

Molecular Responses of *Pardosa astrigera* Exposed to Cadmium by Dietary Intake

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Terrestrial arachnids run various detoxification mechanisms to protect individuals from toxicity when exposed to water or soil contaminated with excessive heavy metals. Some terrestrial arachnids are known to accumulate heavy metals in their midgut diverticulae and have been used as biomarkers. To investigate the molecular responses of *Pardosa astrigera*, a representative spider species in Korea, when exposed to cadmium (Cd), adult *P. astrigera* individuals were collected from a non-polluted region (Baran streamlet) and exposed to Cd by feeding fruit flies coated with 10 mM of CdCl₂ solution. There were no significant differences of body weight between Cd-treated and untreated groups. After treatment for 60 days, soluble proteins were extracted from midgut diverticulae of Cd-treated and untreated individuals and analyzed using 2-D PAGE. A total of 6 protein spots showing differential expression patterns was identified between the 2 groups, and analyzed with a LC-ESI tandem MS system. Among them, one spot (pI 8.58, MW 101.6 kDa) was identified as a putative metalloendopeptidase and the other (pI 6.23, MW 23.3 kDa) a cytochrome c oxidase subunit 1. The metalloendopeptidase was overexpressed whereas the cytochrome c oxidase underexpressed in Cd-treated individuals. Quantitative relationships between the expression patterns of these tentative biomarker proteins and the level of Cd exposure are under investigation.