STUDY ON EARTHWORM SPECIES FOR VERMICASTING PRODUCTION FROM SHOLA FORESTS OF WESTERN GHATS

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Introduction:

The Shola forests of the Western Ghats are unique montane ecosystems characterized by high biodiversity and rich organic matter. Earthworms play a crucial role in maintaining soil health and nutrient cycling in these forests, making them ideal for vermicasting production.The study aimed to identify and evaluate different earthworm species collected from Shola Forests of the Western Ghats for their suitability in vermicasting production.The experiment was conducted at the Modern Nursery Centre, Kalamavoor, under the Modern Nursery Division, Dharmapuri, during 2007-2008 (EP No. 48/2007-08). The objective was to assess vermicasting productivity and nutrient composition among different collected earthworm species.

Objectives:

1. Identify earthworm species from the Shola Forests.
2. Evaluate their efficiency in vermicasting production.
3. Analyze the nutrient composition of the vermicast produced by different species.

Materials and Methods:

Materials:

Earthworms were collected from four different Shola Forests in the Western Ghats namelyAnaimalai, Topslip, Coonoor, and Mettupalayam.The feeding material consisting of a mixture of press mud (150 kg), farmyard manure (75 kg), and bagasse (75 kg) each was filled experimental vermicasting beds measuring 1m × 1m × 1m. 75 Nos. form The collected species were introduced in experimental tubs specifically.

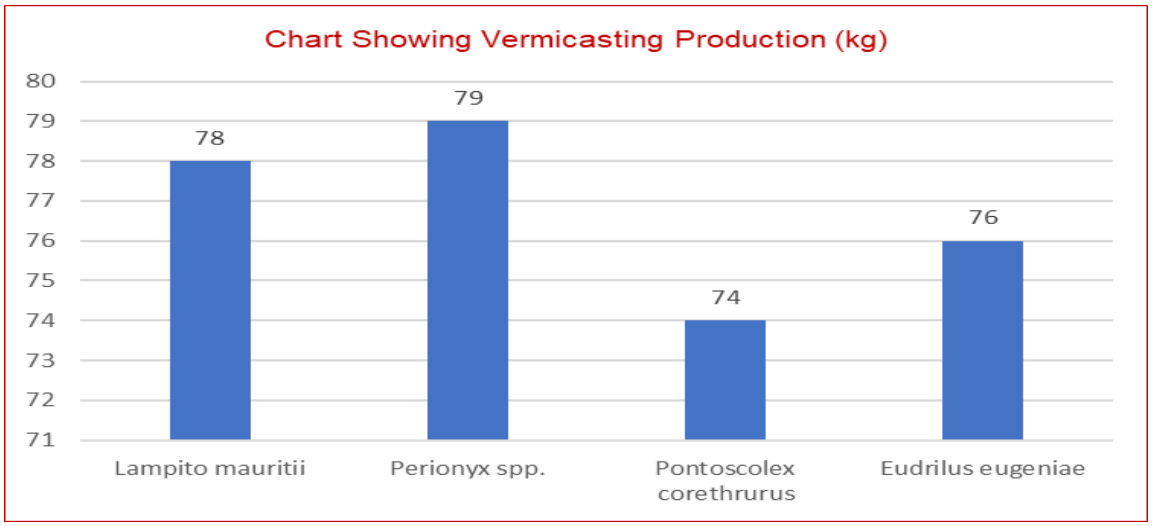
Methods

The experiment was conducted over a period of three months. The total vermicasting yield was recorded at the end of the experiment. Species identification of the collected earthworms was carried out at Manonmaniam Sundaranar University, Alwarkurichi. The nutritive values of the vermicasting samples were analyzed at the Soil Science Laboratory, State Forest Research Institute (SFRI), Chennai. Data were recorded on total vermicasting yield and nutrient composition to assess the most efficient species for vermicasting production.

Results and Discussion:

The study revealed variations in vermicasting production among different earthworm species. The vermicasting yield recorded at the end of the experiment is summarized below:

Earthworm Species	**Source Forest**	**Total Vermicasting Production (kg)**	**No of earthworms at end of the experiment**
Lampito mauritii	Anaimalai	78	107
Perionyx spp.	**Topslip**	**79**	**94**
Pontoscolex corethrurus	Coonoor	74	117
Eudrilus eugeniae	Mettupalayam	76	147



Among the tested species, *Perionyx spp.* from Topslip exhibited the highest vermicasting production (79 kg), followed closely by *Lampito mauritii* from Anaimalai (78 kg) and *Eudrilus eugeniae* from Mettupalayam (76 kg). Reproduction rate was found to be higher in *Eudrillus eugeniae* (147 No.)

A comparative analysis of the vermicasting nutritive values showed that *Eudrilus eugeniae* from Mettupalayam produced the most nutrient-rich vermicast. The following table presents the macro- and micronutrient composition of the vermicasting:

Earthworm Species	Source	N (%)	P (%)	K (%)	Fe (%)	Mn (%)	Cu (%)	Zn (%)
Lampito mauritii	Anaimalai	1.11	0.58	1.3	2.65	0.96	1.06	3.9
Perionyx spp.	Topslip	2.46	0.51	0.78	2.53	0.88	0.67	8.96
Pontoscolex corethrurus	Coonoor	2.33	0.49	1.61	3.41	2.45	1.01	10.63
Eudrilus eugeniae	Mettupalayam	1.06	0.51	1.55	3.95	2.53	1.45	6.64

The results indicate that *Eudrilus eugeniae* from Mettupalayam had the highest nutrient values, making it the most efficient species for producing high-quality vermicasting. The observed variations in nutrient composition and yield highlight the importance of selecting the right species based on the intended vermicasting application.

Recommendation:

Based on the overall analysis, *Eudrilus eugeniae* from Mettupalayam is recommended for vermicasting production, as it balances both yield and superior nutrient composition.