

# BOOK OF ABSTRACTS OF



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# **BOOK OF ABSTRACTS OF CEB ANNUAL MEETING 2017**

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## Preserved Freeze-Dried and Aged Filamentous Fungi of Biotechnological Importance

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The bioindustrial production strongly depends on the reliable microbial preservation in microBIOlogical Resource Centres. The implementation of consistent microbial preservation techniques and appropriate quality assurance are key issues for an effective and efficient preservation and consequently industrial production. 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 [1]. Preservation methods currently used are highly empirical and in many instances do not provide reliable genetic and phenotypic stability. There is an increasing in the adaptation of the existent methodologies to the specific strain to preserve. But there is also the need to understand the alterations after preservation. Freeze-drying is commonly used to preserve biological materials for long-term storage at room temperature and protectants are generally added to these materials to reduce damage during the freezing and drying processes.

Therefore, the main goal of the present experimental study is to evaluate the freeze-drying preservation method for the effective long-term preservation of strains belonging to *Aspergillus* section *Nigri*. To perform this, twenty one strains representative of *Aspergillus* section *Nigri* were selected and preserved by freeze-drying. The strains were subjected to accelerated storage, equivalent to ageing, with two different time points (2 and 4 weeks of maintenance of the freeze-dried strains, in ampoules of borosilicate glass, at 37 °C). These samples were morphological and physiological analysed. In addition, the genetic stability is under study applying molecular biology techniques.

For all the methodologies used to evaluate freeze-drying of fungi along time the major conclusions so far are: 1) Minor differences were found but there were no significant changes observed in the macroscopic and microscopic analysis; 2) In the screening for aflatoxins, all strains maintained their pattern before and after ageing; 3) In the detection of ochratoxin-A (OTA), most of the OTA producing strains did not present significant changes after preservation and ageing; 4) In the fumonisins 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.

In conclusion, and so far, freeze-drying can be considered a technique of excellence to be used on the maintenance of biodiversity within the filamentous fungi, and more accurately for *Aspergillus* section *Nigri*.

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### References

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