Table S1. Nutrients composition of the different growth media used.

Culture Media	Compositions	References
Pm medium	15 g/L NaCl, 1.7 g/L $NaNO_3$, 0.9 g/L K_2HPO_4, 7.2 g/L $MgSO_4$, $7H_2O$, 1.55 g/L $CaCl_2$, $2H_2O$ and 1 mL/L trace metal solution composed of 0.15 g/L $MnSO_4$, H_2O, 0.015 g/L $(NH_4)6Mo_7O_{24}$, $4H_2O$, 0.015 g/L $CoSO_4$, $7H_2O$, 0.05 g/L $CuSO_4$, $5H_2O$, 0.25 g/L $ZnSO_4$, $7H_2O$ and 10 g/L Fer-EDTA and 1 mL/L of vitamin solution prepared in pure water and containing 0.01 g/L Vitamin B12, 0.025 g/L Thiamin and 0.04 g/L Biotin	Soanen N, Da Silva E, Gardarin C, Michaud P, Laroche C. Improvement of exopolysaccharide production by *Porphyridium marinum*. Bioresour Technol. 2016 Aug;213:231-238. doi: 10.1016/j.biortech.2016.02.075. Epub 2016 Feb 26. PMID: 26944455.
Artificial sea water	24.53g/L of NaCl; 5.2 g/L of $MgCl_2$; ;4.09 g/L ofNa_2SO_4;1.54 g/L of $CaCl_2$, $2H_2O$; 0.695 g/L of KCL; 0.2g/L of $NaHCO_3$; 0.101 g/L of KBr; 0.027 g/L of H_3BO_3;0.42 g/L of SrCl2, $6H_2O$; 0.03 g/L of NaF.	Yeh, C. P., Tsai, K. C., & Huang, J. Y. (2020) Influence of Chloride Concentration on Stress Corrosion Cracking and Crevice Corrosion of Austenitic Stainless Steel in Saline Environments. Materials (Basel, Switzerland), 13(24), 5640. https://doi.org/10.3390/ma13245640
Standard F/2 medium	150 mg of $NaNO_3$; 10 mg of NaH_2PO_4, H_2O; 10 mg of Fe sequestrene; 30-60 mg of Na_2SiO_4, $9H_20$; Vitamins (0.2 mg of thiamine, HCL; 1 µg of biotin; 1µg of B_{12}) Trace metal (0.0196 mg of $CuSO_4$, $5H_2O$, 0.044 mg of $ZnSO_4$, $7H_2O$; 0.02 mg of $CoCl_2$, $6H_2O$; 0.360 mg $MnCl_2$, $4H_2O$; 0.0126 mg of Na_2MoO_4, $2H_2O$); Sea water (to 1 liter)	Guillard, R.R.L. and J.H. Ryther. (1962) Studies on marine planktonic diatoms I, Cyclotella nana Hustedt and Detonula confervacae (Cleve) Gran. Can. J. Microbi~8: 229-239.

Modified F/2	27 g/L of NaCl;5.6 of $MgCl_2$,6H_2O;1.12 g/L of $CaCl_2$; 1 g/L of KNO_3; 0.07 g/L of KH_2PO_4; 0.04 g/L of $NaHCO_3$, 3.22 g/L of $MgSO_4$, H_2O; 0.075 g/L of $NaNO_3$, 0.005 g/L of NaH_2PO_4, Metal Solution and Vitamin Solution.	Guillard RRL (1975) Culture of Phytoplankton for Feeding Marine Invertebrates. In: Smith WL, Chanley MH (eds) Culture of Marine Invertebrate Animals: Proceedings — 1st Conference on Culture of Marine Invertebrate Animals Greenport. Springer US, Boston, MA, pp 29–60
BG-11 medium	1.5 g/L of $NaNO_3$; 0.04g/L of K_2HPO_4, 3H_2O; 0.075 g/L of $MgSO_4$, 7H_2O; 0.002 g/L of Na_2CO_3; 0.036g/L of $CaCl_2$, 2H_2O; 0.058 g/L of Na_2SiO_3, 9H_2O; 0.001 g/L of EDTA; 0.006g/L of citric acid; 0.006 g/L of Fe citrate and 1 ml of metal solution prepared in pure water and containing 2.86 g/L of H_3BO_4; 1.81 g/L of $MnCl_2$,4H_2O; 0.222 g/L $ZnSO_4$, 7H_2O; 0.391 g/L Nn_3MoO,2H_2O; 0.079 g/L of $CuSO_4$, 5H_2O; 0.0494 g/L of $Co(NO_3)_2$, 6H_2O	Allen MM (1968) SIMPLE CONDITIONS FOR GROWTH OF UNICELLULAR BLUE-GREEN ALGAE ON PLATES. J Phycol 4:1–4. https://doi.org/10.1111/j.1529-8817.1968.tb04667.x

Table S2. Partial sequence of 18S rRNA gene of the isolated *Rhodomonas* sp.

18S partial sequence
>ATTCAAAATCCAGGATATCGTTTATTTGACGGTCCAAAAAACTACATGGATAACCGTAGTATTCTACTGCTA ATACATGCCCAAAGGTCCGACTTACGAAGGACTGTATTTATTAGATTCCAAGCCACATTTCTGGTGATTCATA ATAACTTCTCGAACCACAGCCCTCGCGGTGGTGGTGATTCATTCAAATTTCTGCCCTATCAACTTTCGATGGT AGGATAGAGGCCTACCATGGTTTTAACGGGTGACGGAAAATTAGGGTTCGATTCCGGAGAGGGAGCCTGA AAGACGGCTACCACATCCAAGGAAGGCAGCAGGCGCGCAATTACCCAATCCCGACTCGGGGGAGGTAGTG ACAATAAATAACATCCGGGGCTAACCCCTTGTTATTGGATGACACCATTTAAATCCCTTTCCGAGAACAATTA AGGGCAAGTCTGGTGCCGCACCCGCGGAATCCCGCTCCAAAAGCGTATATAAAGTTGTCGCATTAAAAACT CGTATCCGATGCCGGCTCGGGAGGTGCCGCCTTGGTCGAAGGCTGCCGGTCCTATCTCCTGGGATCCTATC ACTTAACTGAGGAAGGGACCAGGCTTTCTTTGAAAATTAAATGTCAGCGGCCACCTGGACCTACCTGGAAA GGAAAGATTTTGTCTATTGTGTTGGGCCCAATAGTAACGGACGTTGGCCTATTGTGTGCAAGTAATCTGATA CGAAAACTTCGCAACTCCGAGGTTCTAGTACACATGATGGTAGAGAACATCCTGAGTATCATAATGGGCAA GATAGGACCTGGGGCCTGGGCGTCGAACCCATTTGTGGTCCTAGTAACTAGCACATAA