Trace elements in organic and conventionally grown wheat grain

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Summary

Today, mineral deficiences in field crops and food is often reported. It could be due to intensification of agricultural practice oriented to maximal yields, narrow crop rotation or even monoculture, increased use of N, P, K fertilizers, breeding for yield etc. All this increases the rate of depletion of trace elements important for human nutrition. Currently, there are no attempts to improve mineral nutritional value of field crops. The aim of this research was to determine possible differences in minerals content between conventional and organic grown wheats. In one season (2008/09) eight wheat genotypes (three cultivars and five lines) were grown in replicated trials at two locations/cropping systems (conventional and organic) at Križevci. Preliminary grain analyses of 20 minerals and trace elements were done by HPLC and average values of eight genotypes grown in conventional and organic practice were compared. Regarding essential trace elements, conventionally produced wheat had in average significantly higher grain content in Mn and Li, significantly lower grain content in Cu, Mo, Cr, Co and Ni, while there were no significant difference recorded in Fe and Zn.

Key words: wheat grain, organic agriculture, trace elements