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Impacts of earthworm, *Pheretima* (*Amynthas*) *cornosa* on nutrient loss from soil in microcosm experiment

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Earthworms influence not only on rates of decomposition and nutrient release, but also water flow in soil due to burrow and aggregate formation. Nutrient loss is one major problem in agroecosystem because of depletion of plant nutrients and groundwater contamination. We investigated earthworm impacts on nutrient loss from soil using microcosm.

Microcosms were set consisted from tube filled by. 1 kg low Humic Andosol and litter of white clover, *Trifolium repens* L, and grass, *Eremochloa ophiuroides.* Four treatment were established (each in 7 replicates): planted *Trifolium repens* L. and non planted both either with or without one species of earthworm, *Pheretima* (*Amynthas*) *cornosa* . Experiment was cultivated in a growth chamber at 12/12h L/D 22/18^{o}C during 153 days. Fertilizers were applied by solution 76 days after beginning of the experiment. Nutrient leaching, plant biomass, CEC of soil and earthworm cast, AEC of soil, nutrient content in soil, nitrogen content of plant, microbial biomass, and litter were measured.

Some earthworm died after fertilizer application and there was no earthworm at the end of the experiment. Before fertilizer application leaching was low and nitrogen leaching was higher from earthworm treatment. After the nutrient application leaching increased and no worm treatments showed significantly higher leaching of nitrogen, calcium, magnesium than worm ones. There were no difference in amount of nitrogen immobilization into plant and microbial biomass. Earthworm brought higher nitrogen

stock soil than control soil. Earthworm cast significantly ($p<0.01$) increased CEC and amount of gravitational water increased in earthworm presence. In this experiment preferential flow occur, due to of this surplus of water after irrigation can quickly leave the soil and opportunity that irrigation water leach nutrients was reduced in earthworm treatment.