

## Toxigenic fungal species in cereal-based foods in Serbia

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Mycotoxicological studies were performed in samples of cereals and cereal products collected from fifty four health food stores during 2021. After superficial disinfection in sodium hypochlorite, wheat grains were placed on 2% water agar surface, 10 grains per Petri dish, and incubated during 7 days on temperature of 26°C. According to methods by Ellis (1971), Nelson et al. (1983) Burgess et al. (1994) and Watanabe et al. (1994), fungi genera were determined with special focus on determination of species of *Fusarium* genus. By microbiological analysis of investigated wheat grains the presence of seven fungi genera was established, *Acremoniella* (0.09%), *Acremonium* (0.06%), *Alternaria* (96%), *Dreschlera* (0.3%), *Fusarium* (3.5%), *Nigrospora* (0.03%) and *Penicillium* (0.03%). Within *Fusarium* genus eight species were identified, *F. graminearum* (63.5%), *F. oxysporum* (1.7%), *F. poae* (0.9%), *F. proliferatum* (5.2%), *F. semitectum* (2.6%), *F. sporotrichioides* (20.9%), *F. subglutinans* (3.5%) and *F. verticillioides* (1.7%). High presence of species *F. graminearum* and *F. sporotrichioides* indicated potential danger of presence of mycotoxins zearalenone and trichothecene which cause disease in humans and livestock. Species of the genus *Alternaria* (up to 87%) and *Aspergillus* (up to 90%) were identified most often and in the highest percentage on the examined samples of food for human consumption. Of the species of the genus *Aspergillus*, *A. flavus* (average 28.6%) and *A. niger* (average 9.5%) were most often identified. Of the genus *Fusarium*, the species *F. verticillioides* was identified in the strongest intensity.

Popcorn was the most infected with *F. verticillioides* (17%), but also contaminated with fumonisin B1 (12,704 ppm), which is synthesized by this species. Since these were products that were stored, it was expected that species of the genus *Aspergillus* would predominate, with a high frequency of aflatoxins. More than 90% of samples contained aflatoxin B1 than allowed by the Rulebook of Serbia (Official Gazette of RS, 2011). Fumonisin B1 was detected in lower concentrations, but in this case more than 50% of samples contained this mycotoxin above the permitted concentration.

## Biography

Ana Obradovic is affiliated to Maize Research Institute "Zemun Polje". She is a recipient of many awards and grants for her valuable contributions and discoveries in major area of subject research. Her international experience includes various programs, contributions and participation in different countries for diverse fields of study. Her research interests reflect in her wide range of publications in various national and international journals.

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