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Application of TXRF in Assessing Trace Element Levels in Formulated Indigenous Complementary Infant Flour from Kenya

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Trace element levels in several formulated indigenous complementary infant flours were assessed using Total-reflection X-Ray Fluorescence (TXRF). An analytical procedure for extraction of the elements was developed and validated by subjecting a certified reference material to the same procedure. Statistical analysis was performed using cluster analysis and principal component analysis. The concentration levels of the investigated essential trace elements depended strongly on the type of ingredients used, the proportions of these ingredients in the sample and the origin of the samples. The bioavailable portion of the studied essential trace elements in the complementary infant food samples has been assessed using data from literature on estimated daily intake and bioavailability levels of trace elements in plant-based complementary food. Our results have shown that the investigated samples have a high potential to meet the requirements on recommended daily intake of copper, iron, zinc and manganese, provided that individual ingredients from the studied areas are carefully selected and combined.

Country or International Organization

Kenya

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