Effects of selected factors on the content of type A and B trichothecenes in cereal products, including those intended for children

SUMMARY

Mycotoxins are chemically differentiated secondary metabolites produced by moulds that infect plants during growth in the field, and saprophytic fungi that colonize plant products after harvest and during storage. The most important types of mycotoxin-producing moulds found in food and feed are those of the Aspergillus, Penicillium and Fusarium species.

Certain compounds may be a viable alternative method of protecting food, including cereal products, against toxic contamination by fungi and their metabolites. In the search for alternative protective agents, studies are carried out on the use of essential oils, oleoresins and their components derived from aromatic plants, natural plant extracts and spices. Berries such as highbush blueberry and cranberry are a rich source of bioactive compounds with high antioxidant potential. Highbush blueberry fruits are characterized by a high content of polyphenolic compounds, especially anthocyanins. Cranberry, on the other hand, is a particularly rich source of phenolic compounds. Spices, in turn, constitute a separate group of products with high antioxidant potential. Essential oils, glycosides, alkaloids, bitters, mucilage and tannins are among the most important and most common active substances in spices and are responsible for their special properties. The spice with a particularly high antioxidant potential is cinnamon obtained from the dried bark of the cinnamon tree. According to numerous literature data, plant-derived raw materials are a rich source of essential oils and therefore show a wide range of biological and pharmacological activity.

The main objective of this study was to assess the effect of enriching cereal products with antioxidative compounds (lyophilisates of blueberry *Vaccinium corymbosum* L and cranberry *Vaccinium macrocarpon*, and cinnamon *Cinnamomum verum*) on the formation of A- and B-trichothecene mycotoxins.

The results obtained showed that the natural additives used in the experiment (blueberry, cranberry, and cinnamon) inhibited the formation of trichothecene mycotoxins. A direct relationship between the antioxidant potential and the mycotoxin formation process has also been proved.

However, the addition of agents that are a source of antioxidants affects the taste and aroma of food products. The consumer acceptability of such products should therefore be assessed before their final use.

Piot Bhzyna