

Thesis Title	Acute Toxicity, Bioaccumulation and Effects of Lead on the Histology of Snails, <i>Filopaludina</i> ( <i>Siamopaludina</i> ) <i>M. martensi</i> (Frauenfeldt)
Name	Somboon Kaewsawangsap
Degree	Master of Science (Environmental Biology)
Thesis Supervisory Committee	Maleeya Kruatrachue, Ph.D. Yaowaluk Chitramvong, Ph.D. Siriwan Jantataeme, Ph.D. Prapee Sretarugsa, Ph.D.
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### ABSTRACT

Acute lead toxicity studies were carried out on the snails, *Filopaludina* (*Siamopaludina*) *m. martensi* (Frauenfeldt). The 96-hour static bioassay was conducted in order to estimate the median lethal concentration (LC<sub>50</sub>). The snails were exposed to lead nitrate [Pb(NO<sub>3</sub>)<sub>2</sub>]. The LC<sub>50</sub> for 24, 48, 72 and 96 hours were 319.47, 271.03, 235.35 and 191.69 mg/l, respectively. The percentage mortality of lead on these snails increased with increasing concentration and exposure time. In the bioaccumulation experiment, the snails were exposed to 19.17 mg/l (10% 96-hr LC<sub>50</sub>) of lead nitrate for 42 days

exposure time and 30 days recovery time. During the 42-day exposure period, lead uptake occurred in different organs; with the greatest uptake in the intestine, and lesser in prostate gland, digestive gland, ovary with albumen gland, testis, stomach and cerebral ganglia. After terminating the lead supply, within 30 days recovery period, lead concentration in all organs decreased. Histological changes were examined in the organs of the digestive and nervous systems of the snails exposed to lead at the 96-hr LC<sub>50</sub> and 96-hr LC<sub>80</sub> concentrations. The general tissue response towards lead toxicity was the destruction of the epithelial lining and connective tissue layer of the gastrointestinal tract such as loss of cilia, increasing number of mucus cells and damage of the epithelial cells. In the cerebral ganglia of the snails treated with lead at the LC<sub>80</sub> concentration, degeneration of nerve cells was apparent.