

## The Effects of Soil Chemical Characteristics on Accumulation of Native Selenium by Zea mays Grains in Maize Belt in Kenya

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**Abstract :** Selenium which is an-antioxidant is important for human health enters food chain through crops. In Kenya Zea mays is consumed by 96% of population hence is a cheap and convenient method to provide selenium to large number of population. Several soil factors are known to have antagonistic effects on selenium speciation hence the uptake by Zea mays. No investigation in Kenya has been done to determine the effects of soil characteristics (pH, Tcarbon, CEC, Eh) affect accumulation of selenium in Zea mays grains in Maize Belt in Kenya. About 100 Zea mays grain samples together with 100 soil samples were collected from the study site, put in separate labeled Ziplocs and were transported to laboratories at room temperature for analysis. Maize grains were analyzed for selenium while soil samples were analyzed for pH, Cat Ion Exchange Capacity, total carbon, and electrical conductivity. The mean selenium in Zea mays grains varied from  $1.82 \pm 0.76$  mg/Kg to  $11 \pm 0.86$  mg/Kg. There was no significant difference between selenium levels between different grain batches  $\{\chi (Df =76) = 26.04 P= 1.00\}$  The pH levels varied from  $5.43 \pm 0.58$  to  $5.85 \pm 0.32$ . No significant correlations between selenium in grains and soil pH (Pearson's correlations = - 0.143), and between selenium levels in grains and the four (pH,Tcarbon,CEC,Eh) soil chemical characteristics  $\{F (4,91) = 0.721 p = 0.579\}$  was observed.It can be concluded that the soil chemical characteristics in the study site did not significantly affect the accumulation of native selenium in Zea mays grains.

**Keywords :** maize, native, soil, selenium

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