

Onpawee Kulsirisretrakul 2014: Effects of Silver Nanoparticles and Silver Nitrate on Seed Germination and Growth of Mung Bean (*Vigna radiata* (L.) R. Wilczek) cv. Chai Nat 72. Master of Science (Environmental Technology and Management), Major Field: Environmental Technology and Management, Department of Environmental Technology and Management. Thesis Advisor: Associate Professor Tunlawit Satapanajaru, Ph.D. 82 pages.

This research was to study the effects of silver nanoparticles (AgNPs) and silver nitrate (AgNO<sub>3</sub>) on seed germination and growth of mung bean (*Vigna radiata* (L.) R. Wilczek) cv. Chai Nat 72. The results of the test of seed germination from seeds soaked in distilled water, AgNPs (1-2000 mg/L) and AgNO<sub>3</sub> (1-30 mg/L) had shown that the germination index decreased as the concentrations of AgNPs and AgNO<sub>3</sub> increased. In addition, seed germination, and morphology of mung bean seedling were more affected by AgNO<sub>3</sub>. The test of growth of mung bean from seeds soaked in distilled water or AgNPs (30-200 mg/L) for 24 hours was performed for 65 days. The results indicated that the growth of mung bean from seeds soaked in AgNPs trended to decrease in the treatments that mung beans were planted by seeds soaked at higher concentration. Moreover, the changed of morphology, decrease of biomass and the maximum accumulation of silver were found in the mung bean root. The test of the growth of mung bean planted in sand and sand mixed with AgNPs or AgNO<sub>3</sub> (0.5-15 mg/kg) was done. The results showed that the growth of mung bean decreased at higher concentration of AgNPs and AgNO<sub>3</sub>. The maximum silver accumulation was found in the mung bean root in both treatments.

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