

Preliminary study of *pleurotus ostreatus* (Jacq.) P. Kumm. spent mushroom compost as nutrient supplement on the shoot induction of fig tissue culture

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ABSTRACT

Spent mushroom compost is identified as waste substrate. As the mushroom agriculture industry is growing rapidly, the production also increases and contributes to large amounts of spent mushroom compost annually. The conversion of spent mushroom compost as waste to wealth is a great concept that can give value to agricultural industry and solid waste management of mushroom cultivation. The use of SMC as nutrient supplement may reduce the production cost for in vitro culture of fig plant. This research is to study the use of *Pleurotus ostreatus* (Jacq.) P. Kumm. spent mushroom compost (SMC) as a nutrient supplement of the media in shoot induction of fig plant. Nodal segment of fig's stem was cultured in MS media supplemented with different concentrations of SMC. With presence of SMC, 10% SMC have the highest shoot proliferation (2.167 ± 1.169) and length of shoot (0.154 ± 0.060 cm). The study revealed that in presence of 10% of SMC could produce new shoots at a frequency which was comparable to the control ($p < 0.05$; $n=3$; Tukey's multiple range test). Among the different media combinations of plant growth regulators with SMC, 15 μ M Kinetin with 10% SMC is the most effective treatment which gave maximum number of shoot proliferation (3.00 ± 1.27). 30 μ M IAA with 10% SMC media have the highest leaves regenerated which were 1.33 ± 0.84 . In conclusion, the SMC added in media for plant tissue culture had positive effect on shoot induction thus highlighted the potential of waste substrate of SMC to act as nutrient supplement for plant tissue culture.

KEYWORDS

Fig plant; Plant tissue culture; Shoot induction; Spent mushroom compost; Waste

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