CHAPTER-15
GREEN INITIATIVES

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The University is situated 5 Km. east of Sagar city, and its campus covers an area of 1312.89 acres over Pathatiya Hills connected to the Vindhya Range, surrounded by lush green forests(about 100 acres) within its campus and has effectively contributed to the maintenance and preservation of ecosystem and its biodiversity. It is one of the finest picturesque campuses in India. The major area of the campus is covered with vegetation. The university aims to protect and conserve its biodiversity, fresh and clean ambience through many initiatives.

Management through Mushroom Cultivation

Department of Botany has established a Mushroom cultivation and training centre and also researched various aspect of mushroom biology, since the mushroom use plant residues to convert them to edible form as mushroom fruiting bodies, therefor the garden waste generated in the department of botany are selected for the cultivation of Mushroom as a supplement along with the base substrate. The substrate left after mushroom cultivation is termed the Spent mushroom compost, which is highly nutrient-rich for the plant; mushroom and mushroom compost have various environmental benefits in sustainable garden management and agriculture (Pathak, 2021; Singh et al., 2020).

Fig-21: Mushroom Cultivated on garden waste

Fig-14: Button mushroom cultivation

Fig-22: Experiment conducted using SMC

Production of Biochar in the department of Botany.

Biochar is a stable solid, rich in carbon, and can endure in soil for thousands of years; and these solid materials are obtained from the thermochemical conversion of biomass in an oxygen-limited environment. It is defined as carbonized biomass obtained from sustainable sources and sequestered in soil sustainably, enhancing their agricultural and environmental values under present and future management. Biochar can be prepared using any biomass such as a dry leaf, agric residue, dry cattle cake, garden wastes; properties of biochar vary with both the feedstock from which it is produced and the method of production. The indigenous method, "Top Lit Up Draft" (TLUD) made up of the barrel, is used to prepare the biochar. The biomass used to prepare biochar are dry leaf and small pruned branches from the Botanical Garden (Department of Botany, Dr. Harisingh Gour Vishwavidyalaya, Sagar)(Pathak, 2020; Singh, 2022).

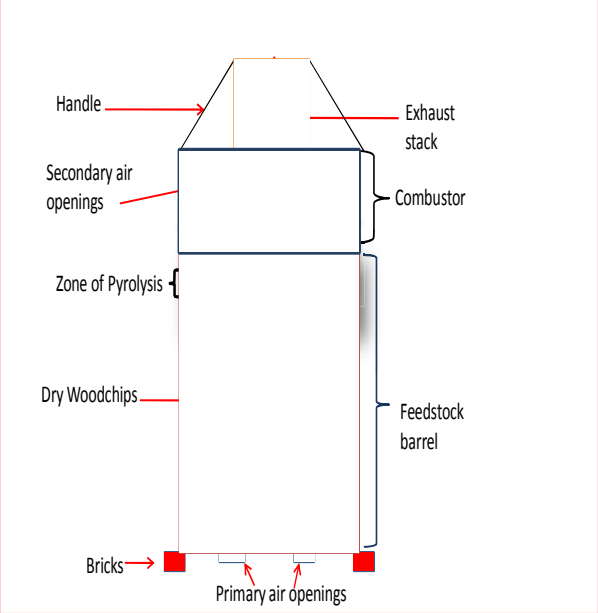

Fig-23: TLUD Diagram

Fig-24: Produced Biochar

Preparation of leaf compost:

The leaf Compost unit has been set up in the department of Botany in net house. The dry leaf was collected in leaf falling season and was bagged in a black polypyrene bag and sprinkled with water to mist the leaves and then after, the bag was closed tightly using a rope. Kept aside in a net house. The bag containing the leaves was opened in a month to check the moisture, and if required, water was sprinkled and closed; after 5-6 months, each bag of the leaves was composted to give a silver-grey or black like organic matter sometimes called leaf mold. Using

this method approx. 500kg of leaves generated in leaf shading season were converted to leaf compost, preventing the leaves' burning and reducing carbon emission.

Fig-25: Progressive conversion of Leaf into Leaf mold

Preparation of Bio-solid (animal manure) in Department of Botany

Since the surrounding area of the University has good forests, particularly on the western and southern sides, on the northern and eastern region these are agric fields. The grazing of animals and birds is a common phenomenon; therefore, biosolid is available in plenty. With the help of villagers and local people, the collection of dried excreta was then brought to the laboratory. The collected faeces (water-soaked) are stored in a composting bin and covered with a thin layer of soil. After six(6) months, it was ready to be used as an organic fertilizer.

Fig-26:Prepration of Biosoild compost.

No Plastic use policy in University campus.

The University has banned the use of plastic on the campus, and the campus of the university is a "Plastic-free campus". In all functions, workshops and conferences, plastic mineral water bottles, teacups, straws, bouquets and gifts with plastic covering, decorations and unwanted plastic use is strictly avoided. Instead of mineral water bottles, the drinking water is made available through traditional water pots or steel water. The Department of Botany has conducted workshops related to awareness for the plastic reduction in various colleges affiliated to University.

Fig-27: Climate change and free plastic-free campus seminar organised at Botany Departement.

Plantation and nursery drive

It has now become a university tradition to plant a tree seedling before the inauguration of any functions and activities. The Department of Botany has its nursery.

Environmental Awareness Programme

University Botanical garden is a source of many plants species conservatory recognized by a different organisation, many students from schools, college, University and others visit to this garden to know the diversity and importance of the plant, the importance of plant and diversity of the garden were guided by the faculty and PhD Scholar of the Botany Department.

Fig-28: School Students visits the Botanical Garden

Fig-29: Environmental Awarness through Nukkad Arts in University Campus.

Social Issue:

University provides different social services apart from teaching and research. The department of botany organised mushroom cultivation training for the farmers to manage the agric waste and generate extra revenue; moreover, it also guides farmers to produce compost at the farm and use it for organic farming.

Fig-30: Providing training to the villager of the village adopted by the University

Roof farming:

The Research team of Prof. Deepak Vyas Lab of Microbial Technology and Plant Pathology, Department of Botany, have worked with enthusiastic young people of university and successfully installed and designed Sustainable roof farming, mainly vegetables. Roof farming provides organic veggies and physically supports the family member while taking care of the vegetable grown over the roof; a daily routine is built up, which ultimately helps family members complete their physical exercise.

Fig-31: Views of roof farming in Pathariya Jatt , Sagar, Guided by the Department of Botany