

On the nomenclature of *Shamovella* and *Tubiphytes* (fossil *Cyanobacteriophyta incertae sedis*)

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Rauser-Chernousova (1950: 17) published the generic name *Shamovella* Rauser-Chernousova in the footnote of a paper dealing with facies from the Carboniferous and Permian of the Sterlitamak-Ishimbay area near of the southern Urals. She explicitly defined it as an alga, and as such, the genus falls under the jurisdiction of the *International Code of Nomenclature for algae, fungi, and plants* (Madrid Code, hereafter ICN, Turland & al. 2025). She did not include any species at that time.

Tubiphytes Maslov (1956: 82) was proposed with a single species, *Tubiphytes obscurus* Maslov, as the type. Two years later, Rigby (1958) proposed the genus *Nigriporella* with two species, and considered it to have potential hydrozoan affinities, placing it in its own family, *Nigriporellidae*. However, Konishi (1959: 142) established that *Nigriporella* was a synonym of *Tubiphytes* and this was accepted by Elliott (1962: 29).

As *Shamovella* Rauser-Chernousova was published before the necessity for type designation, it is valid under the provisions of the ICN Art. 40.1 and thus has priority over *Tubiphytes* Maslov. Despite this, many authors followed Elias (1959: 77) in treating *Shamovella* as an invalid name and favouring the use of *Tubiphytes* over it, even after Riding (1993: 71–72) had already pointed out the validity of *Shamovella* and its consequent priority over *Tubiphytes* and *Nigriporella*.

Since then, many articles regarding the taxonomy of *Shamovella* (e.g. Senowbari-Daryan & Flügel 1993, Vachard & Moix 2011, Vachard & al. 2012, Senowbari-Daryan 2013), the nature of the fossilised organism (Vennin & al. 1997) and its structure (Kuznetsov & al. 2020) have used *Tubiphytes* in direct opposition to Principle III of the ICN. We here correct this situation by proposing the necessary combinations following the most recent taxonomy of the genus, which considers it an encrusting organism of cyanobacteriophytan affinities (Senowbari-Daryan 2013, Remizova 2025). We present here a nomenclatural summary of the genus, with seven new combinations and an overview of the family. The taxonomy follows that Senowbari-Daryan (2013: 76–92), in the same paper can be found further synonymy for the species.

Family *Nigriporellaceae* J.K.Rigby (1958: 583, as '*Nigriporellidae*', *orth. mut.*)

Type genus: *Nigriporella* J.K.Rigby (= *Shamovella* Rauser-Chernousova, 1950).

Other genera to be included: *Anisophytes* Senowbari-Daryan & Velledits (2007: 359), *Carniphytes* Senowbari-Daryan (2013: 92), *Crescentiella* Senowbari-Daryan, Bucur, Schlagintweit, Săsăran & Matyszkiewicz (2008: 187), *Latitubiphytes* Vachard, Krainer & S.G.Lucas (2012: 246), *Plexoramea* J.Mello (1977: 190), *Tubiphytella* Vachard in Grigoryan & al. (2020: 5).

Shamovella Rauser-Chernousova, *Trudy Instituta geologicheskikh nauk Akademii nauk SSSR* 119: 17, 1950.

Type species: *Shamovella obscura* (Maslov) Riding, *Taxon* 42: 72, 1993.

Homotypic synonym: *Tubiphytes* Maslov, *Trudy Geologicheskogo Instituta Akademii nauk SSSR* 160: 82, 1956.

Heterotypic synonym: *Nigriporella* J.K.Rigby, *Journal of Paleontology* 32: 584, 1958.

Etymology: Named for Dmitry Fedorovich Shamov, Soviet geologist.

Notes: The type of *Tubiphytes obscurus* Maslov is conspecific with that used by a Rauser-Chernousova but represents a different subspecies. Riding (1993) treated *T. obscurus* as a “neotype”, since no specimen or illustration can serve as a type of a genus without conservation (Art. 10.4), but, following Art. 10, Note 4, the species to which the original material can be attributed to may be cited as the type.

Other taxa included:

Shamovella alcicornis (Senowbari-Daryan) Molinari & S.T.Remizova, *comb. nov.*

Basionym: *Tubiphytes alcicornis* Senowbari-Daryan, *Facies* 59: 91, 2013.

Shamovella carinthiaca (E.Flügel) Molinari & S.T.Remizova, *comb. nov.*

Basionym: *Hikorocodium carinthiacum* E.Flügel *Carinthia II Sonderheft* 25: 54, 1966.

Homotypic synonym: *Tubiphytes carinthiacus* (E.Flügel) Kochansky-Devidé, *Geologija* 13(1): 220, 1970

Shamovella carnica (Senowbari-Daryan) Molinari & S.T.Remizova, *comb. nov.*

Basionym: *Tubiphytes carnicus* Senowbari-Daryan, *Facies* 59: 89, 2013.

Shamovella lercarensis (Senowbari-Daryan & E.Flügel) Molinari & S.T.Remizova, *comb. nov.*

Basionym: *Tubiphytes lercarensis* Senowbari-Daryan & E.Flügel, *Bollettino della Società Paleontologica Italiana* S: 376, 1993.

Shamovella obscura subsp. ***cylindrica*** (Senowbari-Daryan & E.Flügel) Molinari & S.T.Remizova, *comb. et stat. nov.*

Basionym: *Tubiphytes cylindricus* Senowbari-Daryan & E.Flügel, *Bollettino della Società Paleontologica Italiana* S: 374, 1993.

Note: This taxon was described from Sicilian material by Senowbari-Daryan & Flügel (1993: 374), as *T. cylindricus*, and later reduced to an infrataxon by Senowbari-Daryan (2013: 76) under the invalid designation “*T. obscurus shamovella*”. It agrees with the original description of the genus and its material from the Schwagerina horizon of the Sterlitamak area (Russia: Republic of Bashkortostan).

Shamovella ramosa (Senowbari-Daryan) Molinari & S.T.Remizova, *comb. nov.*

Basionym: *Tubiphytes ramosus* Senowbari-Daryan, *Facies* 59: 89, 2013.

Shamovella sosioensis (Senowbari-Daryan & E.Flügel) Molinari & S.T.Remizova, *comb. nov.*

Basionym: *Tubiphytes sosioensis* Senowbari-Daryan & E.Flügel, *Bollettino della Società Paleontologica Italiana* S: 372, 1993.

Excluded species:

Tubiphytes gracilis Priska Schäfer & Senowbari-Daryan (1983) $\equiv$ *Plexoramea gracilis* (Priska Schäfer & Senowbari-Daryan) Senowbari-Daryan (2013).

Tubiphytes morronensis Crescenti (1969) $\equiv$ *Crescentiella morronensis* (Crescenti) Senowbari-Daryan & al. (2008).

Tubiphytes multisiphonatus Priska Schäfer & Senowbari-Daryan (1983) $\equiv$ *Carniphytes multisiphonatus* (Priska Schäfer & Senowbari-Daryan) Senowbari-Daryan (2013).

Tubiphytes rauzeriae Vachard & Moix (2011) $\equiv$ *Latitubiphytes rauzeriae* (Vachard & Moix) Vachard, Krainer & S.G.Lucas (2012).

Future studies in the genus might clarify the relationships between Palaeozoic and Mesozoic species, with subsequent novelties in the taxonomy of the complex.

The authors wish to thank Stefano Manara (University of Genoa) and Sofía Valencia (Xavierian Pontifical University), for providing crucial bibliographical information and support.

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