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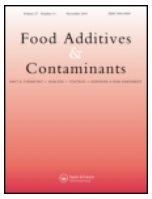

Less *Fusarium* infestation and mycotoxin contamination in organic than in conventional cereals

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Abstract

A total of 602 samples of cereals, consisting of organically and conventionally produced barley, oats and wheat, were collected at harvest during 2002–2004 in Norway. Organic and conventional cereals were sampled in comparable numbers regarding cereal species, localisation and harvest time, and analysed for *Fusarium* mould and mycotoxins. *Fusarium* infestation and mycotoxin content were dependent on cereal species and varied year-by-year. However, in all cereal species, *Fusarium* infestation and levels of important mycotoxins were significantly lower when grown organically than conventionally. Concerning the most toxic trichothecenes, HT-2 and T-2 toxin, lower concentrations were found in organic oats and barley. Wheat was not contaminated by HT-2 and T-2, but lower concentrations of deoxynivalenol (DON) and moniliformin (MON) were found when organically produced. For mycotoxins considered to constitute the main risk to humans and animals in Norwegian cereals, i.e. HT-2 in oats and DON in oats and wheat, the median figures (mean levels in brackets) were as follows: HT-2 in organic and conventional oats were <20 (80) and 62 (117) µg/kg, DON in organic and conventional oats were 24 (114) and 36 (426) µg/kg, and DON in organic and conventional wheat were 29 (86) and 51 (170) µg/kg, respectively. Concentrations of HT-2 and T-2 in the samples were strongly correlated (r = 0.94). Other mycotoxins did not show a significant correlation to each other. Both HT-2 and T-2 concentrations were significantly correlated with infestation of *F. langsethiae* (r = 0.65 and r = 0.60, respectively). Concentrations of DON were significantly correlated with *F. graminearum* infestation (r = 0.61). Furthermore, nivalenol (NIV) was significantly correlated with infestation of *F. poae* (r = 0.55) and MON with *F. avenaceum* (r = 0.37). As lower *Fusarium* infestation and mycotoxin levels were found in organic cereals, factors related to agricultural practice may reduce the risk of contamination with *Fusarium* mycotoxins. Studies of these issues will be presented separately.