

Title Fumonisin B₁ and its co-occurrence with other fusariotoxins in naturally-contaminated wheat grain

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Abstract

The natural occurrence of fumonisin B₁ (FB₁) and its co-occurrence with zearalenone (ZEA), T-2 toxin and deoxynivalenol (DON) were surveyed in 103 winter wheat samples collected after four to six-month storage in family barns from different locations in Serbia. All 103 samples were mycotoxin positive. The mean concentrations of all mycotoxins except ZEA were greater in 2005 than in 2007. FB₁ was detected in 82.1% and 92.0% of all samples with ranges of 750–5400 µg kg⁻¹ (mean, 2079.45 µg kg⁻¹) and 750–4900 µg kg⁻¹ (mean 918.76 µg kg⁻¹) in 2005 and 2007, respectively. Moderate positive correlations were found between FB₁ and DON concentrations ($r = 0.56$ in 2005 and $r = 0.54$ in 2007) and between FB₁ and ZEA concentrations ($r = 0.48$ in 2005 and $r = 0.60$ in 2007), while a moderate negative correlation was detected between the production of FB₁ and T-2 toxin in 2007 ($r = -0.33$). This is the first report of FB₁ occurrence in naturally-contaminated wheat grain and its simultaneous occurrence with ZEA, DON and T-2 toxin in Serbia. Moreover, this is one of the rare reports presenting the occurrence of FB₁ on wheat in the world.