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# Czech J. Food Sci.

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## Treatment on Molecular Changes in Root Tips of Lupinus Iuteus L.

Czech J. Food Sci., 27 (2009): S386-S389

Heavy metals cause changes either in the pattern of cellular stress protein expression or in the enzyme activity. In the present study, the effect of three different toxic element treatments (heavy metals Pb, Cd and metaloid As) on small heat shock proteins synthesis as well as the superoxide dismutase (SOD) activity in root tips of yellow lupine (Lupinus *luteus* L., varieta Juno) was studied. Solutions with four different concentrations from each salt  $[Pb(NO_3)_2,$  $Cd(NO_3)_2$  and  $As_2O_3$ ] were applied to achieve ascending oxidative stress conditions in comparison to unstressed, water treated, control variant. SDS-PAGE of crude protein extracts from treated variants showed enhanced protein

the control one. The increased proteosynthetic activity indicates the possible participation of the low molecular weight proteins in the cell defence reactions. Similar increasing tendency was observed in the case of SOD enzymatic activity. Presence of heavy metals resulted in immediate elevated enzymatic response. Our results showed that methods applied in this study can be used for detection of oxidative stress in plants.

#### **Keywords:**

oxidative stress; heavy metals; superoxid dismutase; lupine

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