

Validation of the fossil name *Microcodium arcticum* Remizova (*Microcodiaceae*, *Ulvophyceae*)

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The designation “*Microcodium arcticum*” Remizova (in Molin & Remizova 2000) was not validly published because the protologue failed to satisfy ICN Art. 43.1, Turland & al. (2018): “to be validly published, a name of a new fossil-taxon published on or after 1 January 1996 must be accompanied by a Latin or English description or diagnosis”. The required validation is given below.

***Microcodium arcticum* Remizova, sp. nov.**

Replaced designation: “*Microcodium arcticum*” Remizova (in Molin & Remizova 2000: 48, pl. 1: figs 1–5, pl. 2: figs 1–5), *nom. inval.*

Synonymy: *Microcodium* sp., in Mamet & Roux (1982: 357–363, pl. 1: figs 1–6, pl. 2: figs 1–12); *Microcodium* sp. in Mamet & al. (1987: 20–21 pl. 9: figs 1–11, pl. 10: fig. 1–5).

Description: Thallus cylindrical, straight, or slightly curved, the maximum length of the fragments of the thallus observed in the sections is 4.5 mm. Diameter of the thallus is 0.59–1.04 mm. Diameter of the inner cavity is 0.15–0.36 mm. Radially located lateral branches depart from the central siphon in the form of narrow-conical polygonal, more often hexagonal, pyramids with rounded-convex bases. Length of the lateral branches are 0.15–0.33 mm; the outer diameter is 0.06–0.15 mm; the inner diameter of the cavity of the lateral branches is 0.03–0.05 mm. The cavities of the lateral branches are connected to the central siphon by thin pores with a diameter of 0.01–0.02 mm. The diameter of the outer pores reaches 0.05 mm. The covers of the lateral branches fit tightly to each other and form a single calcareous shell around the entire stratum along the periphery. In some specimens, large oval cavities are observed, which, apparently, were the receptacle of sporangia (Molin & Remizova 2000).

Holotype: RUSSIA: Timan: Pechora Pizhma River; Middle Carboniferous, Lower Moscovian substage, sample 3-1/6, deposited in the Museum of the Institute of Geology Komi SC UB RAS, collection No. 86 (Fig. 1).

Registration: <http://phycobank.org/104183>

Representative figure: Fig. 1.

Etymology: Latin *arcticus*, *-a*, *-um* (adjective, Arctic).

Stratigraphical distribution: Middle Carboniferous, Moscovian Stage of Timan and Lower Permian of Arctic Canada.

Illustrations: Molin & Remizova (2000: pl. 1: figs. 1–5, pl. 2: figs. 1–5).

Note: Considering the morphological features of the calcareous cover, *Microcodium sepimentiforme* Maslov (1956) is the closest species to *M. arcticum*. However, the distribution of the latter is limited to the Paleogene of Fergana. Given the significant separation of the compared taxa, both temporal and spatial, we do not consider it possible to consider them as part of a single species.

I thank Eduardo Molinari Novoa, who kindly alerted me to this issue, and paid great attention to the discussion of the taxonomy of the *Microcodium*.

Mamet, B.L. & Roux, A. (1982). Sur la presence de *Microcodium* (Algue?, *Incertae sedis*?) dans le Paléozoïque supérieur de l'Arctique canadien. *Canadian Journal of Earth Sciences* 19(2): 357–363, 1 figure, 2 plates.

- Mamet, B.L., Roux, A. & Nassichuk, W.W. (1987). Algues carbonifères et permienes de l'Arctique canadien. *Commission géologique du Canada, Bulletin* 342: i–vi, 1–143, 23 figures, 3 tables, 30 plates.
- Molin, V.A. & Remizova, S.T. (2000). Pozdnepaleozoyskiye *Mikrokodii* (Algae) severo-vostoka Yevropeyskoy chasti Rossii [Late Paleozoic Microcodia (Algae) of the northeast of the European part of Russia]. *Trudy Instituta geologii Komi nauchnogo tsentra UrO RAN* 102: 45–55, 6 plates. [in Russian]
- Turland, N.J., Wiersema, J.H., Barrie, F.R., Greuter, W., Hawksworth, D.L., Herendeen, P.S., Knapp, S., Kusber, W.-H., Li, D.-Z., Marhold, K., May, T.W., McNeill, J., Monro, A.M., Prado, J., Price, M.J. & Smith, G.F., editors (2018). *International Code of Nomenclature for algae, fungi, and plants (Shenzhen Code)* adopted by the Nineteenth International Botanical Congress Shenzhen, China, July 2017. *Regnum Vegetabile*, Vol. 159. pp. [i]–xxxviii, 1–253. Glashütten: Koeltz Botanical Books.

