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Abstract

This study deals with the effect of zinc oxide nanoparticles on halophyte from the genus *Salicornia*. The presence of ZnO nanoparticles (100 and 1000 mg/L) in the solid culture medium resulted in the negative effects on plant growth in the concentration-dependent manner. The shoot length of plant cultivated with 1000 mg/L ZnO NPs decreased by more than 50 % compared to non-treated plants. The phytotoxicity was associated with the release of free zinc(II) ions, which was determined by atomic absorption spectroscopy and fluorescence microscopy. Another mechanism involved in ZnO NPs phytotoxicity was closely connected with generation of reactive oxygen species, which was accompanied by changes in activities and amounts of antioxidant enzymes. Histochemical evaluation showed that ROS were presented also in the shoot of plant, which was not in direct contact with NPs. The