

REPORT ON
CERTIFICATE COURSE IN
BIOFERTILIZERS: VERMICOMPOST TECHNOLOGY



TARA GOVERNMENT COLLEGE(Autonomous),
SANGAREDDY
(Re-Accredited with 'B' Grade by NAAC)
Affiliated to the Osmania University - Hyderabad

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**DEPARTMENT OF ZOOLOGY
TARA GOVERNMENT COLLEGE(A), SANGAREDDY
CERTIFICATE COURSE IN BIOFERTILIZERS: VERMICOMPOST TECHNOLOGY**

COURSE OVERVIEW

1. Department of Zoology offered a **Certificate Course in Biofertilizers: Vermicompost Technology from 01/09/2021 to 31/12/2021.**
2. 13 Students from **III Years** of all **B.Sc. (Bt.B.C)** course who have interested in Vermi composting Technology joined the course.
3. It is a 2 credit and One - Semester Certificate Course.
4. 30 hours of classes were taken to complete theory and practical sessions.
5. Examination was conducted on 31/12/2021.

APPLICATION FORM

FOR ADMISSION INTO

**CERTIFICATE COURSE IN
BIOFERTILIZERS: VERMICOMPOST TECHNOLOGY**

- NAME OF THE STUDENT :

- GROUP :

- YEAR :

- H.T. No or DOST ID No :

- PHONE NUMBER :

- E Mail ID :

Signature of Applicant

CERTIFICATE COURSE IN BIOFERTILIZERS: VERMICOMPOST TECHNOLOGY

Vermicomposting truly is the nature's great disappearing act. Aristotle once said, “**worms are the Intestines of the Earth.**” Using worms to convert decomposing food waste into nutrient-rich fertilizer is simple, inexpensive, energy efficient, and a great way to teach students to become life-long recyclers. Vermicomposting technology is known throughout the world, albeit in limited areas. It may be considered widely spread, though not necessarily popular technology. As a process for handling organic residuals, it represents an alternative approach in waste management, in as much as the material is neither land filled nor burned but it's considered a resource that may be recycled. In this sense, vermicomposting is compatible with sound environmental principles that value conservation of resources and sustainable practices. Vermicomposting is different from composting in that similar feedstock organic residue was used. Both systems utilize microbial activity to break down organic matter in the soil, aerobic environment. Vermicomposting is however, faster and produces a superior product. But vermicomposting requires greater surface area, more moisture, and is susceptible to heat, high salt levels, high Ammonia levels, and the substances that may be toxic to earthworms. Of the 4400 identified earthworm species, specific species of litter dwelling earthworms are required for this purpose. Vermicomposting in developing countries could prove to be useful in many instances. Where accumulation of food waste, paper, cardboard, agricultural waste, manure and bio-solids is problematic, composting and vermicomposting offer a potential to turn waste material into a valuable soil amendment. In the past 10 years and Organization in India has promoted over 3,000 farmers and Institutions to switch from conventional Chemicals to the organic fertilizer, vermicompost. Vermiculture enables any scale or size of operation. Vermicompost is being used in over one lakh hectare cultivated area in almost all agro-climatic zones in India.

AIMS & OBJECTIVE :

Students will be able to compost in a limited space under describe the decomposing process.

- The interested students will get the knowledge of composting,
- Students will get the employment,
- They can generate employment,
- They will also turn towards organic farming,
- Will help to maintain the environment pollution free and
- Will get the knowledge of biodiversity of local earthworms.

The detail of the course is as follows:

FOCUS :

To convert unwanted, organic matter, particularly food scraps and the paper into fertile soil.

ADVANTAGE OF THE COURSE & FUTURE PROSPECTS:

1. Students can construct their own compost for sale thereby can get monthly income Rs 7000 to 8000
2. Students / farmers by using vermicompost in their field can increase the crop Yield.
3. Students residing in cities can produce vermicompost in small scale for Garden/ household plants.
4. They can get the jobs in Educational Institutes as Vermicompost /Vermiculture technician .
5. The candidate can generate income by supplying verms, vermiwash, and vermicompost.
6. By developing and Propagating vermicompost Technology he/ she will directly or indirectly help to prevent environmental pollution, by using vermicompost in the field and thereby increasing crop yield he will help to solve food problems.
7. It will lead towards organic farming and healthy food.
8. In today's world, recycling of the waste has become necessary in order to sustain our health and environment. So let's join for four **R**'s of Recycling Reduce , Reuse, Recycle, Restore. i.e. certificate course in vermicompost technology.

SYLLUBUS

CERTIFICATE COURSE				
		Hours	Credits	<i>Marks</i>
<i>Theory</i>	Unit – I GENERAL VERMICOMPOST	30	1	25
	Unit – II VERMI COMPOST TECHNOLOGY	30	1	25
<i>Laboratory</i>	1. EARTHWORM ANATOMY 2. WARMI COMPOSTING TECHNOLOGY 3. PESTS AND DISEASES			

TARA GOVERNMENT COLLEGE (AUTONOMOUS) , SANGAREDDY
CERTIFICATE COURSE IN BIOFERTILIZERS: VERMICOMPOST TECHNOLOGY
SYLLABUS UNDER CBCS 2020 - 21
Offered to B.Sc. III Year Students

