Domestication of a wild medicinal sclerotial mushroom, Lignosus rhinocerotis (Cooke) Ryvarden

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\textbf{ARTICLE INFO}

Article history:
Received 24 September 2012
Received in revised form 1 March 2013
Accepted 9 March 2013

Keywords:
Tiger’s milk mushroom
Polyporaceae
Oil palm wastes
Paddy straw
Sclerotia

\textbf{ABSTRACT}

\textit{Lignosus rhinocerotis}, also known as the “tiger’s milk mushroom,” is a wild medicinal mushroom that has gained popularity in Malaysia recently. Due to the interest in its medicinal properties and the fact that it has not been successfully domesticated (commercial cultivation), optimization of fruiting substrate using readily available lignocellulosic agroresidues (sawdust, paddy straw and oil palm empty fruit bunch) with supplementation of spent brewery yeast as the nitrogen source was investigated. Preliminary results showed that substrate formulation consisting of sawdust, paddy straw (82:10\%) and spent yeast (8\%) gave the highest mycelial growth rate of 3.0 \pm 0.1 mm/day compared to sawdust, paddy straw or empty fruit bunch used singly or in combination. Further optimization using MINITAB analysis showed that only sawdust had significant effect on the mycelial growth rate for substrate formulation consisting of sawdust and paddy straw. Hence, the growth rate is high as long as the percentage of sawdust is more than 50\% in the formulation. Pilot cultivation of \textit{L. rhinocerotis} carried out using the optimized formulation consisting of sawdust, paddy straw and spent yeast at a ratio of 7.9:1:1 in bags gave mycelial growth rate of 3.8 \pm 0.8 mm/day. Sclerotia formation was induced by burying matured colonized substrate in soil. Sclerotia weighing between 80 and 120 g on fresh weight basis were formed 3–4 weeks after burial. This was followed by sporophore formation, from 8–12 months after burial. We have successfully domesticated a Malaysian heritage mushroom both for biotechnological exploitation as well as conservation.