Validation of '*Picochlorum costavermella* Hemon & Grimsley' *nom. inval.* (*Trebouxiophyceae*) isolated from the northwestern Mediterranean Sea.

Marc Krasovec [1], Emmelien Vancaester [2,3], Stephane Rombauts [2,3], François Bucchini [2,3], Sheree Yau[1], Claire Hemon [1], Marie-Line Escande [4], Hugo Lebredonchel [1], Nigel Grimsley [1], Hervé Moreau [1], Sophie Sanchez-Brosseau [1], Klaas Vandepoele [2,3,5] & Gwenael Piganeau[1]

[1] *Sorbonne Université, CNRS, Biologie Integrative des Organismes Marins, BIOM, F-66650 Banyuls-sur-Mer, France.*
[2] *Department of Plant Biotechnology and Bioinformatics, Ghent University, Belgium.*
[3] *VIB Center for Plant Systems Biology, Ghent, Belgium.*
[4] *Sorbonne Université, CNRS, Observatoire Oceanologique de Banyuls sur mer, FR3724, F-66650 Banyuls-sur-Mer, France.*
[5] *Bioinformatics Institute Ghent, Ghent University, Belgium.*

Correspondence : gwenael.piganeau@obs-banyuls.fr

Krasovec & al (2018: 2351) described the cell structure and the nuclear mitochondrial and chloroplast genomes of a novel alga of the genus *Picochlorum* (*incertae sedis*, *Trebouxiophyceae*). As the sequence of the molecular 18S rDNA marker was markedly different from the sequence of all previously described *Picochlorum* species (Henley & al. 2014; Yamamoto & al. 2003), they proposed "*Picochlorum costavermella*" Hemon & Grimsley, *sp. nov.*, but this designation was nomenclaturally invalid as a type was not indicated.

Picochlorum costavermella Hemon & Grimsley, *sp. nov.*

Description: Non-flagellate small ovoid single cell of 1–2 µm long and 1 µm wide with a 70-nm trilaminar cell wall. Cell contains a single chloroplast and one mitochondrion. The sequence of its 18S rDNA gene is 1,791 bp in length and unique. Phylogenetic analysis using the 18S rDNA gene sequence within the *Picochlorum* genus revealed its closest relative to be *Picochlorum maculatum* found in the East Atlantic Ocean[3]. The genome is haploid, of 13.3 Mb length, containing 9,304 coding genes and has a 46.1% Guanine-Cytosine content.

Holotype: resin block with glutaraldehyde-fixed representative cells (and thus in a metabolically inactive state) from Roscoff Culture Collection strain number RCC4223 deposited at **PC** (0677382).

Type locality: estuary of the La Massane river in 2011 (42°32'36" N, 3°03'09" E, NW Mediterranean Sea, France).

Representative illustration: Krasovec & al. (2018: fig. 1C).

Habitat: Halotolerant and able to grow from 10–70 g/L of salinity.

Registration: http://phycobank.org/103832.

Representative culture: Living culture maintained in L1 medium is available from the Roscoff Culture Collection strain number RCC4223.

Distribution: *Picochlorum costavermella* 18S rDNA gene was detected in metagenomes from the Leucate lagoon (42°50'52" N, 2°59'47" E, NW Mediterranean Sea, France) and the two marine stations SOLA (42°29'30" N, 03°08'70" E, NW Mediterranean Sea, France) and MOLA (42°27'20'' N, 03°32'60" E, NW Mediterranean Sea, France).

Etymology: The species epithet is a noun in apposition derived from "Côte Vermeille" in French and "Vermillion Coast" in English, the name of the coast from where the species was isolated. As a noun, it is non-declinable.

Henley, W.J., Hironaka, J.L., Guillou, L., Buchheim, M.A., Buchheim, J.A., Fawley, M.W. & Fawley, K.P. (2004). Phylogenetic analysis of the 'Nannochloris-like' algae and diagnoses of *Picochlorum oklahomensis* gen. et sp. nov. (Trebouxiophyceae, Chlorophyta). *Phycologia* 43(6): 641–652, 15 figs, 1 table.

Krasovec, M., Vancaester, E., Rombauts, S., Bucchini, F., Yau, S., Hemon, C., Lebredonchel, H., Grimsleu, N., Moreau, H., Sanchez-Brosseau, S., Vandepoele, K. & Piganeau, G. (2018). Genome analyses of the microalga *Picochlorum* provide insights into the evolution of thermotolerance in the green lineage. *Genome Biology and Evolution* 10(9): 2347–2365, 4 figs.

Yamamoto, M., Nozaki, H., Miyazawa, Y., Koide, T. & Kawano, S. (2003). Relationship between presence of a mother cell wall and speciation in the unicellular microalga *Nannochloris* (Chlorophyta). *Journal of Phycology* 39(1): 172–184.