

Editorial



Food-borne Mycotoxins

Spoilage of food and feed by molds has always been a problem through the centuries. From medieval times epidemic outbreaks of the so-called St. Anthony's fire have been documented, which result from the consumption of rye bread contaminated with ergot alkaloids formed by *Claviceps purpurea*. The agony and distress of the sick is impressively illustrated in the drawings on the Isenheimer Altar (1505–1516) by Matthias Grünewald. Around 450 years later the first structure of a mycotoxin was determined in 1960. In the following years aflatoxins were identified as powerful carcinogens. The development of industrial civilization, modern production processes and preservation possibilities improved the quality of food but did not completely wipe out the mycotoxin problem. Modern analytic strategies allow a close control of production as demonstrated by novel methods in the analysis of ergot alkaloids in rye and rye products (Müller *et al.*) or fumonisins in gluten-free food products (Dall'Asta *et al.*). The importance of sample preparation for reliable results is reviewed by Reiter *et al.* for aflatoxin analysis in food and feed. However, comprehensive data of their occurrence in food are not available for all classes of mycotoxins. In 2003 the Federal Institute for Risk Assess-

“Modern analytic strategies allow a close control of production as demonstrated by novel methods in the analysis of ergot alkaloids in rye and rye products”

ment (BfR, Germany) stated that the data on the occurrence of alternariotoxins are not sufficient to estimate the actual exposition. Although alternariol and its monomethylether, the most prominent alternariotoxins, have in the past been reported to possess genotoxic properties, the underlying mechanism of action was unknown. In the current issue

these alternariotoxins are shown to interfere with topoisomerases, a mechanism which might lead to the impairment of DNA integrity (Fehr *et al.*). As for the alternariotoxins, there are still open questions with respect to the mode of action, as demonstrated by studies on the mechanisms of deoxynivalenol, ochratoxin A or enniatins, likewise presented in this issue. These studies show that we have already gone a long way in identifying and characteriz-

ing mycotoxins, but for many of these compounds we are still far from seeing the whole picture.

A handwritten signature in black ink, appearing to read 'Doris Marko'.

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