

**The Annual Quality Assurance Report (AQAR) of the IQAC**

Academic Year – 2014-2015

**Innovative Practices – I**

**Title of the Practice:** Vermi Composting

**The Context:**

Vermicompost is the product or process of composting using various worms, usually red wigglers, white worms and earthworms to create a heterogeneous mixture of decomposing farm waste, vegetables or food waste, bedding materials, and vermicast. Vermicast, also called worm castings, worm humus or worm manure, is the end-product of the breakdown of organic matter by an earthworm. These castings have been shown to contain reduced levels of contaminants and a higher saturation of nutrients. These are the commercial fertilizers from which we get maximum output from minimum money. Throughout the world, there have been increasing interests in the recycling of wastes for sustainable development. The end product of Vermiculture is an eco-friendly, nutrients rich, natural product.

**Advantages of Vermi-composting:**

- (1) **Organic:** The most important aspect of compost produced by earthworms is that it is 100% organic. There are no harmful chemicals and it does not need to be mixed with anything.
- (2) **Nutritious:** The most significant benefit of vermin-compost is that the nutrients in earthworm compost are very easily absorbed by the roots of plants.
- (3) **Micro Organisms:** As the compost passes through the body of the worms it is enriched with bacteria and microbes which help plants to become more disease resistant and repel pests.
- (4) **Healthier Plants:** As the compost works on the plants and they become healthier the need for pesticides is reduced.
- (5) **Plant Growth:** Earthworm compost contains hormones that help plants to grow faster and the crop yield is improved.
- (6) **Water Retention:** Vermicompost is a colloid and holds up to nine times its own weight in water. This can make a huge difference when there is a dry spell.
- (7) **Non-pollutive:** Unlike chemical fertilizers, vermin compost fortifies plants internally in perfect harmony with the surrounding environment.

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Using earthworms creates a product that is natural and behaves naturally. The cycle of regularly over-dosing the soil is broken. Plant health is promoted by long term exposure to nutrients and the soil condition will continue to improve.

**The Practice:**

The Department of Botany undertakes Vermi Composting at the College level. The process of composting is as under:

- Worms needs bedding, aeration, high moisture, food source like cattle dung, kitchen waste, animal waste etc.
- It can be done by different methods depending on scale, small or large, space available, land area, etc.
- Students are given bucket in which holes are drilled at the bottom for aeration and seepage of water. A net is placed on the hole for preventing worms from escaping from the bucket.
- Layers of pre-soaked hay are arranged in bucket as a bedding material. Then, 3/4<sup>th</sup> of the bucket is filled with pre-soaked cow dung.
- Then some worms are added to the top layer of the cow dung and are covered with kitchen waste and cow dung and other waste products.
- The worms are separated from the casting/compost by hand or using meshes and the compost or casting is then dried and is ready to use.



**RESULT OR CONCLUSION:**

- After 2 to 3 months, humus rich and light weight compost is formed.

Government of Maharashtra's  
**Ismail Dhusuf College of Arts, Science and Commerce, Jogeshwari (E),  
Mumbai.**

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- In order to facilitate the separating of worms from the compost, watering should be ceased at least three to four days before emptying the beds.
- The water which comes out from the buckets can be used for watering plants. It is rich in nutrients and facilitates plant development.
- The castings can be used in garden as a soil conditioner. The nutrients are stored readily in the compost.
- It is zero pollution, environmental friendly technology. It does not require any operating expenses such as electricity, etc. It is simple to operate and maintain.

**Year-wise Details of Trees Planted with their Survival Rate**

<b>Year</b>	<b>Period of Composting</b>	<b>Amount of Compost Generated</b>	<b>No. of Buckets used</b>	<b>Success Rate (%)</b>	<b>Participation</b>
2014-15	Sept.-March	5 kgs per bucket	2	100	20 students

**Evidences of Success:**

From the A.Y. 2015-16, the process of vermin-composting has been taken on larger scale by digging holes in the ground in the College Campus.

Vermiculture provides an amicable solution in the field of solid waste management. It can be used as a biofertiliser. The pollutional load on the environment and the load of loans on our farmers can be reduced considerably by adopting this eco-friendly method of bio conversion – Vermiculture.