

# Managing a Mushroom Culture Collection for Biodiversity Prospecting

Prapaisri Pitakpaivan

Department of Agriculture, Chatuchak, Bangkok 10900, Thailand

The Thailand Mushroom Culture Collection (TMCC) was founded in 1990 under the Plant Pathology and Microbiology Division, Department of Agriculture. The basic function of TMCC is to collect, identify, and preserve the valuable natural resources of edible mushrooms and make them readily available for utilization and application in the areas of agriculture, medicine, and education as well as in basic research. Apart from cultivation techniques, TMCC research activities focus on improvement of mushroom strains, culture preservation methods, and contaminants. Mushroom cultures are preserved in liquid nitrogen, in sterile distilled water, by using mineral oil, as well as regular subculturing methods.

TMCC also distributes service cultures to mushroom growers. To control the quality, culture stabilities, and yield, the cultures are regularly checked for identity and purity at every culture renewal. At present, there are at least 13 genera of mushrooms available to growers, five of which are commercially cultivated throughout the country. These are *Pleurotus ostreatus* (Jacq.: Fr.) Kumm., *P. eous* (Berk.) Sacc., *P. abalonus* Y. H. Han, K. M. Chen et S. Cheng, *P. sajor-caju* (Fr.) Sing., *Lentinus edodes* (Berk.) Sing., *L. polychrous* Lév., *L. squarulosus* Mont., *Ganoderma lucidum* (Curt.: Fr.) P. Karst., and

*Volvariella volvacea* (Bull.: Fr.) Sing. Production of mushrooms in Thailand, in particular the genera *Pleurotus* and *Volvariella*, is found mainly in the Central region, whereas *Lentinus* is produced largely in the Northern and Northeastern parts of the country. *L. polychrous* and *L. squarulosus*, the native species of Thailand, are widely cultivated in the northeast, particularly during the hot summer months.

Research on mushroom strain selection and cultivation methods has been carried out with the aim of achieving higher yield varieties, suitable for cultivating in specific localities. Experiments on culture maintenance and longevity are being undertaken to develop better methods of mushroom culture preservation.

Interest in mushroom cultivation among local growers is gaining momentum. A rise in mushroom production often results in a fall in the farm gate value. To alleviate the problem, DOA has embarked on a research program with the emphasis on post-harvest technology and processing to allow growers to gain more value added on their farm produce. The program includes study of, for example, production of dried mushroom, pickled mushroom, and processed mushroom for cooking; use of mushrooms for medicinal purposes; and manufacture of other mushroom products.