Evaluation of lyophilised and aged filamentous fungi

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Maintaining and preserving fungal cultures are essential elements of systematic and biodiversity studies. The establishment and maintenance of Culture Collections (CC) depends on the implementation of reliable preservation techniques and appropriate quality assurance to allow them to become effective and efficient. Since fungi are such a diverse group, several methods of cultivation and preservation are required to ensure the viability and morphological, physiological and genetic integrity of the cultures over time. Though, the cost and convenience of each method are important aspects to be taken into consideration such as the knowledge of all parameters capable of affecting the procedures [3].

Preservation methods presently used are highly empirical and in many instances do not provide reliable genetic and phenotypic stability [4]. There is an increase in the adaptation of the existent methodologies to the specific strain to preserve [2]. But there is also the need to understand the alterations after preservation.

Lyophilisation is commonly used to preserve biological systems for long-term storage at room temperature and protectants are generally added to these systems to reduce damage during the freezing and drying processes [1].

With the goal of accessing the capability of long preservation by lyophilisation, 21 strains of *Aspergillus* section *Nigri* were preserved, and subjected to accelerated storage with two different time points.

These samples were morphological and physiological analysed, by macroscopy, microscopy and mycotoxin (aflatoxin, ochractoxin A (OTA) and fumonisin) production screening.

No significant changes were observed in the macroscopic and microscopic analysis. In the screening for aflatoxins all strains maintained their pattern before and after ageing. Detection of OTA production showed that most of the OTA producer strains did not

present significant changes after preservation and ageing. As for fumonisin detection, it was possible to observe that some strains changed their profile along the procedures, but for most samples no production was detected after ageing.

For all the methodologies used to evaluate lyophilisation of fungi along time, some minor differences were found but there were no significant changes and these allow us to guarantee that this is a technique of excellence to be used on the maintenance of biodiversity within the filamentous fungi, specifically for *Aspergillus* section *Nigri*.

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PROGRAM & ABSTRACTS

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