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Centre for Agricultural Sciences
Faculty of Agriculture**



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**From ideas to implementation
Challenge and Practice of Plant Protection in the beginning of the 21st
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PROCEEDINGS

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Debrecen

**ACUTE EFFECT OF CADMIUM ON PHOSPHATASE
ACTIVITY IN THE MIDGUT OF GYPSY MOTH
LARVAE
(Summary)**

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The effects of two cadmium concentrations (10 and 30 gCd/g dry food) on larval mass and midgut phosphatase activity (total acid, lysosomal and alkaline) as well as their plasticities were investigated in the 4th instar larvae of the gypsy moth (*Lymantria dispar* L.) under acute three day exposure to cadmium. The analysis was performed on 20 egg masses (5 larvae/egg mass/treatment). It was found that acute exposure to lower cadmium concentration had inhibitory effect only on lysosomal phosphatase. Activity of alkaline, total acid phosphatase and larval mass remain at the control value. Cadmium concentration of 30 μ gCd/g significantly decreased larval mass, and activity of alkaline and lysosomal phosphatases. Activity of alkaline phosphatase had greater plasticity at 30 than 10 μ gCd/g while other traits did not show significant difference in phenotypic plasticity and its variability between the two cadmium concentrations. Acute exposure to both cadmium concentrations increased the variance for larval mass while variability of phosphatase activities were not affected. significant correlations between control group and treatments were not observed while correlations between the environments with different cadmium concentrations were significant only for alkaline phosphatase activity. As midgut homogenates were pulled within each egg mass (full-sib family), the change in a trait variance represents the change in genetic diversity. Additionally, the absence of significant correlations among environments point to an independent genetic determination of a trait in different environments.