Agri Articles
(e-Magazine for Agricultural Articles)
Volume: 03, Issue: 06 (NOV-DEC, 2023)
Available online at http://www.agriarticles.com
©Agri Articles, ISSN: 2582-9882

Arouse the Potential of Mushroom Farming - Sparks to Non Green Revolution

(*Pinaki Roy, Ram Eshwar Prasad, Shriti Moses, Saloni Chauhan, Manohar Panjikar, Sachchidanand Prasad, Randhir Kumar, L P Verma and Nandan Kumar)
Krishi Vigyan Kendra, Sitamarhi, Bihar-843320
(A Unit of Indian Council of Agricultural Research, New Delhi)
*Corresponding Author's email: roypinaki51@gmail.com

The traditional cereal-based food resources are projected to be significantly impacted by global climate change due to rising temperatures and carbon dioxide concentrations, a lack of water and arable land, and uncertain yields. India, a developing nation, may find it more difficult to solve the issue as a result of its growing population, especially in its rural areas where the majority of people are uneducated. Therefore, it is necessary to assess the agricultural technologies that are currently accessible and that, in terms of supplying nourishment and generating jobs, would be sustainable under global climate change.

Advantages of mushroom production

Fungi and bacteria in general are able to adapt better to the changed environmental conditions as compared to green plants. The advantages of integrating mushrooms as an alternative enterprises are,

- Mushroom can be grown an indoor that doesn't need access to land for growing.
- It can be mass produced on lignocellulosic wastes with little water.
- Mushroom is a suitable food source in difficult circumstances.
- Although, mushroom production cannot solve all food-related issues, it can be sustainable tool when combined with other technologies to promote sustainable nutrition and job creation, particularly in the low-skilled, low-literacy sector.

Importance of mushroom cultivation

As Indian agriculture seeks to diversify today, mushroom stand out as one of the biological elements that is crucial to providing answers to the issues of food, health, and the environment. Mushroom is a versatile crop which can be used as food, medicine, reducing environmental pollution, addressing malnutrition and filling the protein gap for vegetarians, as well as developing rural-urban agri-networks for rural employment.

Healing properties: Mushroom species such as *Ganoderma lucidum*, *Inonotus obliquus* have been used for medicinal purpose in Korea, Japan, China and Russia since long. There are about 700 mushroom species with recognized substantial pharmacological properties. The most significant class of BASs obtained from mushroom are polysaccharides which has anti-tumor properties. In addition to these, mushroom also possess additional potential therapeutic benefits, such as antioxidants, anti-hypertensive, cholesterol-lowering, liver-protecting, anti-fibrotic, and anti-inflammatory characteristics.

Monetary potential: Growing mushroom is a multifarious enterprise that requires a range of knowledge and logistical support. So, mushroom farming can lead to a lot of intermediary enterprises. In addition to the actual mushroom cultivation, intermediate businesses like

spawn production, the provision of ready raw materials for cultivation like chopped and pasteurized straw and pasteurized casing soil, the enterprise for mushroom dehydration, the preparation of various mushroom products, the creation of cold storage for mushrooms with other crops, dried mushroom art, etc., can be a source of additional employment. Growing mushrooms is an implausible community-based business opportunity for those without access to land.

Therapy with mushroom with specific requirements: Oyster mushroom growing in particular is a very ideal technique that can be utilized as therapy for those who are physically and mentally handicapped. The FAO took on the issue of training the most impoverished disabled persons in Thailand using mushroom growing techniques in February 1999 in order to make them more self-sufficient, and ensure their participation on an equitable basis. The instruction had a very positive effect on their independence, ability to learn new skills that would assist them to earn, self reliance, and confidence.

Nutritive value: In countries like India, where the population is predominately vegetarian and suffers from acute malnutrition, mushroom are the veggies that are full of nutrients and can thus offer a very useful contribution to human nutrition. Protein content in edible mushroom ranges from 3–7% on a fresh weight basis to 25–40% on a dry weight basis is more efficient than animals. As a result, it can serve as a crucial source of protein for vegetarians. With the exception of beans and peas, mushroom is a better source of dietary protein than the majority of typical fruits and vegetables. In terms of vitamin content, particularly B vitamins, mushroom outranks the majority of the typical vegetables used in the Indian diet.

Environment protection: Pollutants such as heavy metals, pesticides, polychlorinated biphenols, and other radioactive wastes are extensively present in the soil of industrialized areas. In such a contaminated environment, heavy metals in particular, can be directly absorbed by mushroom into their tissues. Extracellular enzymes produced by saprophytic mushroom like Phanerochaete chrysosporium and Gloephyllum can degrade resistant hydrocarbons and other synthetic poisons. In several nations, these mushroom are used to detoxify pesticide/herbicide residues, oil, PCB (Poly Chlorinated Biphenols), PCP (PentaPhloroPhenol), and PCP. These species are also being investigated for their potential to trap heavy metals to lessen the effects of radioactive waste. "Mycorestoration" refers to the use of fungi/mushroom to strengthen or restore the weak or damaged biosystems of the environment. It uses mushroom mycelia as tools for repairing soil.

Use of waste by product: Organic waste from farms, and factories is used to cultivate mushroom. Agricultural wastes such straw, maize cobs, grass, sawdust, sugarcane bagasse, cotton scraps, water hyacinth plants, coconut husks, tree leaves, branches, and logs, among others, are currently thrown away, burned, or dumped, causing environmental damage. To make substrate for mushroom cultivation, either one of these wastes or a combination of them can be used. The individuals who are in need of food can develop a new food supply in the shape of farmed mushroom with some assistance and careful management.

Potential for aesthetic sector: Global revenue from the ornamental plant sector is about billion dollars. A research by Indian Institute of Horticultural Research (IIHR), Bangalore has ushered in a new era in the decorative plant business by standardizing the cultivation of an orange-colored Polyporus species (wild species) botanically known as *Pycnoporus cinnabarinus*. Mush-florists can now choose to specialize in the ornamental cultivation of wild woody mushroom. These will not only raise awareness of these lovely and silent creations that are continually keeping our world clean and aid in the conservation of the wild species that are in danger of going extinct due to forest loss.

Need of hour

There is a lot of potential in mushroom. Mechanizing the numerous activities is crucial to making the crop sustainable on an industrial scale so that it can contribute significantly and have all of its potential realized. This can be accomplished by enhancing the input efficiency of the various processes and creating a broad network for the distribution of high-quality seeds, mushroom, and mushroom products.

Way forward strategy

Mushroom cultivation requires a lot of labor, and in a place like India where unemployment is rife, it can generate work in both semi-urban and rural areas. Some technologies can make use of household labor, giving the entire family jobs. Women and young people who are not in school can work efficiently. Due to the activities' indoor nature, even elite women's groups can participate in mushroom cultivation. In addition, a women-led farming might be started by establishing an FPO or self-help organization. Mushroom can be included in rural school lunch programs. This integration will be advantageous in two ways. First, it gives the rural poor access to healthy vegetables, and second, it gives many people work because they will be in charge of getting the mushroom into the communities.

At a glance

In summary, it can be said that mushroom have a wide range of potential, but in order to continue their production, significant attention needs to be paid to competent training and information transmission so that the crop's potentiality may be aroused. The mushroom industry needs to be better understood, and extension specialists must stress its health and dietary advantages. To succeed of this technology, the correct scientific information is needed to be communicated by research institutions through substantial training and catch the spark a non-green revolution.