

Z405 **Some Biochemical Properties of Paraoxonase from
the Earthworm, *Eisenia andrei***

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The some biochemical properties of paraoxonase system in the earthworm which is thought to be able to effectively hydrolyze organophosphorous pesticides applied on soil, was investigated. The native molecular weight of paraoxonase determined by gel filtration chromatography appeared to be 260 kDa and its isoelectric point was estimated at approximately 4.0. The specific activity of paraoxonase in the epithelial tissue of intestine was detected much higher than those of chloragogue and extra-gut tissues, indicating its polarity toward intestinal epithelium. Double-reciprocal plots of activity vs concentration of paraoxon yielded an apparent Km and Vmax of 2.4 ± 0.6 mM and 4.8 ± 0.6 nM min⁻¹mg⁻¹ at pH 8.5, respectively. This activity was completely inhibited by 0.5mM of EGTA and 2mM of EDTA, suggesting that Ca²⁺ ion is essential to maintain its activity in this animal species. In addition, paraoxonase activity of *E. andrei* appeared to be sensitive to sulfhydryl reagents such as dithiothreitol and β -mercaptoethanol. Paraoxonase system reported here is different to bacterial paraoxonase derived from *Pseudomonas diminuta*.

Z406 **Iron Intake Rapidly Influences Ferritin**

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Iron is a key element in multiple enzyme pathways, but its transport and homeostasis in the body must be carefully regulated to avoid toxic consequences of too much iron in the tissues.

In this study, we examined the change of iron content in ferritin, mitochondria and microsome within brain, heart, liver and lung by injecting 9.8mg of iron per 200g of rat body weight for one week. ~~The increase of iron was higher in~~ mitochondria than microsome. The ferritin content was increased in brain, liver, and lung, while there is no change of the content of iron, ferritin in heart.

The degree of protein oxidation resulting from oxidative damage seems to be proportional to iron content.

We also determine the lipid peroxidation and reactive oxygen speices as an index of iron toxicity.