

Hidden Wild Edible Agaric Wealth in North West India: Diversity and Domestication Studies

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Abstract : Agarics are the fruiting bodies of the fungi falling under Phylum Basidiomycota of class Agaricomycetes. North Western parts of India which comprises of mighty Himalayas decorated with snow cap mountains, forested areas, grassland and the Gangetic plains with the altitude varying between 196m to 3600m have a huge potential of naturally growing wild agarics. These mushrooms lavishly grow in wet humid weather conditions that prevail in these parts of India during the monsoon which hits in the early June and continue up to mid-October. In this area, a diverse form of mixed vegetation is available which is represented by coniferous and angiospermic trees, shrubs, herbs, epiphytes, parasites, climbers etc. The vegetation, topography and climate of this area is quite favorable for the growth of agarics. *Cedrus deodara*, *Pinus longifolia*, *P. roxburghii*, *P. wallichiana*, *Abies pindrow*, *A. spectabilis*, *Picea smithiana*, *Taxus sp.*, *Rhododendron sp.* and *Quercus sp.* occur in pure formations or as scattered patches or as mixed forests, whereas the Gangetic plains are dominated by the angiospermic trees and shrubs, they commonly occur along roadsides or in conserved areas or are the avenues plantations, common amongst these are *Shorea robusta*, *Dalbergia sissoo*, *Melia azadirachta*, *Acacia sp.*, *Ficus benghalensis*, *Eucalyptus sp.* and *Butea monosperma*. These agarics can be categorized on the basis of the habitat in which they grow they are usually foliocolous, lignicolous, humicolous, coprophilous or termitophilous. A number of fungal forays were undertaken to different parts of North West India from time to time during the monsoon season with an aim to decipher the agarics diversity of this part of India. Along with collecting the various agarics from diverse habitat, the ethnomycological data was also collected along with by interacting with the local inhabitants of those areas. Based upon the ethnomycological data collected over the years, cataloging of the edible and inedible agarics has been done and cultures of such potential edible agarics were raised with an aim to domesticate these selected taxa. With an aim to reduce the local pressure on these natural resources, a low-cost technology was developed to make it available to the public for cultivation. As a result, 104 taxa were found edible such as *Amanita hemibapha* var. *ochracea*, *A. chepangiana*, *A. banningiana*, *A. vaginata*, *Agrocybe parasitica*, *Author: Professor & Dean Faculty of Life Sciences Punjabi University, Patiala. Punjab, India munruchi@pbi.ac.in* *Agaricus bisporus*, *A. andrewii*, *A. campestris* var. *campestris*, *A. silvicola*, *A. subrutilescens*, *A. bernardii*, *A. abruptibulbus*, *A. fuscovelatus*, *A. brunnescens*, *A. augustus*, *A. silvaticus*, *A. arvensis*, *Volvariella bakeri*, *V. terastia*, *V. bombycina*, *V. diplasia*, *Psathyrella candolleana*, *Volvopluteus gloiocephalus*, *Russula cyanoxantha*, *R. atropurpurea*, *R. aurea*, *Clitocybe gibba*, *Lentinus transitus*, *L. kashmirinus*, *L. crinitus*, *L. ligninus*, *Lactarius rubrilacteus*, *Pleurotus sapidus*, *Pluteus subcervinus*, *Macrocybe gigantea*, etc. Cultures of various taxa viz. *Pleurotus sajor-caju*, *Macrocybe gigantea*, *Pluteus petasatus* and *Lentinus tigrinus* were raised and a proper protocol for the domestication of *Pleurotus sajor-caju*, *Macrocybe gigantea*, and *Lentinus tigrinus* has been developed using the locally available agro-wastes.

Keywords : Agaric, culture, domestication, edible

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