

SHIITAKE MUSHROOM

Emerging Food-preneur and an unexplored source of mycoceuticals



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NORTH-East India falls within the “Indo-Burma” Centre of biodiversity “hotspots” of global significance. Exploration and sustainable development of local resources of this region are thus vital for the survival and economic prosperity of the region. Untouched by the Green Revolution, much of North-East India continues to be “organic”, which garners much attraction among the millennial food-preneurs. In this enormously growing food market, Mushrooms have turned the flagbearer for their high nutritional and nutraceutical potential. Once a delicacy has now turned into a crucial part of everyday diet due to its health benefits and a one-stop food for protein, essential vitamins, and minerals. Mushrooms drew the attention of health enthusiasts worldwide, increasing the demand that boomed the market.

The global market of mushrooms stands at \$62.44 billion in 2023 from \$57.18 billion in 2022 with a CAGR of 9.2% with leading players, such as Button mushrooms, followed by Shiitake mushrooms. The global mushroom upsurged with the introduction of veganism, and the market size is expected to grow at a CAGR of 9.8% to \$90.88 billion in 2027. The significant contributing countries are China, the US, the Netherlands, France, and Poland with the Asia Pacific region having the higher revenue proportion. China, Japan, India, Thailand, the Philippines, and Indonesia are the largest producers in the Asia Pacific, but the market is fragmented.

Shiitake (*Lentinula edodes*) is a native and the second most popular edible mushroom in the world, which is found in warm and moist regions of Southeast Asia. The name

‘Shiitake’ has Japanese origin in which ‘Shii’ means *tree* and ‘take’ means *mushroom*; these mushrooms are cultivated on dead logs of the *Castanopsis cuspidate* tree. The nutraceutical potential and nutritional alternative for non-vegetarians have boosted the demand that cultivators have greatly exploited. The limelight on Shiitake and demand have made it one of the premium mushrooms in the market, for Rs 1000-1300 per kg, and the market is expanding rapidly with new market players and products to meet global orders. Yet, there is a lag between the required amount and the actual production of the mushroom, which can be used to build a profitable business. In a developing country like India, this gap will not only increase production but will meet global demand by improving the agricultural sector and the country’s economy.

Shiitake mushrooms are found extensively in the northeast states of India: Manipur, Meghalaya, Mizoram, Nagaland, and Arunachal Pradesh, dominating the hilly and mountainous regions. The wild habitat with cool, moist, dark conditions and temperate-evergreen trees is suitable for cultivation. The mushroom is enriched with high content of bioactive compounds, proteins, carbohydrates, and bioactive polysaccharides, with Lentinan being the most abundant, vitamin B2, B12, and D2, low cholesterol, micro and macro-elements like K, P, Mg, Ca, Zn, Cu, Mn, Se, and Fe and a high proportion of unsaturated fatty acid making it a promising healthier alternative. Researchers are bridging the nutraceutical potentiality of the mushroom to treat various types of diseases such as cancer, fungal infection, heart diseases, hyperlipidemia, hypertension, diabetes, and hepatitis.

The mushroom and its cultivation will empower the North-East local farmers. Gucehi, a heirloom mushroom growing in Jammu and Kashmir’s Doda district, got the Geographical Indication (GI) tag and raised its value to more than 20,000/kg. Can GI status be achieved for Indian Shiitake? Along with biochemical fingerprinting of Indian shiitake strains, it’s vital to explore its mycoceutical potential and scientifically validate health claims (like anti-diabetic or anti-tumour) through pre-clinical studies. A GI tag will generate branding and commercial attention, thereby assisting the tribal population dependent on it for their livelihoods. It will