

Research Article

Evaluation of Potential Strains of *Lentinula edodes* Under *In vitro* and *In vivo* Growing Conditions**Sujata Makkar¹, Kiran Nehra¹ and Ajay Singh²**

¹Department of Biotechnology, Deenbandhu Chhotu Ram University of Science & Technology, Murthal, Sonapat, Haryana, India-131 039, ²Maharana Pratap Horticultural University (MHU), Regional Mushroom Research Centre, Murthal, Haryana, India-131 039; Email: Sujata.makkar@gmail.com; Kirannehra.bt@dcrustm.org

Abstract

Lentinula edodes, commonly known as shiitake mushroom, thrives in dead hardwood environments as a white-rot fungus, and it grows into mushrooms under suitable environmental conditions. This mushroom attained global significance because of its nutritional and therapeutic properties. The current research aimed to assess the growth and yield characteristics of promising *L. edodes* strains available in India. Five distinct strains, namely DMRO-35, DMRO-34, DMRO-356, DMRO-388, and DMRO-623, were employed as the experimental strains. *In vitro* studies were conducted to identify the ideal conditions for the maintenance of the cultures on different growth media. *In vivo*, cultivation trials were conducted on sawdust of poplar tree (*Populous deltoids*) to evaluate the growth and yield parameters of the test strains. The results of *in vitro* studies showed that wheat extract agar (WEA) medium at a pH of 5.5 and a temperature of 25 C, are the optimum culture conditions for maintenance of the tested strains. The results of *in vivo* cultivation trials showed that DMRO-388 was the most productive strain with 55.82 per cent biological efficiency followed by DMRO-34 (48.86% B.E.), DMRO-35 (45.42% B.E.), DMRO-356 (40.31% B.E.), and DMRO-623 (15.67% B.E.). The experimental results suggested that the DMRO-388 strain is suitable for large-scale production of *L. edodes* mushroom.

Key words: Agronomic evaluation, biological efficiency, growth media, medicinal mushrooms, mycelial growth

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