OPTIMIZATION OF CULTURE CONDITIONS FOR OHRATOXIN PRODUCTION OF *ASPERGILLUS* SPECIES

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Mycotoxins are toxic secondary metabolites produced by some filamentous fungi. Among them, ochratoxins have outstanding importance, due to their high-level toxicity which could cause remarkable problems in food and feed industry. Ochratoxins are mainly produced by certain *Penicillium* and *Aspergillus* species. The most important member of this metabolite group is the ochratoxin A (OTA), which is a potential human carcinogen, while B and C type ochratoxins are less toxic. In the European Union strict rules and legislative limits defined by the European Commission have been set for ochratoxin A in certain foods and feeds. In the food safety laboratories, numerous methods are available for measuring these compounds from various matrices requiring relatively high amounts of pure ochratoxins as standard compounds for both qualification and quantification. Generally, the chemical synthesis of ochratoxins can be accomplished with low yield, but higher amount of pure compound can be obtained by the purification of the fermentation environment of the producer microorganisms. For the cost-effective purification, the optimization of the culture conditions is essential to maximize ochratoxin production. In this work, four ochratoxin producer *Aspergillus* isolates were selected belonging to *A. ochraceus, A. melleus, A. albertensis* and *A. westerdijkiae* species to test the effects of cultivation conditions on their mycotoxin production. During these examinations, the strains were grown in liquid media and besides the determination of the produced mycotoxin amount, the time dependence of OTA and OTB production was also investigated. Earlier studies suggested that ochratoxin production shows strong correlation with the sugar content of the culture media, therefore, the production of the ochratoxins were also compared on different sugar containing broths. For sample preparation, liquid-liquid extraction using ethyl acetate as extraction solvent was used. The quantity of OTA and OTB in the samples were determined by HPLC-UV and HPLC-FLD,

while their identities were confirmed with UHPLC-HRMS measurements. Determination of the optimal cultivation parameters provide a bases for the method development studies required for metabolite purification.

This work was supported by the Hungarian Scientific Research Fund by grants NKFI K-115690 and this work was connected to the project GINOP-2.3.2-15-2016-00012. The infrastructural background was established with the support of GINOP-2.3.3-15-2016-00006. BS participation was supported through the bilateral project TÉT_16-1-2016-0148.