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ASSESSMENT OF MYCOTOXIN ASSOCIATED HEALTH RISK IN PEOPLE ON GLUTEN FREE DIET

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In recent years, an increased variety of gluten-free products intended to people with celiac disease has been observed. These individuals need to avoid gluten in their diet, which in practice means substitution of wheat, barley, rye and oat with corn, rice, buckwheat and millet. However, all these cereals and products thereof could be contaminated with mycotoxins – aflatoxins (AFs), ochratoxin A (OTA), zearalenone (ZEA), deoxynivalenol (DON) and fumonisins (FUM), which are regulated by the law. The objective of the study was to assess mycotoxin associated health risk in people on gluten free diet. For that purpose, a total of 60 samples, including flour, pasta, bread, breakfast cereals, biscuits and crackers, all marked with a crossed grain symbol or “gluten free” wording, was purchased in supermarkets in Novi Sad (Serbia). In order to assess the risk, mycotoxins concentrations, determined using high performance liquid chromatography, were combined with food consumption data. For toddlers and other children, at mean level of consumption of all investigated food categories except flour margin of exposure indicated risk of AFB₁, as well as risk of OTA in case of bread, pasta and crackers. In adolescents, the risk was indicated regarding AFB₁ in bread, breakfast cereals and biscuits and for vegetarians additionally in pasta (which also caused the risk of OTA); for adults, elderly and pregnant women the risk of AFB₁ was related to bread and breakfast cereals. Mean exposure levels of ZEA, DON and FUM were below their respective tolerable daily intakes even when all food groups were combined. On the level of individual samples, 8-10 of them (depending on the population group) were responsible for low margins of exposure in case of AFB₁ and 5-8 in case of OTA. The study findings underline the need of a constant surveillance of population exposure to mycotoxins.

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