

CULTIVATION OF *CALOCYBE INDICA*. A TROPICAL EDIBLE MUSHROOM

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Calocybe indica is an indigenous popular edible mushroom and grows in summer months in the gangetic plains of West Bengal. Its robust size, milky white colour, delicacy, long shelf life and lucrative market value has attracted the attention of both mushroom consumers and prospective growers. Purakayastha and Nayak³ produced fructifications of this mushroom on sterilized maize-soil substrate. Reports on attempts to develop suitable method of cultivation of this mushroom on unsterilized rice straw are presented in this communication.

Trials on cultivation of this mushroom was done on both composted and noncomposted substrates. The composted substrate was prepared with rice straw using long process of composting (Anonymous¹). The noncomposted substrate used was as follows: Chopped rice straw soaked in water over night and dipped in hot water (60° C) for 2 hours and mixed with 4 g NPK (14 : 35 : 14) fertilizer per 100 g of dry straw. Trays (1' × 1' × 4") were filled with 750 g of wet substrate and inoculated with wheat grain spawn.

The casing soil used consisted of garden soil and sand (5 : 1) the pH being adjusted to 7.5. This was sterilized by steam and applied after spawn run was over.

On the composted substrate, the spawn run period was 8 days, incubation period 16 days and the yield per 750 g of wet substrate was 521 g; the corres-



FIG. 1. Cultivation of *Calocybe indica* on non-composted substrate.

ponding figures on noncomposted substrate being 10 days, 19 days and 402 g. Though the performance, of composted substrate was best in all the above respect the yield of mushrooms on noncomposted substrate was quite satisfactory (Fig. 1).

The results indicate that the mushrooms can be cultivated on both composted as well as noncomposted substrates. As the mushroom can be cultivated on noncomposted substrate, long drawn process of compost preparation can be avoided. The method of cultivation becomes easy and readily acceptable to the common growers.

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COLIBACILLOSIS IN A PEACOCK

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AVIAN colibacillosis, a septicaemic disease of poultry caused by some strains of *Escherichia coli* is reported in poultry but not commonly observed. *E. coli* has been associated with pericarditis and peritonitis in the poultry¹⁻³. In India very few reports of avian colibacillosis have been documented². There are no reports of colibacillosis in peacock, and hence its occurrence is reported.

A semidomesticated peacock which used to roam about and come back home in the evening was found dull, listless and perched on a tree. The bird died next morning. Examination of the bird did not reveal any external injuries. Postmortem examination revealed the following salient pathological changes: The lungs were moderately congested. There was 5-6 ml of blood tinged fluid in the pericardial sac. The epicardium showed petechial haemorrhages. Liver was severely congested with a few greyish spots of necrosis on its surface. The kidneys were apparently normal. The peritoneum contained a few ml of sanguinous fluid.

Isolation studies were conducted using blood agar plates (8% Ox blood). Heart blood and material from the necrotic areas on the surface of the liver were streaked on to the plates. The inoculated plates were incubated under 10% carbon dioxide tension at 37°C for 48 hr. On examination, a large number of whitish circular colonies were noticed both from the heart blood and liver. The colonies were 1-2 mm in diameter and showed a zone of beta haemolysis around them. Gram's staining of the colonies revealed the organisms as Gram negative short rods arranged singly. After a detailed study, the isolate was identified as *Escherichia coli*⁴. Pathogenicity of the isolate was done in two white albino mice and it was found to be pathogenic when 0.1 ml of a 18 hr broth culture was inoculated by the intraperitoneal route. Both the mice died within 48 hr after inoculation.

The present report of colibacillosis in a semidomesticated peacock appears to be the first of its kind.

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FURTHER OBSERVATIONS ON THE FREELY CIRCULATING HAEMOCYTES OF *LIPEURUS LAWRENSIS TROPICALIS* PETERS (PHTHIRAPTERA : ISCHNOCERA)

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In Mallophaga, the presence of Proleucocytes and plasmatocytes has been shown in *Laemobothrion percnopteri* (Amblycera)¹ and also that of Granular haemocytes and Oenocytoids in *Lipeurus lawrensis tropicalis* Peters (Ischnocera)². Recently, while making the differential haemocyte counts in *L. lawrensis tropicalis*, Adipohaemocytes and the Spherulocytes were also recognised, the description of which is being given here.

Adipohaemocytes: These are small to large, spherical, oval or elliptical cells of variable sizes (2.80-5.70 μ of round cells and 3.75 × 6.65-6.65 × 14.25 μ of elliptical cells). A small round nucleus

(0.95-3.75 μ in diameter) is placed excentrically in large volume of moderately eosinophilic cytoplasm. The cytoplasm is filled with characteristic small to very large refrigerent fat droplets (0.5-5.7 μ in diameter). The size of these cells is comparatively larger in the newly emerged lice in comparison to the older ones. This may be due to the reduction of the cytoplasm and lipid contents in the older cells. These cells are very delicate and fragile and get frequently lysed during the smearing. The number of these cells is comparatively much lesser in the blood smears than that of other types.

Spherule cells (Spherulocytes)

Spherule cells are usually round, oval or dumbbell-shaped haemocytes, characterised by the presence of small compact nucleus and numerous spherical inclusions (spherules 0.5-1.5 μ in diameter). The size of these cells varies from 5.70 to 15.10 μ in length and 3.75 to 6.65 μ in width. The nucleus is oval excentrally placed and measures between 1.90 to 3.80 μ in length and 0.95 to 2.85 μ in width. It is generally obscured by numerous membrane bounded intra cytoplasmic spherular inclusions giving the cell a berry-like appearance. Some cells are also seen lysing, releasing spherular materials into the haemolymph and making the nucleus distinct. The number of spherule cells is very less in comparison to the other types and few cells are also observed dividing mitotically.

The present report supplements the earlier information on the haemocytes of *L. lawrensis tropicalis* and two more types, though their number is quite small. Adipohaemocytes and spherule cells are found to be present in the haemolymph in addition to four types already reported.

Though the Adipohaemocytes have been shown in seven orders and Spherulocytes in ten orders of insects³ but the presence of these cells in any mallophagan species is being reported for the first time.

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