

Role of *Leucaena glauca* Leaf litter on the Growth and Reproduction of Earthworms *Eisenia fetida* Savigny

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ABSTRACT

The growth (biomass) and reproduction (cocoon production and hatchlings) of earthworms Eisenia fetida Savigny were observed in leguminous tree Leucaena glauca leaf litter, clay loam soil and cowdung mixture (w/w) in different proportions. They were T₁ (cowdung alone), T₂ (1 leaf litter: 1 clay loam soil), T₃ (1 leaf litter: 1 cowdung), T₄ (2 leaf litter: 3 cowdung), and T₅ (3 leaf litter: 2 cowdung). The observations were made on 15th, 30th and 45th day. Growth and reproduction of earthworms increased significantly in all proportions but highest in T₄. The macro – nutrients content was also higher in T₄. The rich nitrogen content of the leaf litter mixed with cowdung might be the reason for supporting the growth, cocoon production and hatchlings production. The results are discussed with nutrient availability of substrates.

Key words: Biomass; cocoon; *Eisenia fetida*; hatchability rate; leaf litter; macro-nutrients

INTRODUCTION

Earthworms constitute a large part of biomass in the soil. They have been recognized as soil movers and conditioners. The earthworms have beneficial physical, chemical and biological effects on soil and many researchers have documented that these effects can increase the plant growth and crop yield (Edwards and Bohlen, 1996). In an integrated nutrient management approach, the chemical fertilizer is substituted by compost, the well - decomposed organic manure prepared from crop residues, weeds, lawn mowings, tree leaves, kitchen refuges, animal excreta and city garbages (Sannigrahi and Chakraborty, 2000). In uncultivated soil, burrows of earthworms provide channels for root growth lined with more available mineral nutrients than the surrounding soil (Edwards and Lofty, 1980). Earthworms increase soil-air volume. Soils with earthworms drain water 4 to 10 times faster than soil without earthworms.