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Cultural studies on growth of two isolates of *Lentinula lateritia*

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Lentinula lateritia (Berk.) Pegler isolates collected from Senapati (MP-01) and Chandel (MP-02) districts of Manipur, were studied for optimum growth in different pH, incubation temperature and incubation pefiod. The optimum pH and temperature for mycelial growth were recorded as 5.5 and 25^{0}C respectively. The mycelium growth at different incubation period indicated that *Lentinula*

INTRODUCTION

Lentinula lateritia (Berk.) Pegler is a very popular wild edible fleshy fungi of Manipur. The isolates of *lateritia* collected from Senapati and Chandel districts of Manipur are coded as MP-01 and MP-02 respectively. Studies on the mycelial growth of the mushroom in different environmental factors such as pH, incubation temperature and incubation period are conducted for possible artificial cultivation.

MATERIALS AND METHODS

Lentinula lateritia collected from Senapati (MP-01) and Chandel (MP-02) of Manipur were selected for the present studies. Pure cultures of the mushroom were obtained by tissue culture technique. The culture were purified and maintained on potato dextrose agar medium slants and incubated at 25° ± 1°C. Cultural studies were made on potato dextrose broth (peeled potato 200 g, dextrose 20 g, distilled water 1000 ml).

Effect of pH on mycelial growth

The effect of pH on mycelial growth was studied in potato dextrose broth. The pH of the potato-dextrose broth was adjusted with appropriate volume of 0.1N HCI and 0.1N NaOH solutions at 13 different values of pH (3.0, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0, 6.5, 7.0, 7.5, 8.0, 8.5 and 9.0) before autoclaving at 121^{0}C for 15 minutes. Twenty five (25 ml) of the medium was taken in 150 ml conical flasks. Each sterilized flask was inoculated with 5 mm diameter mycelium disc of *lateritia* isolates and incubated at 25° ± 1°C for 10 days. Mycelial mats were harvested on weighed Whatman's filter paper No. 42 and washed with distilled water. Then it was dried at 60°C for 48 hrs and cooled down in dessicator to obtain their constant dry weight. Final pH of the medium was recorded with the help of pH meter. The average of four replicates were calculated.

Effect of incubation temperature on mycelial growth

Effect of different incubation temperature on mycelial growth of the test fungus was studied using potato dextrose broth adjusted at pH 5.5. Flasks with 25 ml of the broth were sterilized and inoculated with mycelial disc of the respective fungus and incubated at six different temperatures

(10°, 15°, 20°, 25°, 30° and 35° C) for 10 days. After incubation, the mycelial mats were harvested and dried to a constant weight at 60°C to record their dry weight. The average of four replicates were calculated.

Effect of incubation period on mycelial growth

Effect of incubation period on mycelial growth was studied in potato dextrose broth. The initial pH was adjusted at pH 5.5. Flasks with 25 ml of the broth were sterilized and inoculated with mycelial disc of the respective fungus and incubated at 25°±1°C. The mycelial mats were harvested after 5, 10, 15, 20, 25 and 30 days of incubations. In each case four replicates were taken and calculated.

RESULTS AND DISCUSSION

The result on the mycelial growth of the two isolates of *L. laterita* collected from Senapati and Chandel districts of Manipur at thirteen different pH level revealed the maximum mycelial growth at pH 5.5 for both the isolates (Fig 1). The mycelial growth declined beyond pH 5.5. The final pH recorded were found to be lowered than the initial pH. The optimum pH between 5.0 to 6.0 have been reported by many workers (Srivastava and Bano, 1970 ; Sengupta *et al.*, 1987 ; Singh *et al.*, 1990 ; Kalra *et al.*, 1997).

The growth of the test fungus at six different incubation temperature (Fig. 2) indicated that both

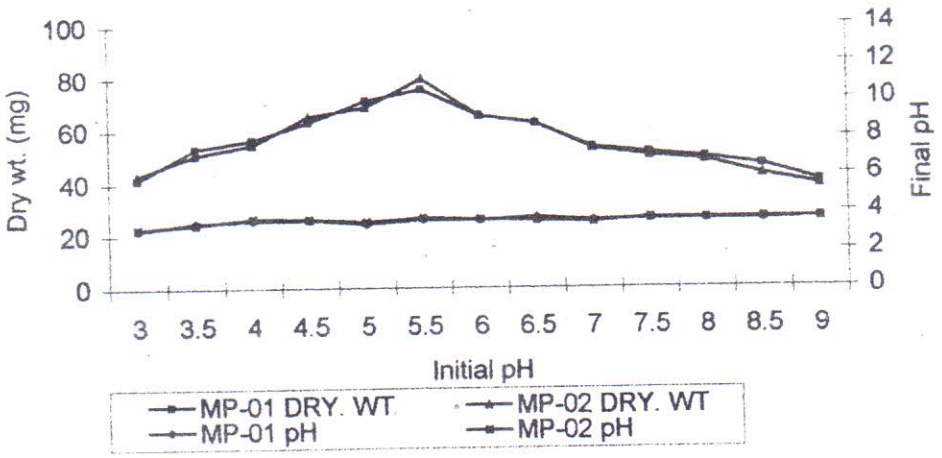

Fig. 1 : Effect of pH on the mycelial growth of two *Lentinula lateritia* isolates

