

Analysis of nutrient profiling and health benefits of finger millet (*Eleusine coracana* L.) of selected Finger Millet in Kenya

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ABSTRACT

Finger millet (*Eleusine carocana* L.) is a climate resilient cereal crop considered to be nutritionally rich with higher health benefits. However, there is limited information on the nutrients in Finger millet. Further, growing public awareness on nutrition and health care research substantiates the potential of finger millets as alternative crop. The objective of this study was to determine the macro and micro-nutrient profiles of 45 local and commercial varieties and new breeding lines from ICRISAT. Laboratory experiment was conducted at University of Cologne Germany in 2023. Complete randomized design with 4 replications was used. Inductively Coupled Plasma Mass Spectrometry (ICP-MS) analysis was used to determine the concentration of nutrients. Data was analyzed using Statistical analysis software and the treatment means separated using least significant difference at $p \leq 0.05$. The results showed that the highest content of macro nutrients P, K, Mg, Ca and S was 695.96, 1596.09, 435.47, 963.37 and 311.89 mg/100g for genotypes KAL ATARI, KNE 628, KAL ATARI, ICFX 1420314-6-5 and KNE 628, respectively. The micro nutrient element B, Mn, Fe, Cu, Zn, Mo and Al was found to range from 1.79-1.18, 4.38-46.80, 2.69-10.70, 0.03-1.12, 2.59-10.67, 0.09-0.20 and 0.12-48.09 mg/100gm respectively. The most nutrient dense genotypes were KNE 628, KNE 741, KNE628, KNE 741, KNE 628, ICFX 1320412-SB-5-1-4-1 and KACIMMI 72, respectively. These genotypes recorded high levels of both macro and micro nutrient elements. The study provided useful information on the potential health benefits of finger millets and the most nutritious genotypes that could be used for breeding to improve nutrient status of finger millet varieties in breeding programs.

Keywords: Breeding programs, finger millet, climate resilient cereal, nutrient dense, Inductively Coupled Plasma Mass Spectrometry (ICPMS)