Periods: 30

Max. Marks: 50

UNIT 1 GENERAL VERMICOMPOST

1. Introduction to Vermiculture. Definition, meaning, mystery, economic importance, their value in maintenance of soil structure, role as four R's of recycling reduce, reuse, recycle, restore.
2. Role of earthworm in biotransformation of the Residue generated by human activity and production of organic fertilizers. How does nature work.
3. The matter and humus cycle (product, qualities). Ground population, transformation process in organic matter.
4. Choosing the right worm. Useful species of earthworms. Local species of earthworm. Exotic species of earthworms. Complimentary activities of auto evolution.
5. Key to identify the species of earthworms.
6. Biology of *Eisenia fetida*:
 - a) Taxonomy, Anatomy, Physiology and Reproduction of Lumbricidae.
 - b) Vital cycle of a *Eisenia foetida*: alimentation, fecundity, annual reproducer potential and limit factors (gases, diet, humidity, temperature, pH, light, and climatic factors), complementary activities of auto evolution.
7. Biology of *Eudrilus enguiniae*.
 - C) Taxonomy, Anatomy, Physiology and Reproduction of *Eudrilus*.
 - D) Vital cycle of a *Eudrilus enguiniae*: alimentation, fecundity, annual reproducer potential and limit factors (gases, diet, humidity, temperature, pH, light, and climatic factors), complementary activities of auto evolution.

UNIT – II VERMICOMPOST TECHNOLOGY

1. Small Scale Earthworm Farming for home Gardens -Earthworm compost for home gardens
2. Conventional commercial composting Earthworm at home composting larger scale
3. Earthworm farming (vermiculture), extraction (harvest) vermicomposting harvest and processing
4. Nutritional Composition of vermicompost for plants, comparison with other fertilizers
5. Vermiwash collection, composition and use
6. Enemies of Earthworms, Sickness and worms enemies. Frequent problems. How to prevent and fix them. Complementary activities of auto evolution.
7. A) The working group experience with *E. foetida* population compartment with farm industrial residues (Frigoric, cow places, feed-lot, aviaries exploitation, and solid urban Residues)
B) Lineaments to vermicomposting elaboration projects.
8. C) Considerations about economical aspects of this activity. Research and ratability according to different exploitation orientations (worm's meat, production, worm's humus production or integrated projects). Toxins released by the worms(harmful effects) Complementary activities of auto evaluation.

Certificate Course In Biofertilizers: Vermicompost Technology

Practical Syllabus

1. Scientific classification of Earthworm
2. Study of external morphology of Earthworm – *Eisenia foetida*
3. Study of habit and habitat of Earthworm - *Eisenia foetida*
4. Study of Digestive system of Earthworm
5. Study of reproductive system of Earthworm
6. Establishment of vermicomposting unit pit method
7. Establishment of vermicomposting unit bed method
8. Establishment of vermiwash unit
9. Vermicompost production , harvesting, and packaging.
10. Study of cocoon and vermin compost
11. Study of pests and diseases of Earthworms.

DEPARTMENT OF ZOOLOGY
CERTIFICATE COURSE – THEORY

Max.Marks : 40

Section – A (Short Answer Type)

(4x4 =16)

I. Answer All Questions

- 1.**
- 2.**
- 3.**
- 4.**

Section – B (Essay Answer Type)

(2x12 =24)

5. a

Or

b

6. a

Or

b

DEPARTMENT OF ZOOLOGY
CERTIFICATE COURSE – PRACTICAL

Max.Marks : 10

I. Identifications

2x2=4

a.

b.

II. Dissection

6 Marks

a.

b.

TARA GOVERNMENT DEGREE COLLEGE(A), SANGAREEDY

DEPARTMENT OF ZOOLOGY

CERTIFICATE COURSE

BIOFERTILIZERS: VERMICOMPOST TECHNOLOGY

Sample Question Paper

Max.Marks : 40

Section – A (Short Answer Type)

4x4 =16

I. Answer All Questions

1. Vermicompost
2. Bedding
3. Economic importance of Vermicompost
4. Methods of preparation of Vermicompost

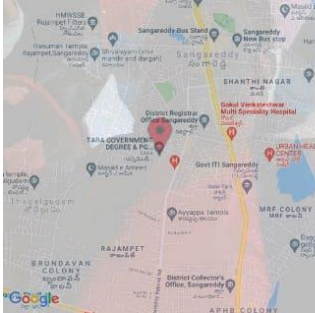
Section – B (Essay Answer Type)

(2x12 =24)

5. a) what is the role of earth worms in bio transformation of residues generated human activity ?
Or
b) Write an account on exotic species of Earth worms?
6. a) write the nutritional composition of vermicompost for plants and compare other fertilizers?
Or
b) Describe vermicomposting and extraction of vermicompost?



By pass Road BSNL office line opp. tara degree college 2 Gate, Prashanth Nagar Colony, Ahmed Nagar, Sangareddy, Telangana 502001, India



Sangareddy
Telangana
India



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Sangareddy
Telangana
India



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TARA GOVERNMENT COLLEGE (A) SANGAREDDY
SANGAREDDY DISTRICT, TELANGANA, INDIA - 502001
AN ISO 9001:2015 CERTIFIED INSTITUTION



Certificate of Participation

*This certificate is presented to Mrs./Ms./Mrs.....
of class..... year..... for successfully completing the certificate course in
BIO FERTILIZERS - VERMI COMPOSTING TECCHNOLOGY. The incumbent has qualified the
assessment test that was conducted as part of the course. The certificate course from
4th September 2021 to 31st December 2021. The course was organised by the DEPARTMENT OF
ZOOLOGY.*



Convenor
K.SUGUNAVATHI
Asst. Prof. of Zoology

Head of the Department
Y.RAMESH BABU
Asst. Prof. of Zoology

Principal (FAC)
M. PRAVEENA