



# COMPLETE CHLOROPLAST GENOME OF THE DIATOM *SKELETONEMA PSEUDOCOSTATUM* FROM THE WESTERN MEDITERRANEAN COAST OF ALGERIA

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## INTRODUCTION

*Skeletonema* is a genus of centric, planktonic diatoms that belongs to the Thalassiosirales. Members of this genus are distributed worldwide and can produce massive blooms. Some species are commonly used in aquaculture for feeding bivalves and crustaceans and can also serve as models in ecotoxicological studies.

## MATERIAL AND METHODS

❖ The diatom species *Skeletonema pseudocostatum* was isolated from the Western Mediterranean coast of Algeria and grown successfully.

❖ Total cellular DNA was extracted from a scaled-up culture and used for sequencing the plastid genome.

❖ A total of ca. 60 million 100 bp paired-end reads were assembled using SPAdes 3.12.0 (Bankevich et al. 2012), and the contig corresponding to the chloroplast genome was annotated using the findORF tools developed in Laval University. The map was obtained with OGDRAW.

❖ Maximum likelihood phylogeny was conducted using RAxML version 8 using all concatenated photosystem I and II genes for the diatoms whose chloroplastic genome was available.

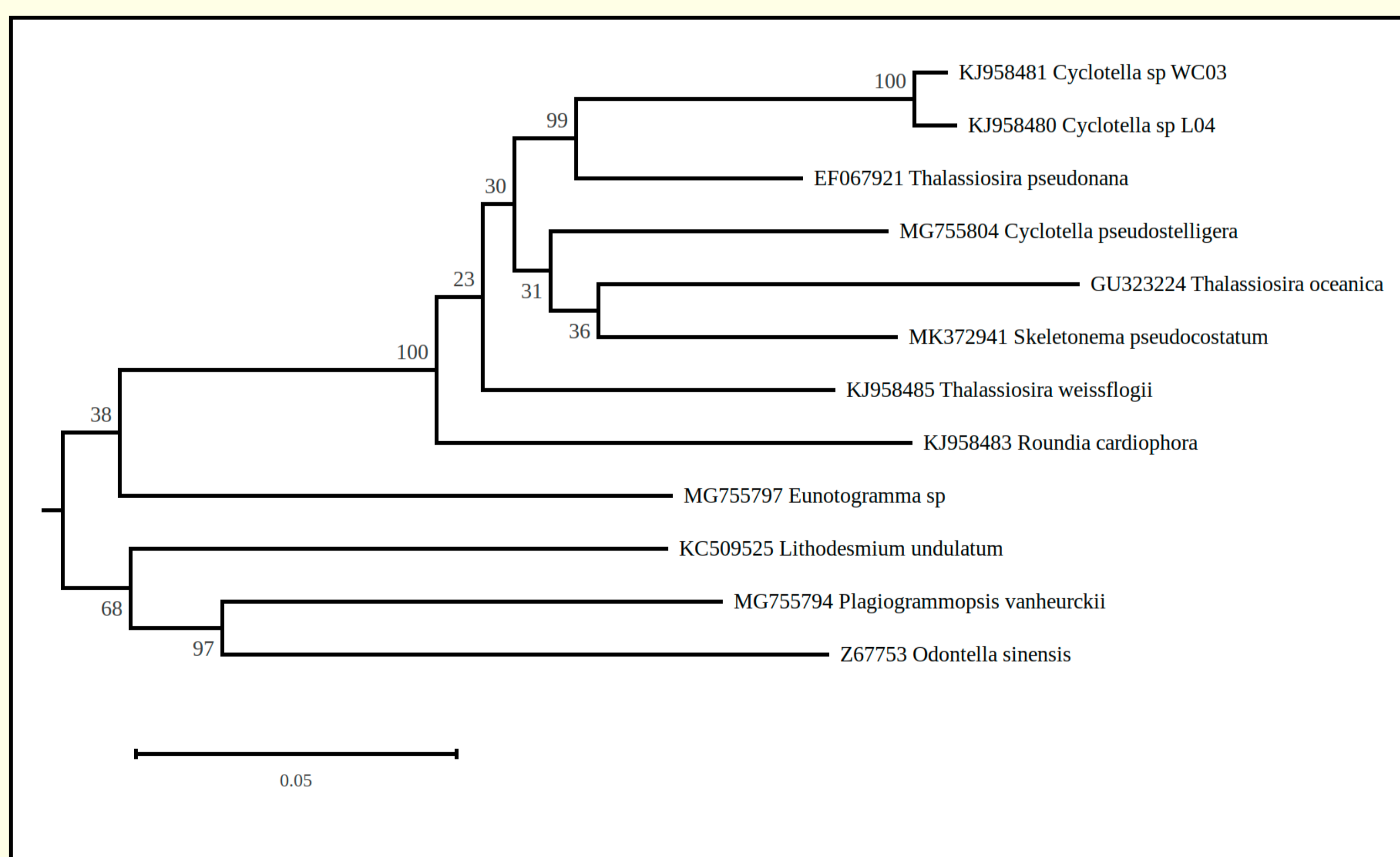


Sampling site: Cap Falcon

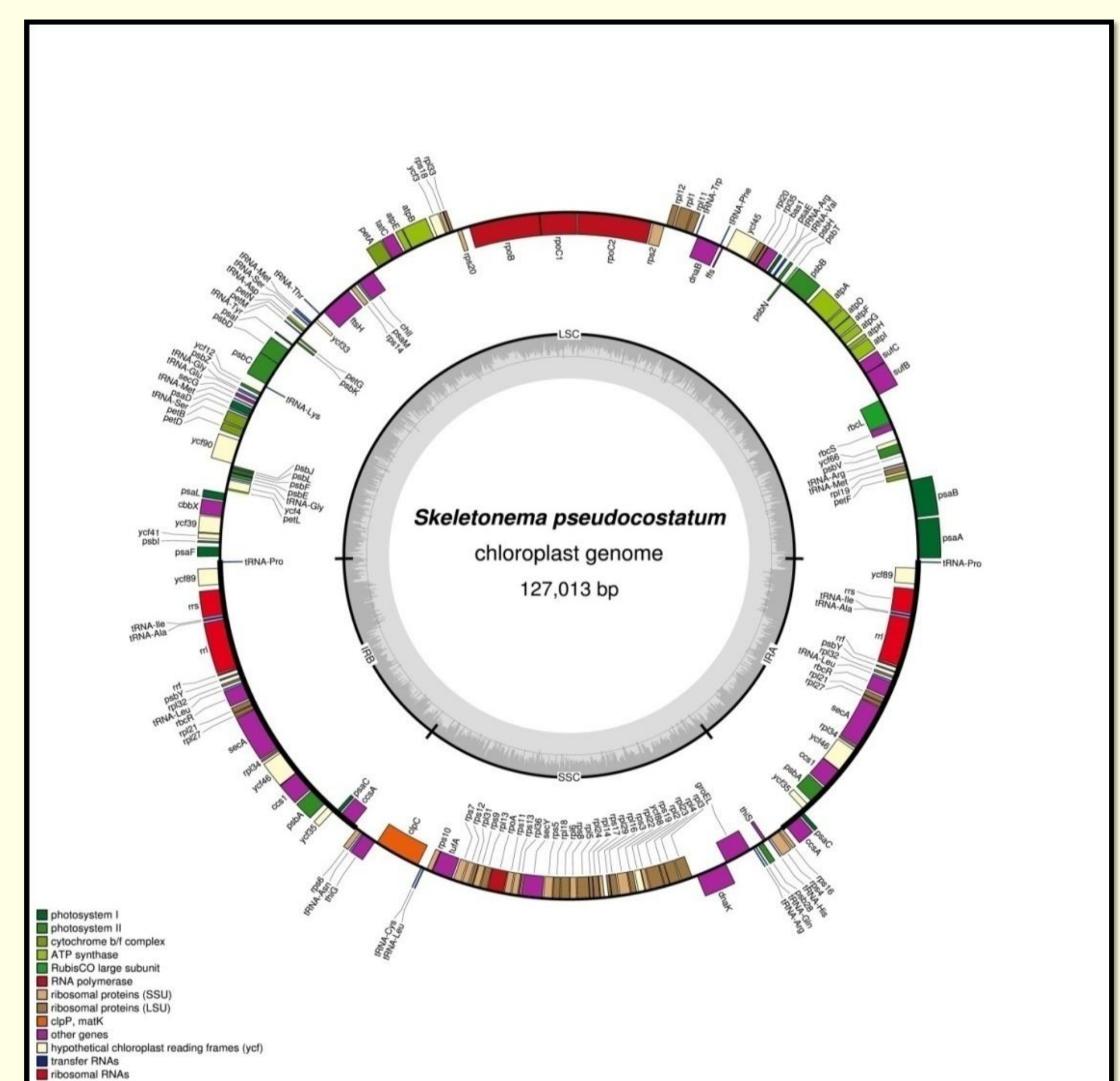
