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| **Abstract / Content summary** | Food gardens and farms generate a lot of organic waste in the form of crop residues and animal manure, much of which may not be recycled back into reusable forms as compost, mulch or manure fertilizer. There is scant attention paid to the means of regenerating valuable farm inputs from fibrous crop residues and nutrient dense manures which are available as by-products of smallholder farming enterprises. Such options do exist in the form of biowaste management strategies which would enhance the notably low input-output crop-livestock farming systems practiced in Papua New Guinea. The bioconversion of organic material provides a unique opportunity to use animal manure and crop residues in a manner that allows the recycling of essential nutrients, particularly protein and energy, which may otherwise be lost, back into farming systems as processed feed and fertilizer. The larvae of Black Soldier Fly (BSF; Hermetia illucens) can digest an array of organic materials, bio-converting nutrients into harvestable insect larval mass, thereby providing a protein feed source for fish, chickens and pigs. In our recent, work Black solider fly larvae (BSFL) was used to reduce household kitchen waste and animal manure and provide a nutritionally valuable protein, fat and energy for small-scale livestock production. The BSFL bioconversion of organic residue was also demonstrated to provide a high nutrient compost which may be used as a soil additive for growing vegetable crops. This paper aims to propose the potential application of BSFL as a bio-converter of organic farm waste and highlights the significant reduction of waste by 48% and the generation of a nutrient-rich compost, emphasizing the dual benefit of waste reduction and resource generation.
Keywords: bioconversion, biowaste, black soldier fly, feed, larvae, wastes |
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