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% (wiw) & 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

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Start harvesting fresh mushroom 3 days after pin head formation

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Pack fresh mushroom in polythene bags keeping small holes

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Oyester Mushroom

cultivation through By-product of Groundnut

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Producing Oyster Mushroom from Groundnut By products

India is having varied agroclimatic conditions along with the abundance of agricultural by products 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.), paddystraw mushroom (Volvariella spp.); milky mushroom (Calocybeindica), wood ear mushroom (duricularia spp.), medicinal mushroom like Reishi (Ganoderma lucidum), etc. Mushroom ishighly nutritious with biological value of 83 and having plenty of medicinal properties due to the presence of unique carbohydratesand 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 suitablesubstrate for producing mushrooms like Pleurotus sajor-caju, Pleurotus florida, Pleurotus eous and Pleurotus flabellatum. Besides being a leguminous crop, groundnut haulm is rich inprotein (around 12%) and thus needs hardly any supplement forgrowing 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 inplenty 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%) arc required. But in theSaurashtra region of Gujarat, humidity is verylow (except in rainyseason when humidity remains between 70-80%, that too for asmall span and temperature remain high). For cultivation of button mushroom, 16-18°C temperature with 80-90% humidity isrequired for fruiting. For successful cultivation of button mushroom, high quality compost is also required. In addition tothis, huge investment is required for compositing as well asdeveloping 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 bothspawn 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 partof the country if humidity can be maintained at 80-90% levelduring the crop cycle with very high biological efficiency of 100-140%.

The ICAR-Directorate of Groundnut Research, Junagadhhas developed technology for cultivation of oyster mushroom (Pleurotus sajor-caju and Pleurotus eous) utilizing groundnutbyproducts viz. groundnut shell and haulm. Both the type of themushroom can be cultivated commercially on groundnut shell andhaulm 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 themean time, groundnut haulm has to be cut into small pieces (2-3cm) and shell (as such) has to be soaked in water for over night softening, after putting in gunny bags. Thereafter, the gunny bag istaken 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 bemaintained 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 beachieved. The cultivation procedure is given below: