

Impact of Zinc on Heavy Metals Content, Polyphenols and Antioxidant Capacity of Faba Bean in Milk Ripeness

Authors : M. Timoracká, A. Vollmannová., D.S. Ismael, J. Musilová

Abstract : We investigated the effect of targeted contaminated soil by Zn model conditions. The soil used in the pot trial was uncontaminated. Faba beans (cvs Saturn, Zobor) were harvested in milk ripeness. With increased doses applied into the soil the strong statistical relationship between soil Zn content and Zn amount in seeds of both of faba bean cultivars was confirmed. Despite the high Zn doses applied into the soil in model conditions, in all variants the determined Zn amount in faba bean cv. Saturn was just below the maximal allowed content in foodstuffs given by the legislative. In cv. Zobor the determined Zn content was higher than maximal allowed amount (by 2% and 12%, respectively). Faba bean cvs. Saturn and Zobor accumulated (in all variants higher than hygienic limits) high amounts of Pb and Cd. The contents of all other heavy metals were lower than hygienic limits. With increased Zn doses applied into the soil the total polyphenols contents as well as the total antioxidant capacity determined in seeds of both cultivars Saturn and Zobor were increased. The strong statistical relationship between soil Zn content and the total polyphenols contents as well as the total antioxidant capacity in seeds of faba bean cultivars was confirmed.

Keywords : antioxidant capacity, faba bean, polyphenols, zinc

Conference Title : ICHNFS 2015 : International Conference on Human Nutrition and Food Sciences

Conference Location : Rome, Italy

Conference Dates : September 17-18, 2015