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OH12 / FCS12 U/O

## Uticaj različitih sistema mineralne ishrane na antioksidativni kapacitet zrna kukuruza

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Zrno kukuruza je važan izvor fito-nutritiva u ishrani ljudi i životinja. Testirana je primena različitih sistema mineralne ishrane kao što su: urea (standardno mineralno đubrivo), mikrobiološko đubrivo (Team mycoriza plus), organsko đubrivo (Fertor) i kontrola (bez đubrenja) na promene u koncentraciji rastvorljivih fenola, ukupnog glutationa, fitinske kiseline, žutog pigmenta i kapaciteta redukcije DPPH radikala u zrnu hibrida kukuruza bele, žute i crvene boje. Rezultati pokazuju da je crveno zrno kukuruza, u proseku, imalo najveću koncentraciju fenola i žutog pigmenta uz najveće vrednosti redukcije DPPH, u većini tretmana. Urea je u izvesnom stepenu uticala na povećanje fitina kod kukuruza žutog i belog zrna, kao i žutog pigmenta u žutom i crvenom kukuruzu. Najveće vrednosti fenola kod sva tri hibrida bile su zabeležene pod uticajem mikrobiološkog đubriva, glutationa kod kukuruza žutog i crvenog zrna, dok je kod hibrida žutog zrna organsko đubrivo uticalo na povećanje vrednosti redukcije DPPH, u odnosu na ostale tremane. Rezultati ukazuju da su kod belog hibrida fenoli, a u nešto manjem stepenu glutation i žuti pigment, pozitivno korelirali sa promenama DPPH, dok su kod žutog hibrida fitin i fenoli značajno korelirali sa DPPH (fitin pozitivno, a fenoli negativno). Kod crvenog hibrida korelacija je bila pozitivna između fenola i DPPH i negativna između glutationa i DPPH. Ispitivanja su pokazala da zrna kukuruza različitih boja mogu biti značajan izvor različitih antioksidanata čija se koncentracija može menjati u željenom smeru upotrebom različitih tipova đubriva, što je posebno značajno za održive sisteme gajenja.

### **The impact of different mineral nutrition on antioxidative capacity of maize grain**

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Maize grain is important source of phytonutrients in food and feed. The application of different systems of mineral nutrition: urea (standard mineral fertilizer), bio-fertilizer (Team mycoriza plus), organic fertilizer (Fertor) and control (without fertilization) on alterations in concentration of soluble phenols, total glutathione, phytic acid, yellow pigment and DPPH reduction capacity in maize grain with white, yellow and red colour grain, were tested. Results indicate that red grain maize, on average, had the highest concentration of phenols and yellow pigment, with the highest reduction capacity of DPPH, in all treatments. Urea caused phytate increase in yellow and white grain maize, as well as yellow pigment increase in yellow and red maize to some extent. The highest values of phenols in grain of all three hybrids were gained by bio-fertilizer, and of glutathione in yellow and red grain, while at yellow grain hybrid the highest values of DPPH reduction capacity were present under the influence of organic fertilizer in comparison to other treatments. Results pointed that in white grain maize, phenols and in lesser extent glutathione and yellow pigment, positive correlated to DPPH variations, while in yellow grain hybrid phytate and phenols were correlated significantly with DPPH (phytate positive and phenols negative). In red grain hybrid correlation was positive between phenols and DPPH and negative between glutathione and DPPH. Studies signified that maize grain of different colour could present the important source of different antioxidants whose concentration could be altered by application of different type of fertilizer in desired direction, which is particularly important for sustainable agriculture.