

STABILITY BASED ON A POLYPHASIC APPROACH OF FUNGAL SAMPLES PRESERVED ON ALGINATE

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Alginate-encapsulation is a commonly used, simple and cost effective method to preserve plant samples. Since alginate has been proven to protect tissues against physical and environmental damage, minimising dehydration, it is considered a good preservation technique. The application of this method for the preservation of filamentous fungi was intended to present an alternative to the commonly used preservation methods, especially for recalcitrant fungi. MALDI-TOF MS emerged in the late 1980s as a sound technique to investigate the mass spectrometry of molecular high-mass of organic compounds through a soft ionisation of molecules resulting in minimum fragmentation. This technique has high potential for the identification of filamentous fungi species and occasionally strains. One of the most interesting advantages of the technique is the analysis of intact fungal cells thereby generating peptides and proteins profiles. A novel technique was applied to the preservation of *Botrytis cinerea* (MUM 10.163, 10.165, 10.167), *Aspergillus ibericus* (MUM 04.68) and *Aspergillus brasiliensis* (MUM 06.181) using alginate encapsulation, under two conditions: distilled water (I) and 10% glycerol (II), both at 4°C for 1 year after which the viabilities were studied. A comparison with Castellani preservation in water (III) was made, using viability test, colonial morphology and MALDI-TOF MS analysis for the evaluation of the preservation methods. The strains preserved by condition (I) presented lower viability than those preserved by condition (II). In addition, when comparing the results from the samples preserved by (III) with the ones encapsulated and maintained in 10% glycerol (II), we noted that the latter presented a higher viability, faster growth and health colony formation. The MALDI-TOF MS analysis indicated that the strains clustered according to species. For *B. cinerea* only small spectral differences (< 5%) were presented in the percentages of similarity, which is in the tolerance range of the technique, except for MUM 10.167 (>5%) when as (III). In the present study we can conclude that the success of the preservation seems to be much more strain dependent than dependent of the technique.

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