# Consideration of Instantaneous Rate of Population Increase to Assess the Three Kinds of Heavymetal Effect on the Soil Dwelling Collembolan *Paronychiurus kimi*

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In spite of gaining popularity about the ecotoxicology, few studies have been done about the toxicity of toxicants toward terrestrial invertebrates in Korea. Therefore, there are needs to use relevant species for estimating the soil environmental risk assessment of Korea. In this experiment, *Paronychiurus kimi* was introduced because of their abundant in Korean paddy soil, compared to international standard species *Folsomia candida*. The 7 days LC50 of cadmium, mercury and lead for *P. kimi* were 1171.22, 3.96 (3.35-4.53), 1154.76 (864.13-1458.41) mg/kg, respectively. Based on the reproduction, 28 days EC50 of cadmium, mercury and lead for *P. kimi* were 47.47 (9.42-240.62), 0.23 (0.01-0.52), 428.36 (343.78-528.48) mg/kg, respectively. And the *ri* of cadmium, mercury and lead for *P. kimi* were 159.29, 1.75, 1459.32 mg/kg, respectively. Although there are substantial ecotoxicological studies in *F. candida*, it's not available in Korean soil, because of their rarity in Korean paddy soil. Thus directly introducing toxicological data, which were obtained using *F. candida* might be less ecologically relevant. According to this study, observed LC50, EC50, and *ri* =0 were far more lower than *F. candida*. Therefore the local abundant species *P. kimi* was more relevant for assessment of Korean soil environment.