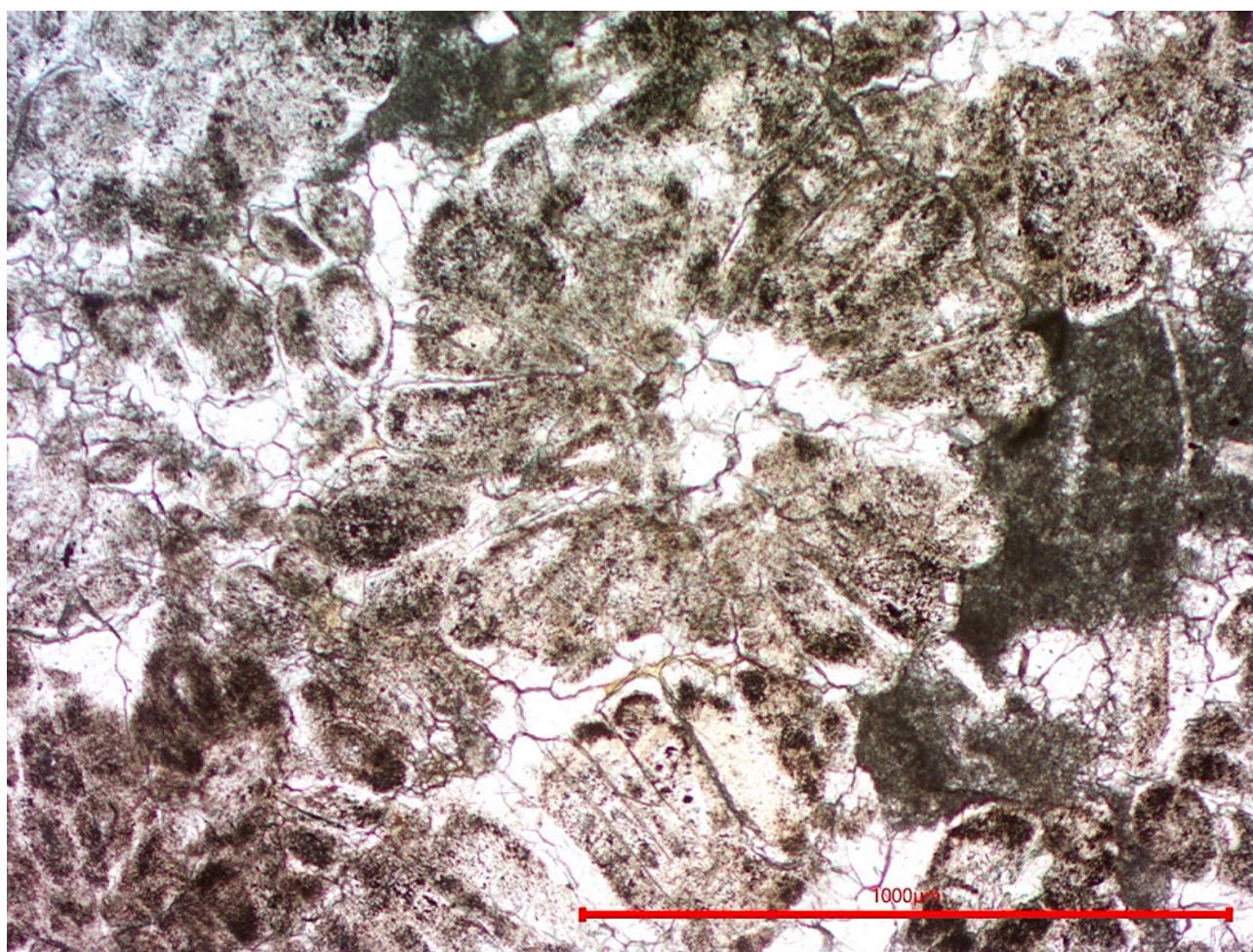


Fig. 1. *Microcodium arcticum* sp. nov. Holotype: Cross section of the thallus. Scale = 1000 μm.