



University of Belgrade - Faculty of Agriculture

**1st European Symposium on
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Book of abstracts

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VIII_IL1_ Recycling of agro waste by fungi for obtaining enzymes and prebiotics

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Agro waste materials are agricultural residues (stem, stalks, husks...) and food industrial residues (potato, orange, apple and *etc* peels and soyabean, coconut *etc* cakes). Since each region of the world has different agricultural sectors, specific residues are generating and at the same time a wide range of alternative novel sources of nutrients emerge, such as carbohydrates, proteins and minerals. Proper waste biomass management is one of priority in EU and in world. Filamentous fungi are most potent microorganisms for bioprocessing of waste materials in purpose to obtain value added products such as enzymes, biofuel, bioactive compounds, prebiotics, chemicals, antibiotics... Genus *Aspergillus* and *Trichoderma* are well studied and recognized as potent enzyme producers. Enzyme produced by filamentous fungi such as cellulase, amylase, xylanase, glucosidase, are widely used in industry. Environment-friendly and cost effect solution for their obtaining is utilization of agro waste material as solid substrate for fungal growth [1]. Prebiotics are oligosaccharides with 2-6 units defined as "a substrate that is selectively utilized by host microorganisms conferring a health benefit" [2]. Epidemiologic studies have significantly recognized prebiotics as an essential constituent of a healthy diet. Prebiotics, *e.g.* FOS are prepared by effective fungal enzymes [3]. Usage of biomass residues as start material for prebiotics production is preferable from the standpoint of ecology and as cheap production process. There are number of agro waste materials that could be used for this propose [4]. Corn cob can be considered as the main source for XOS production [5].

Fungi are saprophytic eukaryotic organisms, habitat lignocellulosic material in nature and they are capable to induce enzymes depending on growth substrate, which actually enables their usage for *in situ* prebiotics production, which is new and trending research in this field. This approach unites enzyme and prebiotics obtaining from agro waste in only one process.

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