OYSTER MUSHROOM FROM GROUNDNUT SHELL & HAULM

Groundnut shell (as such) and haulm cut into small pieces (2-3 cm)

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Overnight soaking in water

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Put 3-4 kg biomass in polythene bags (12"X18") & sterilize for 2 h

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Thorough spawning @ 4-5% (w/w) & incubate bags at 26°C (10 d)

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Cut open the polythene bags & hang them & provide light (6-8 h)

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Maintain humidity (70-80%) by spraying water & maintain 26°C temperature

↓

Start harvesting fresh mushroom 3 days after pin head formation

↓

Pack fresh mushroom in polythene bags keeping small holes

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Producing Oyster Mushroom from Groundnut Byproducts

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Producing Oyster Mushroom from Groundnut Byproducts

India is having varied agroclimatic conditions along with the abundance of agricultural byproducts and technologies making it most suitable for cultivation of all types of edible mushrooms viz., button mushroom (*Agaricus bisporus* and *Agaricus bitorquis*); oyster mushroom (*Pleurotus* spp.), paddy straw mushroom (*Volvariella* spp.); milky mushroom (*Calocybe indica*), wood ear mushroom (*Auricularia* spp.), medicinal mushroom like Reishi (*Ganoderma lucidum*), etc. Mushroom is highly nutritious with biological value of 83 and having plenty of medicinal properties due to the presence of unique carbohydrates and other products and derivatives.

India produces around 1.5 million tonnes of groundnut shell and around 15 million tonnes of groundnut haulm. Groundnut shell contains around 70% cellulose and is suitable substrate for producing mushrooms like *Pleurotus sajor-caju*, *Pleurotus florida*, *Pleurotus eous* and *Pleurotus flabellatum*. Besides being a leguminous crop, groundnut haulm is rich in protein (around 12%) and thus needs hardly any supplement for growing mushrooms like *Pleurotus sajor-caju*, *Pleurotus florida*, *Pleurotus eous* and *Pleurotus flabellatum* and milky mushroom (*Calocybe indica*).

Both groundnut shell and groundnut haulm are available in plenty at through away price in the Saurashtra region of Gujarat. For growing mushroom at commercial scale, suitable temperature (15-40°C) and relative humidity (80-90%) are required. But in the Saurashtra region of Gujarat, humidity is verylow (except in rainy season when humidity remains between 70-80%, that too for a small span and temperature remain high). For cultivation of button mushroom, 16-18°C temperature with 80-90% humidity is required for fruiting. For successful cultivation of button mushroom, high quality compost is also required. In addition to this, huge investment is required for compositing as well as developing the environmentally controlled mushroom unit. However, cultivation of oyster mushroom is comparatively easy, as it does not require any compost. For *Pleurotus sajor-caju* and *Pleurotus eous*, a temperature range of 24-28°C is suitable for both spawn running and fruiting. Since button mushroom is difficult, another mushroom called milky mushroom (*Calocybe indica*) which can grow upto 40°C temperature can be explored in this part of the country if humidity can be maintained at 80-90% level during the crop cycle with very high biological efficiency of 100-140%.

The ICAR-Directorate of Groundnut Research, Junagadh has developed technology for cultivation of oyster mushroom (*Pleurotus sajor-caju* and *Pleurotus eous*) utilizing groundnut byproducts viz. groundnut shell and haulm. Both the type of the mushroom can be cultivated commercially on groundnut shell and haulm at 24-28°C under controlled humidity (70-80%) with biological efficiency between 30-40%.

The spawn of both the mushrooms can be raised on bajra seeds and it will take 10-12 days to develop quality spawn. In the meantime, groundnut haulm has to be cut into small pieces (2-3 cm) and shell (as such) has to be soaked in water for overnight softening, after putting in gunny bags. Thereafter, the gunny bag is taken out and excess moisture is drained out of haulm and shell. Around 3-4 kg of shell and haulm is packed in polythene bags (12"X18") after supplementation with groundnut cakes and sterilized in an autoclave for two hours. In the next day, thorough spawning need to be done @4-5% (w/w) and incubated at 26°C for 10 days. After 10 days, when the entire biomass is covered with white mycelial growth, the polythene bags need removal, hanged from a rope and incubated at 26±2°C and the humidity to be maintained at 70-80% and light is provided for 6-8 h everyday. After 6-7 days, the first flush starts coming. After three days of pinhead formation, fresh mushrooms are harvested. Similarly, 5-6 flushes are collected and biological efficiency of 30-40% could be achieved. The cultivation procedure is given below: