



Validation of ordinal and family names for a Triassic fossil liverwort, *Naiadita* (Naiaditaceae, Marchantiopsida)

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The fossil genus *Naiadita* Brodie (1845: 93) was originally described by Brodie based on a leafy plant species from the Late Triassic England, *Naiadita lanceolata* Brodie (1845: 93). The taxonomic position of the species has long fluctuated and it had been supposed to be a monocotyledon allied to *Najas* Linnaeus (1753: 1015), a water moss allied to *Fontinalis* Hedwig (1801: 298), or an aquatic Lycopod until Harris (1938, 1939) discovered its reproductive organs and made a comprehensive study on the species. On Harris's (1938, 1939) closer examinations of the species, it turned out to be a liverwort allied to *Riella* Montagne (1852: 11) (Riellaceae, Sphaerocarpaceae, Marchantiopsida). However, its unusual combination of characteristics, makes it impossible to assign to an order/family of extant liverworts. Schuster (1953, 1966) proposed a monogeneric order Naiaditales and a family Naiaditaceae, placed in Marchantiidae of Marchantiopsida. These ordinal and family names are in common use in systematics of liverworts, (e.g. Grolle 1972; Schuster 1979; Krassilov & Schuster 1984; Schofield 1985; Brown 2003). However, each of these names lacked a description/diagnosis when proposed and has never been validly published (ICN Art. 38.1, McNeill *et al.* 2012). In order to be able to use these names, the ordinal and family names are validated here.

Taxonomy

FAMILY

Naiaditaceae R.M.Schust. ex T.Katag. & A.Hagborg, stat. nov.

Naiaditaceae R.M.Schust., Hapat. Anthocer. N. Amer. 1: 385. 1966; nom. nud.

Naiaditaceae Grolle, J. Bryol. 7: 226. 1972; nom. nud.

Type: *Naiadita* P.B.Brodie, Hist. Fossil Insects Second. Rocks England: 93. 1845. [type species *Naiadita lanceolata* P.B.Brodie, Hist. Fossil Insects Second. Rocks England: 93. 1845.]

Systematic position: Phylum Marchantiophyta Stotler & Crand.-Stotl., Class Marchantiopsida Cronquist, Takht. & W.Zimm., Order Naiaditales R.M.Schust. ex T.Katag. & A.Hagborg

Diagnosis: Similar to Riellaceae (Sphaerocarpaceae), but different from it in having spirally arranged leaves, terminal gemma cups, perianths consisting of a series of leaves, subtended by a well-developed gametophytic pedicel.

Description: See Harris (1938, p.16–64; 1939, p. 58–63).

Note: The generic and species names, *Naiadita* and *Naiadita lanceolata*, were simultaneously validated by provision of a single description by Brodie (1845, p. 93) in accordance with ICN Art. 38.5 (McNeill *et al.* 2012).

ORDER

Naiaditales R.M.Schust. ex T.Katag. & A.Hagborg, stat. nov.

Naiaditales R.M.Schust., Amer. Midl. Naturalist 49: 283. 1953; nom. nud. "Naiaditales".

Naiaditineae R.M.Schust., Hepat. Anthocer. N. Amer. 1: 385. 1966; nom. nud. "Naiaditinae".

Naiaditineae R.M.Schust., Syst. Ass. Spec. Vol. Ser. 14: 78. 1979; nom. nud.

Naiaditales R.M.Schust., New Manual of Bryology 2: 1178. 1984; nom. nud.

Based on: Naiaditaceae R.M.Schust. ex T.Katag. & A.Hagborg **Type:** *Naiadita* P.B.Brodie, Hist. Fossil Insects Second. Rocks England: 93. 1845.

Systematic position: Phylum Marchantiophyta Stotler & Crand.-Stotl., Class Marchantiopsida Cronquist, Takht. & W.Zimm., Subclass Marchantiidae Engl.

Diagnosis: Similar to Sphaerocarpaceae or Calobryales, but different from them in having spirally arranged leaves, terminal gemma cups, stalked archegonia arising singly on the stem, presence of individual perianths surrounding each developing sporophyte, subtended by a pedicel, cleistocarpic capsules dehiscing irregularly, very short setae, and lacking elaters.

Note: We consider the morphology of *Naiadita* justifies its placement in its own order rather than in a suborder of Sphaerocarpaceae (including Sphaerocarpaceae and Riellaceae).

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