

Title Effect of cadmium on nitrogen accumulation and activities of nitrogen assimilation enzymes in pakchoi

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Abstract

The plants of two cultivars (*cv.*Huaing 1 and *cv.* Hangyoudong) of pakchoi (*Brassica campestris* L. *ssp.* *Chinensis*) 0 $\text{mg}\cdot\text{L}^{-1}$ and 10 $\text{mg}\cdot\text{L}^{-1}$ cadmium (Cd) to determine the effects of Cd on the growth, N accumulation and activities of the nitrogen assimilation enzymes Cd strongly inhibited plant growth and significantly decreased chlorophyll content and transpiration rate of both cultivars Cd toxic symptoms with smaller chlorosis leaves and brown roots were observed Cd caused a significant reduction of N content in shoots of both cultivars Cd significantly increased N content in *cv.* Huing 1 root, but decreased N content in *cv.* Hangyoudong root. N accumulation in shoots and roots of both cultivars was dramatically reduced by Cd. NO_3 -N concentration was decreased and NH_4 -N concentration was Increased in the leaves of both cultivars exposed to Cd. The activities of nitrate reductase (NR, EC 1.6.6.1), glutamine synthase (GS, EC, 6.3.1.2) in both cultivars and glutamate synthase (GOGAT, 1.4.7.14) in *cv.* Hangyoudong were significantly decreased, but glutamate dehydrogenase (GDH, EC 1.4.1.2) activity of both cultivars was significantly enhanced when exposed to 10 $\text{mg}\cdot\text{L}^{-1}$.