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CHARACTERISATION AND CULTIVATION OF WILD *AGARICUS* SPECIES FROM MEXICO*

D. MARTÍNEZ-CARRERA, M. BONILLA, W. MARTÍNEZ, M. SOBAL, A. AGUILAR AND E. PELLICER-GONZÁLEZ

College of Postgraduates in Agricultural Sciences (CP), Campus Puebla, Mushroom Biotechnology, Apartado Postal 701, Puebla 72001, Puebla, Mexico. Fax: 22-852162. E-mail: dcarrera@colpos.colpos.mx

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ABSTRACT

Germplasm preservation and genetic improvement of authentic wild species is fundamental for developing the mushroom industry of any country. In Mexico, strains of wild *Agaricus* species were isolated from diverse regions. Ten species were tentatively identified on the basis of fruit-body morphology: *A. abruptibulbus* Peck, *A. albolutescens* Zeller, *A. augustus* Fries, *A. bisporus* var. *bisporus* (Lange)Imbach, *A. bitorquis* (Quél.)Sacc., *A. campestris* Link : Fries, *A. hortensis* (Cooke)Pilàt, *A. osecanus* Pilát, *A. robustissimus* Panizzi, and *A. subrufescens* Peck; there was also a group of five strains classified as *A.* sp. These species were characterised considering several criteria (mycelial growth on different culture media and pH, fruiting tests on compost, macroscopic morphology and basidial spore number of fruit bodies), using strains of *A. bitorquis* as a standard reference. Colony morphology on culture media was variable, showing differences in density (high, low), aerial mycelia (abundant, scarce), and growth rates (fast, slow). The initial pH and the culture medium influenced colony growth rates, which ranged from 0.02-1.06 cm/day. In fruiting trials, wild *Agaricus* species also showed wide variations in the average time for compost (7-52 days) and casing soil (10-48 days) colonization, fruiting (2-17 days, after the casing soil is colonized), and fruit-body development (3-19 days, from primordia to mature sporophores), as well as in the number of flushes (1-5), mushroom yields (49.5-1,499.1

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g), and biological efficiency (1.8-55.5%). The period from spawning to harvesting the first flush, considering the average time for fruit-body development, ranged from 39-96 days. All species studied showed spore-bearing fruit bodies with normal morphology, having variable colour (white, off-white, cream, brown), scaliness, and size of caps and stipes. The average basidial spore number indicated that most species were of tetrasporic character showing a high proportion of normal four-spored basidia (87.2-99.5%). The exception was *A. bisporus* var. *bisporus* whose basidia were predominately bisporic (67.5%), with a lower proportion of three- (5.0%) or four-spored (27.5%) basidia.

Key words: ***Agaricus*, wild species, germplasm characterisation, mushroom cultivation, Mexico.**