

# EFFECTS OF PIG SLURRY APPLICATION ON PLANT GROWTH AND MICROBIAL COMMUNITY ABUNDANCE

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## **Abstract**

The use of pig slurry as an alternative source of soil nutrients to inorganic fertilizers has grown tremendously over the past few years. This study focused on determining the effect of the use of the pig slurry on the general plant growth. It also determined the effect the slurry has on soil microbial communities. The study site was JKUAT farm from which soil samples was collected. The slurry was obtained from a local farmer within Juja. The experiment was carried out in a greenhouse. *Solanum nigrum* (managu) was grown and used to determine growth parameters (height, biomass, and leaf count). The study involved obtaining soil samples from the farm. The soil was the tested for its nutrient composition (nitrogen and phosphorus). The slurry was applied and the plant grown over a period of one month on the soil with pig slurry. Controls used were soil treated with DAP fertilizer and plain soil. During the one month, growth parameters were determined (plant height and leaf count). After the one month, soil nutrient composition was determined as well as microbial community counts through culturing. The results of the experiment showed significant difference in height ( $p=0.000095$ ) at day 28, leaf count ( $p=0.00173$ ) and the biomass of the *Solanum nigrum* plants was not significantly difference ( $p=0.705$ ) in all the treatments. The bacterial colonies increased in soil treated with pig slurry while fungal colonies decreased. This study shows that raw un-composted pig slurry did not have beneficial effects on plant-microbe interactions.