## RESULTS

❖ The *Skeletonema pseudocostatum* chloroplast genome (GenBank: MK372941) is 127,013 bp in size and contains a large inverted repeat sequence of 18,240 bp that encodes 21 genes ordered as follows: *trnP(ugg)*, *ycf89*, *rrs*, *trnL(gau)*, *trnA(ugc)*, *rrl*, *rfl*, *psbY*, *rpl32*, *trnL(uag)*, *rbcR*, *rpl21*, *rpl27*, *secA*, *rpl34*, *ycf46*, *ccs1*, *psbA*, *ycf35*, *psaC* and *ccsA*.

❖ The gene content and gene organization of the inverted repeat are similar to those observed in other members of Thalassiosirales (Sabir et al. 2014). The *rbcL* gene of the analyzed strain proved to be 100% identical to that reported for the *S. pseudocostatum* CCAP1077/7 strain (GenBank: DQ514819), which was also isolated from the North African shores (Egypt).



Maximum Likelihood phylogeny of *S. pseudocostatum* based on concatenated photosystem I and II genes (subtree containing centric diatoms displayed)



Map of the chloroplast genome of *S. pseudocostatum*

## REFERENCES

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- Sabir JS, Yu M, Ashworth MP, Baeshen NA, Baeshen MN, Bahieldin A, Theriot EC, Jansen RK. 2014. Conserved gene order and expanded inverted repeats characterize plastid genomes of Thalassiosirales. *PLoS One.* 9:e107854.

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