

THE ROLE OF CAROTENOIDS IN SUPPRESSION OF OXIGEN REACTIVE SPECIES IN RED ALGA *PORPHYRIDIUM CRUENTUM*

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Reaction of any living organisms, including the unicellular in case of xenobiotic interventions and life conditions modification is expressed in modifying of antioxidant status, which tends to maintain homeostasis and elimination of induced oxidative stress status. Antioxidant components of the living cell are the first who react to any changes, so it is possible to determine the early changes in normal reaction and requires the further development of events that will take place. In the experiments with oxidative stress, microalga *Porphyridium cruentum* was grown in conditions of cultural medium supply with compounds of Fe (III) with the Schiff base and dioximes, in concentration of 20 mg / l. The production of biomass for the majority of samples was under the blank limit with 20-40% (Figure 1). As result is obvious the toxic effect of the tested compounds in used concentrations.

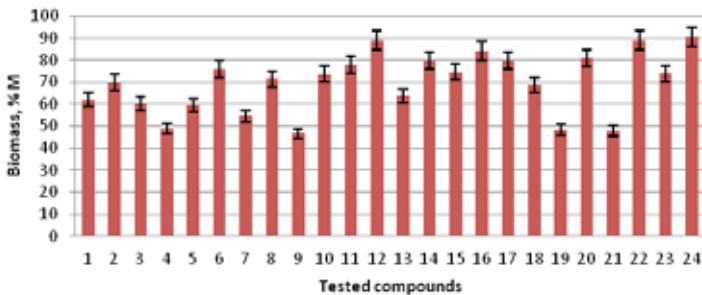


Fig. 2. Production of biomass (% M) of *P. cruentum*, obtained under the cultivation in presence of Fe(III) with Schiff bases compounds and dioximes, in concentration 20 mg/l

In conditions of induced oxidative stress photosynthetic organisms, producers of carotenoids, synthesize these pigments as an active antioxidant that is involved directly in the process of radical annihilation. For porphyridium, the carotene is a functional pigment that is found in biomass in small quantities. In the results of experiments was determined the massive accumulation of carotene in biomass (Fig. 2).

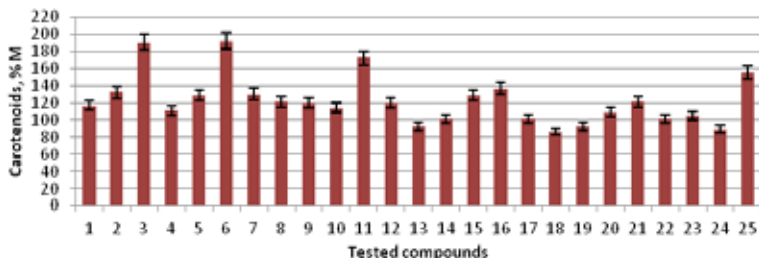


Fig. 2. The containing of carotenoids (abs 450 nm) in *P. cruentum* biomass, obtained under the cultivation in presence of Fe(III) with Schiff bases compounds and dioximes, in concentration 20 mg/l

For all tested compounds specific carotene sorption values exceeds the control sample for 20-40%. Therefore porphyridium culture survived in biosynthetic capacity limit, intensifying the processes of carotenoid accumulation, which were actively involved in the annihilation of active radicals, resulting from metabolic processes.