

PIGMENTS, SIZE AND DISTRIBUTION
OF *SYNECHOCOCCUS* SPP. (CYANOBACTERIA) IN THE BLACK SEA

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ABSTRACT

Pigments, size and distribution of Phycoerythrin-containing unicellular cyanobacteria *Synechococcus* spp. within the euphotic zone are studied for the first time during April-May, 1994 and September, 1996 in the western and southern Black Sea by epifluorescence microscopy and flow-cytometry. Surface spatial distribution of *Synechococcus* revealed that cells were much more abundant in offshore waters than the near coastal regions under direct influence of Danube river. Cells at chlorophyll maximum layer (based on in-situ fluorometer readings) floresce brighter and longer than the ones at surface and lower depths. Spectral properties of chromophore pigment types of total 64 isolates from different depths down to lower layer of euphotic zone (~60 meters) in southern Black Sea coast revealed that, all have type 2 Phycoerythrobilin in common, lacking phycourobilin. In vivo fluorescence emission maximas for the phycoerythrobilin were about the same (~578 nm) for all isolates. All isolates examined showed in vivo absorption maxima at between 435 and 442 nm and at about 681 nm due to Chl-a. Based on the flow cytometer mean forward light scatter data for size distribution it could be concluded that cells at surface mixed layer (0-10 meters) were larger in size than the cells at lower depths (20-60 meters). Time versus cell count plots have shown that cells of cyanobacterium *Synechococcus* spp. are under grazing pressure starting from midnight till noon and begin slowly to rebuild its population in the afternoon via dividing throughout the evening.

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