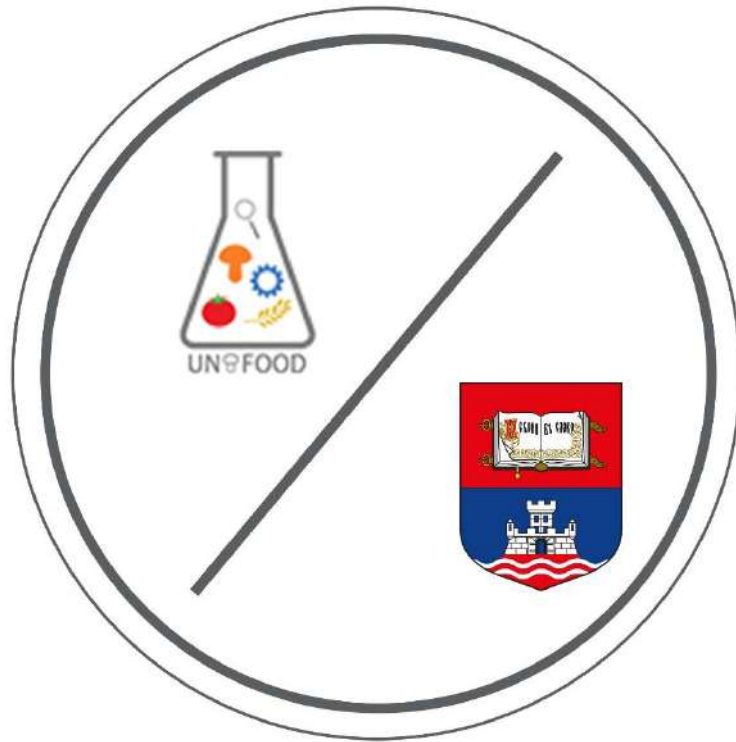


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FOOD PRODUCTION, PROCESSING,
SUSTAINABILITY, ADDED-VALUE FOOD



***IN SITU* PRODUCTION OF XYLOOLIGOSACCHARIDES BY *ASPERGILLUS TUBIGENSIS* FROM CORN COB**

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Xylooligosaccharides (XOS) are prebiotic, functional food ingredients, with biological benefits such as immunomodulatory and anti-inflammatory properties, anticancer and antioxidant activity. Usually, XOS are produced from xylan by the combination of pre-treatment, enzymatic, chemical and/or auto-hydrolytic methods. Fungal xylanases are the most suitable for XOS production. Xylan rich agro-industrial wastes (corn cob is one of them) are used as a substrate for fungal xylanase production and as start material for xylan extraction. *In situ* XOS production by fungal growth on xylan rich medium represents an attractive and advantageous approach but insufficiently described till now. This method has many advantages over the others because it bypasses the extraction and purification of xylan and enzymes, it is environmentally friendly, low cost and time-consuming. This study demonstrated *A. tubingensis* FAT35 has a great capacity for the synthesis of XOS using corn cob as a substrate in solid state fermentation (SSF). Obtained XOS, during the fungal growth, were characterized by TLC and HPLC. Significant antioxidant potential was shown by antioxidant tests (ORAC, DPPH and FRAP). The obtained XOS are suitable to be a functional food additive and are obtained in the simplest way that is both environmentally and economically suitable.

Keywords: prebiotic, XOS, functional food, fungi, Aspergillus

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