

Thesis Title	Effects of Acid Rain and Soil Fertility on Caesium-134 and Cobalt-60 Uptake by Paragrass
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Candidate	Miss Prapaipid Chairattanamanokorn
Supervisor	Dr. Narumon Withers Harvey
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ABSTRACT

This thesis presents a study on the effects of rain acidity and application of potassium fertilizer on the uptake of soil contaminating ^{134}Cs and ^{60}Co by Paragrass (*Purpurascens sp.*). It was a greenhouse experiment. Clayey soil was homogeneously contaminated with ^{134}Cs and ^{60}Co and rhizomes of Paragrass were grown in pots for 45 days. During this time an artificial rain was applied manually at 500 ml/day. The pH of the rain was varied at 4, 5, and 6, respectively. Soil-to-Plant Transfer Factors (TF), translocation of radionuclides and $^{134}\text{Cs}:\text{K}$ ratios were calculated for root, rhizome and shoot parts. It was found that acidity of the rain did not influence these parameters of ^{134}Cs and ^{60}Co in all sections of Paragrass. Application of K-fertilizer significantly decreased the TF values of ^{134}Cs and $^{134}\text{Cs}:\text{K}$, but only in the shoots. Radionuclide uptake increased with the plant age. Translocation of radionuclides within the plants, presented by the TF values, was found to be root > rhizome > shoot. The shoots accumulated more ^{134}Cs than ^{60}Co but the roots accumulated less ^{134}Cs than ^{60}Co .

Keywords : Root uptake / Acid rain / Potassium fertilizer / Caesium-134 / Cobalt-60 / Paragrass / Transfer factor / Translocation