

عنوان مقاله:

Antioxidative Responses of Eucalyptus camaldulensis to Different Concentrations of Copper

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خلاصه مقاله:

Anthropogenic activities have caused important increases in soil Cu levels not only in urban areas but also in croplands. This study was designed to find out the effect of different concentration of copper on physiological and biochemical changes in Eucalyptus camaldulensis seedlings. Seeds of Eucalyptus camaldulensis were grown in marble chips and irrigated with nutrient solution mixed with copper (control, 5, 10, 20 mM) for 10 months and after this period, leaf, stem and root tissues were harvested. Copper content was determined by ICP-OES and some characters such as proline, pigments, catalase (CAT), peroxidase (POX), superoxid desmotase (SOD) and weight of different tissues were measured. The concentrations of copper in root tissue were higher than leaf and stem tissues and stem concentration was lower than the concentration of leaf. The proline content was raised by increasing metal concentrations, but the content of pigments decreased. The activity of antioxidative enzymes, CAT, POX and SOD positively increased up to 10 mM Cu treatment and then slightly decreased in both leaf and root tissues. These results suggest that eucalypts have efficient mechanism to tolerate Cu excess, as evidenced by accumulating of osmoprotectants and antioxidative enzymes. Also eucalypts under stress can accumulate copper four times more than the control treatment without serious symptoms in growth, therefore it is a feasible plant for hyperaccumulation of copper and declining the environmental pollution.

کلمات کلیدی:

Antioxidative enzymes, Chlorophyll, Cu, Eucalyptus camaldulensis, Proline

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