

Interactive comment on “Ecophysiological characteristics of red, green and brown strains of the Baltic picocyanobacterium *Synechococcus* sp. – a laboratory study” by Sylwia Śliwińska-Wilczewska et al.

Anonymous Referee #2

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This article is about the physiological characterisation of three *Synechococcus* strains from the Baltic sea. Overall the experiments seem to be well conducted, although it fails to explain the relevance of such study. The general conclusions should be restricted to the results of the study only. The text can be generally understood, however there are some confusing sentences and paragraphs that perhaps could be improved by proof-reading. - The three strains characterised in this paper presented different pigmentation -it would be useful to know whether those strains are clade representatives (is that information available?), how phylogenetically similar they are or any other reason

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why they were chosen for the study (are these bloom-forming strains?). - The authors should be consistent when referring to parameters and strains, for example strains are sometimes mentioned by their name and other by their pigment. - is salinity measured in PSU (practical salinity units)? how is that range (3 to 18) compared to Baltic sea water salinity? - are the temperature and PAR ranges representative of the Baltic sea environment? - relevant bibliography is absent from the introduction (e.g. Flombaum et al. 2013, PNAS, and Six et al. 2007, Genome Biol.) - line 43: please include a reference that puts *Synechococcus* as a major bloom contributor - line 56: Sorokin and Zakusina (2010) studied the bloom in Comacchio lagoon, it is an overclaim to say it is a phenomenon in Europe - paragraph from line 59 is repetitive and does not give much information, please consider re-phrasing -The methods section should be more specific. For example, how was the media prepared in order to change the salinity? where any of the components in f/2 media replaced by Tropic marine synthetic sea salt or was it added on top of it? What pore-size filters were used? - please state xg rather than rpm (or else specify rotor/centrifuge used) - growth rate has to be measured during exponential growth. The parameters here calculated only report yield and not growth rate. - line 131: please put reference or protocol for Chl a and Car extraction - please change "absorption" for "absorbance" - line 147: it is not clear whether the filter or filtrate was used - The results section describes individual strains, but the figures are difficult to interpret. Please consider reviewing labels and legends. - number of cells and growth should not be used interchangeably - it is not clear what a "positive" or "negative" impact means - The "pigment content" section is not clear, please specify in the methods section - Table 1 is very difficult to interpret -how were those parameters measured? - line 401: what does it mean growth intensity? - line 458: how could these variables be related to the natural conditions in different regions of the Baltic sea? - lines 471-473: unclear, please rephrase or delete

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