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Vermi Composting of Aquatic Weeds

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The growth of aquatic weeds is very fast and they spread at an alarming rate clogging the waterways and forming a menace to the aquatic systems. Yet these are useful in harvesting the solar energy contributing substantially to biomass production (Wolverton and McDonald, 1976). The latest concept of organic farming advocates the use of organic matter for enriching the soil and for crop production. The aquatic weeds can be profitably utilized for producing high quality vermi-compost, the compost not only raises soil fertility and improves yield it also improves the soil quality by improving soil aggregation and stabilizing the soil structure (Singh, 1962).

A study was conducted during 2002 and 2003 in the College of Horticulture, Vellanikkara using *Salvinia molesta* and *Eichhornia crassipes*, two major aquatic weeds of the state for vermi-composting in pits of size 2.5 x 1 x .05 m^3. The bottom layer was filled with coconut husk followed by the weed on which paddy straw and coconut leaves were placed in layers, 20% cowdung slurry was added to this and again covered with the weed. The pit was thus filled with two to three layers of this combination in the proportion of 2 : 1: 1 : 1. The pit was then covered with jute bags, which were moistened periodically. One hundred worms of *Eisenia foetida* were introduced in each of the treatments. Temperature changes in the pits were recorded periodically. The temperature level during the composting phase went upto 40°C for *E. crassipes*. In *S. molesta,* the composting temperature was only 34°C.The higher temperature during the composting phase might have contributed to the better quality of compost from *E. crassipes*. In the other two phases i. e. the cooling down phase (29°C) and the maturation phase (25°C) the temperature was same for both the weeds. The vermi-compost from *E .crassipes* and *S. molesta* became ready for use within 40 to 45 days, respectively. At the end of the composting phase, the population of the worms multiplied 10 times in the *S. molesta* pit, while it increased by 11 times in the case of *E. crassipes*. The recovery percentage was 50 for *S. molesta* and 53.3 for *E. crassipes* .The nature of the compost was black, granular, light weight and humus rich crumbly powder. The quality of the compost was better in the case of *E. crassipes* both in terms of nutritive value and also the recovery percentage of the compost as there was less partially decomposed material in the final product. This might be due to the difference in the cellulose constituents of *S. molesta*. Hence, the study showed that though both the weeds were good for vermi-composting, the quality of compost from *E. crassipes* was much better than that from *S. molesta* (Table 1).

Table 1. Nutritive value (%) of compost and its constituents

Parameter	*Salvinia molesta*		*Eichhornia crassipes*		Rice straw	Coconut leaves	Cowdung slurry
	Fresh	Vermicompost	Fresh	Vermicompost			
N%	0.74	0.56	1.40	0.56	0.54	0.80	1.57
P%	1.04	0.44	0.30	0.37	0.09	0.06	0.25
K%	0.21	0.62	3.80	1.04	0.78	0.45	0.18
Temperature							
Initial phase		33		34			
High temperature phase		34		40			
Cooling down phase		29		29			
Maturation phase		25		25			

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