

Physiological responses of *Lupinus luteus* to different copper concentrations

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Abstract

Yellow lupin (*Lupinus luteus* L.) plants were grown in hydroponic solution for 15 d under different copper concentrations (0.1, 0.5, 1.0, 10, 25 and 50 μM). With increasing Cu concentration total biomass was not affected, leaf area slightly decreased, while chlorophyll content decreased considerably. Cu content increased significantly both in roots and in leaves, but the contents of other ions were only slightly affected at the highest Cu concentration (Mn content decreased both in roots and in leaves, P content decreased only in leaves and Zn content increased in roots). Superoxide dismutase (SOD) activity increased up to day 7 after copper application. Peroxidase (GPOD) and polyphenol oxidase (PPO) activities also increased, while catalase (CAT) activity remained constant.

Additional key words: yellow lupin, oxidative stress, heavy metal toxicity.

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Abbreviations: CAT - catalase; d.m. - dry mass; f.m. - fresh mass; GPOD - guaiacol peroxidase; PPO - polyphenol oxidase; SOD - superoxide dismutase.

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