Title Abstract:
LARGE SPATIAL SCALE METABARCODE ANALYSIS OF ZOOPLANKTON OF THE WESTERN MEDITERRANEAN SEA

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Abstract:
Zooplankton play a key role in regulating the climate related CO_2 cycle and seafood production and are highly sensitive to climate change and other stressors. The EU project OCEAN-CERTAIN is investigating the impact of climatic and non-climatic stressors on the whole planktonic food web, the associated biological pump and the important natural and socio-economic feedback mechanisms. Within the framework of this project, CNR-ISMAR carried out a large scale oceanographic cruise in summer 2015 in the Western Mediterranean Sea. Here we discuss the biodiversity emerged from 32 selected sampling stations distributed along transects crossing all the major regional sub basins representative of different oceanographic conditions, from coastal eutrophic boundary currents to the open, oligotrophic ocean. Samples were collected by vertical net hauls, from 0 to 500 m depth, using an Indian Ocean Standard Net (200 μm mesh). We applied metagenetic analysis using the PGM Ion Torrent technology and targeting highly variable fragments of the mtDNA cytochrome oxidase subunit I (COI) gene. A multisciplinary approach, integrating zooplankton distribution (in terms of genetics and morphology) and oceanographic conditions and processes, is investigated along with the potential applicative implementation of this large dataset. Limits of this metagenetic approach were mainly due to the fact that several known species from the Mediterranean are not yet barcoded.

Keywords: Mediterranean Sea, metabarcoding, zooplankton

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