

Res. on Crops **14** (3) : 897-901 (2013)

With two figures

Printed in India

A simple and low-cost technique of DNA extraction from edible mushrooms examined by molecular phylogenetics

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(Received : March 2013)

ABSTRACT

The first and most important step of molecular techniques is to isolate the high quality and standard quantity of DNA. The DNA extracted using the recommended method could successfully amplify the regions of interest and demonstrated reliable results can be applied in other molecular assays. Moreover, the designed primers of ITS1-UM2 and ITS4-UM2 were perfectly matched with the species of Basidiomycetes, can be used in phylogenetic studies of other mushrooms. We here evaluated the quality and quantity of DNA using a spectrophotometer, showed reliable OD_{260/280} and concentration. The protocol is efficient, rapid, low-cost, and simple, needs low amount of sample, and requires minimum facilities. The standard yield in addition to the high quality of DNA will enable mycologists to establish molecular techniques easier. In the current study, the constructed phylogenetic tree based on the obtained sequences of Internal Transcribed Spacer (ITS) I and II regions distinctly classified the examined material.

Key words : Basidiomycetes, DNA isolation, Internal Transcribed Spacer (ITS), phylogenetic, spectrophotometer

ACKNOWLEDGEMENTS

This study was supported by the research grants PS291-2009C, PV088-2011B and 66-02-03-0074 from the Institute of Research Management and Monitoring (IPPP), University of Malaya.

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