MUTAGENS REQUIRE TO BE CONSIDERED WHEN ISOLATING AND PRESERVING FUNGI

P67

R. R. M. Paterson and N. Lima

IBB/Centre of Biological Engineering, University of Minho, Campus de Gualtar, Braga, Portugal
e-mail: russell.paterson@deb.uminho.pt

Microorganisms are preserved in collections to ensure they represent wild type strains from Nature. Others may be preserved for specific properties not associated with wild types. To protect these from mutagens is a priority seldom considered. Some fungi produce mutagenic secondary metabolites in culture and it is unknown whether the metabolites affect the DNA/RNA of microorganisms to be isolated and preserved. For example, aflatoxins are the most carcinogenic, naturally-occurring compounds. The producing fungi are obtained from the environment quite frequently and so may be isolated with other microorganisms during isolation: Other compounds from the same or different fungi may be mutagenic. Furthermore, mutagenic secondary metabolites may be produced at high concentrations when pure fungal cultures are grown from preservation or for maintenance, which may affect the DNA/RNA of the producing fungi. Fungi producing "self-affecting" metabolites and spontaneous mutants in pure culture are well-known. Preserved fungi are required to be grown to minimise secondary metabolite production if representative wild types, or strains with specific properties, are to be obtained with absolute confidence – it is a matter of the adequate design of culture collection protocols.

References:

Santos C., Paterson R.R.M., Venâncio, A., Lima, N. (2010) Filamentous fungal characterisations by matrix-assisted laser desorption/ionisation time of flight mass spectrometry. Journal of Applied Microbiology. 108, 375-385.

Paterson R.R.M., Lima N. (2009) Mutagens manufactured in fungal culture may affect DNA/RNA of producing fungi. Journal of Applied Microbiology, 106, 1070–1080.