gracilaria truncata* Kraft 1977: 495; *Crassa truncata* (Kraft) Gurgel, J.N.Norris & Fredericq, in Gurgel *et al.* 2018:11, *nom. inval.*

Note: *Gracilaria truncata* Kraft was a replacement name for *Rhodymenia prolifera* Harvey necessary at that time as the specific name in *Gracilaria* was previously occupied by *Gracilaria prolifera* Reinsch [Reinsch 1888: 147, now *Hymenocladopsis prolifera* (Reinsch) M.J.Wynne, 2004]. The epithet *proliferus*, however, now becomes available in *Crassiphycus*.

Crassiphycus punctatus (Okamura) Gurgel, J.N.Norris & Fredericq, *comb. nov.*
 Basionym: *Rhodymenia punctata* Okamura, *Icones of Japanese algae*: 6 [13], pl. CCLVIII, 1929
 Synonym: *Crassa punctata* (Okamura) Gurgel, J.N.Norris & Fredericq, in Gurgel *et al.* 2018:11, *nom. inval.*

Crassiphycus secundus (Gurgel & Fredericq) Gurgel, J.N.Norris & Fredericq, *comb. nov.*
 Basionym: *Hydropuntia secunda* Gurgel & Fredericq, *Journal of Phycology*, 40: 156, 2004.
 Synonyms: *Gracilaria secunda* P.Crouan & H.Crouan, in Schramm & Mazé 1865: 19, *nom. illeg., non Gracilaria secunda* (C.Agardh) Zanardini 1840: 214. *Gracilaria crouaniorum* Lyra, Nunes & C.C.Davis, in Lyra *et al.* 2015: 364, *nom. illeg.*; *Crassa crouaniorum* Gurgel, J.N. Norris & Fredericq, in Gurgel *et al.* 2018: 11, *nom. inval.*

Note: *Gracilaria crouaniorum* Lyra, Nunes & C.C.Davis, in Lyra *et al.* (2015: 364) is an illegitimate name as the earlier designation *Hydropuntia secunda* Gurgel & Fredericq is a new name in accordance with ICN Art. 58.1 (Turland *et al.* 2018), even though it was introduced as a new combination for *Gracilaria secunda* P.Crouan & H.Crouan, 1865, *nom. illeg.*

Crassiphycus secundatus (Harvey) Gurgel, J.N.Norris & Fredericq, *comb. nov.*
 Basionym: *Gracilaria secundata* Harvey, *Phycologia australica*: xxxv, 1863.
 Synonym: *Crassa secundata* (Harvey) Gurgel, J.N.Norris & Fredericq, in Gurgel *et al.* 2018:11, *nom. inval.*

Crassiphycus usneoides (Mertens ex C.Agardh) Gurgel, J.N.Norris & Fredericq, *comb. nov.*
 Basionym: *Sphaerococcus usneoides* C.Agardh, *Species algarum....*: 333, 1822.
 Synonym: *Crassa usneoides* (Mertens ex C.Agardh) Gurgel, J.N.Norris & Fredericq, in Gurgel *et al.* 2018:11, *nom. inval.*

Additional nomenclatural notes: The name *Gracilariopsis oryzoides* (Setchell & H.L.Wilson) Gurgel, J.N.Norris & Fredericq (in Gurgel *et al.* 2018: 12) may be an invalid name (Art. 36.1, Turland *et al.* 2018) as it was proposed by the authors with the following words: “We recognize that *Gracilariophila* is congeneric with *Gracilariopsis*, and for now propose its inclusion in that genus recognizing that further molecular data are needed to test their relationship and taxonomic status.” Art. 36.1 specifies that the proposal of a combination in “in anticipation of the future acceptance of the taxon concerned, or of a particular circumscription, position, or rank of the taxon...” is invalid. However, the last sentence of Art. 36.1 “These provisions do not apply to names published with a question mark or other indication of taxonomic doubt, yet accepted by their author” may apply here. In any case, *Gracilariophila* Setchell & H.L.Wilson, 1910 is an earlier genus name than *Gracilariopsis* E.Y.Dawson, 1949, and *Gracilariophila* would have priority in the event of the

types being congeneric. Further molecular data are required and, if necessary, a proposal for conservation can be prepared for the latter genus name.

The tribe name “Gracilariopsiseae” Gurgel, J.N.Norris & Fredericq, in Gurgel *et al.* (2018: 12), based on *Gracilariopsis* E.Y.Dawson, is incorrectly formed and is correctable to Gracilariopsidae with the same authorship (Art. 18.1, Turland *et al.* 2018).

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