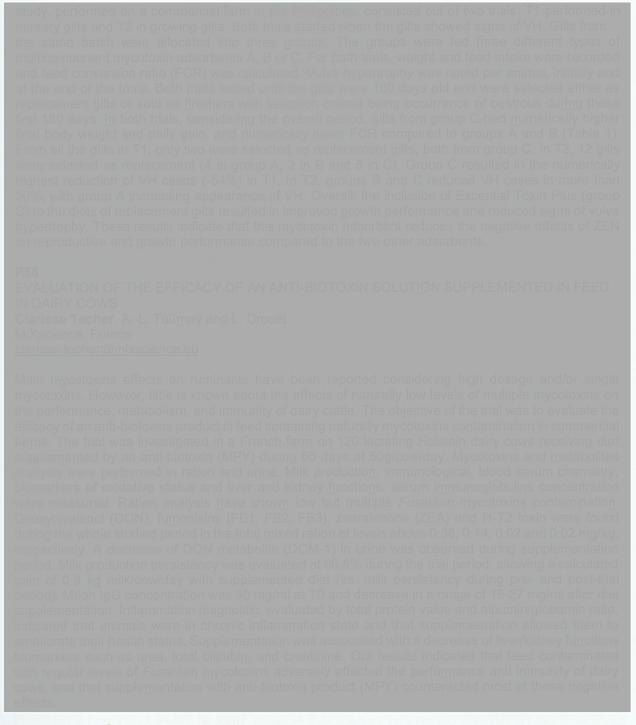
## ABSTRACTS OF LECTURES AND POSTERS



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CARBOXYPEPTIDASE IMMOBILIZATION ON NYLON NANOFIBROUS MEMBRANES FOR OCHRATOXIN A DETOXIFICATION

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Ochratoxin A (OTA) is a mycotoxin that can be found in products as grape juice and wine. Biological detoxification methods are gaining interest as they constitute green processes and are less likely to cause loss in nutritional value and palatability of food. Carboxipeptidase A (CPA) was the first enzyme demonstrated to be effective in the degradation of OTA, being also used as a reference for other OTA-degrading enzymes. CPA acts on OTA by hydrolysing the amide bond, producing the less toxic ochratoxin alpha (OTα). So far, studies have assessed free enzymes on OTA degradation. However, free enzymes are very sensitive to pH, temperature, and the presence of inhibitors. Enzyme immobilization increases the rigidity of the attached molecule's structure, thereby enhancing its stability

and resistance, allowing its repeated application. The main aim of this work was to immobilize CPA into a nylon nanofibrous membrane and to verify if the OTA degradation capacity was maintained. In addition, an unusual spacer for enzyme immobilization was used, the bovine serum albumin (BSA), which has the advantage of showing low toxicity. Enzyme immobilization on nylon membranes was accomplish after activation with 12.5% aqueous solution of glutaraldehyde, washing with ultrapure water, immersion into BSA solution (0.1 mg/ml), and immersion into CPA solution in 10 mM sodium acetate, 5 mM calcium acetate buffer (pH 7.5). The OTA degradation assays were performed at 37°C and pH 8.5, during 168 h. The membranes loaded with immobilized enzyme were incubated in 200 µg/l OTA solution in tris buffer (pH 8.5). In the same way a subset of analyses was made with a solution of OTA and free CPA solution in tris buffer (pH 8.5). The OTA and OTα concentration was measured using UPLC-FL. The results showed that both the free and immobilized CPA caused OTA degradation, however, a reduction of CPA activity was observed for the immobilized enzyme when compared with assays using free enzyme. The optimization of the immobilization process is underway to improve the retention of enzyme activity and, at the same time, to achieve better stability and reuse. It is expected that the overall process will become cost-effective and that the developed material will contribute to make biocatalysis a feasible and attractive alternative for mycotoxin detoxification. Acknowledgements. Study supported by the Portuguese Foundation for Science and Technology (grants UIDB/04469/20201 and UIDB/QUI/50006/20203) and by i-MultiSmart project (POCI-01-0145-FEDER-031924).