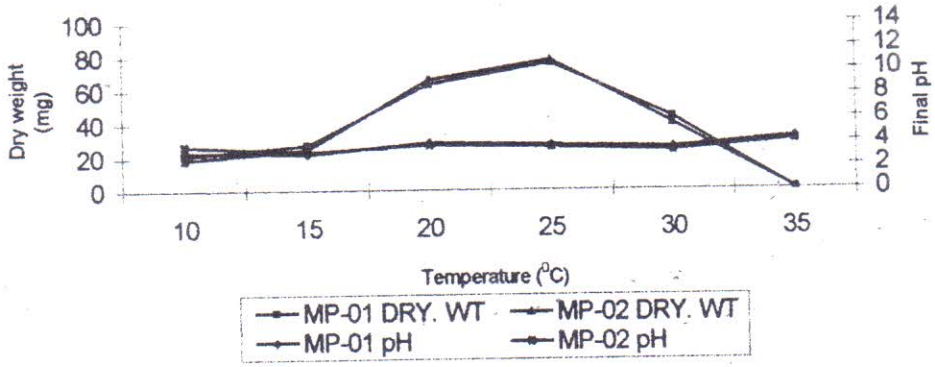

Fig. 2 : Effect of incubation temperature on mycelial growth of two *Lentinula lateritia* isolates

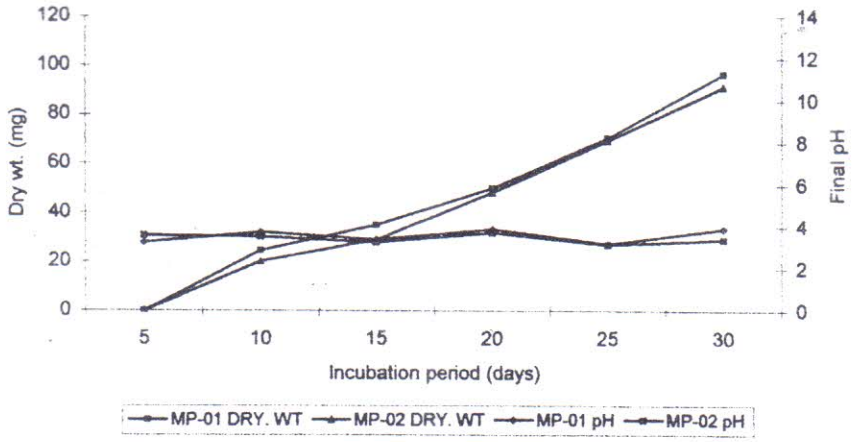

Fig. 3 : Effect of incubation period on mycelial growth of two *Lentinula lateritia* isolates

the isolates of *L. lateritia* attained their maximum growth at 25°C. The optimum temperature for *Pleurotus sajor-caju* was found to be 25°C (Srivastava and Bano, 1970 ; Jandiak and Kapoor, 1975). *Pleurotus djamor* and *Pleurotus platypus* also attained its maximum growth at 25°C (Singh *et al.*, 1990).

The data on the mycelial growth of the test fungus after different incubation periods (Fig. 3) indicate that both the isolates continued to increase their mycelial growth till the end of the incubation period. However, during the first five days, trace growth was observed in both the isolates. Many workers also recorded optimum mycelial growth at different incubation period for different fleshy fungi (Jandiak and Kapoor, 1975 ; Thianga and Jandiak, 1979).

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REFERENCES

Jandaik, C. L. and Kapoor, J. N. 1975. Cultural studies on some edible fungi. *Indian J. Mush.* **2**(1) : 22-26.

Kalra, R., Phutela, R. P. and Sodhi, H. S. 1997. Studies on growth of *Volvariella diplasia. Mush. Res.* **6**(1) : 47-50.

Sengupta, S., Ghosh, A. K., Banerjee, P. C., Khowala, S., Mukherjee, K. and Mukherjee, M. 1987. Studies on Biochemistry of a few Mushrooms. *Indian Mush. Sci.* **2** : 329-332

Singh, S. M., Bilgrami, K. S. and Verma, R. N. 1990. Cultural studies on some edible lignicolous fleshy fungi of North Eastern India. *Biol. Bull. of India* **12**(1) : 20-28.

Srivastava, H. C. and Bano, Z. 1970. Nutritional requirements of *Pleurotus flabellatus. Appl. Microbiol.* **19**(1) : 166-169.

Thianga, S. and Jandaik, C. L. 1979. Studies on cultural and nutritional requirements of *Macrolepiota procera* (Scop. ex Fr.) Singer, *Indian J. Mush.* **5** : 29-37.

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