

Abstract

Levels of trace elements in selected indigenous foods in Butula, western Kenya were determined and foods containing high levels of zinc, iron and chromium were used to make a food formulation. The bioavailability of these elements in the food formulation was estimated using in vitro digestion procedure and algorithm module. Levels of trace elements in the foods ranged from 5.3 to 19.5 mg 100g⁻¹ for iron, 1.3 to 4.6 mg 100g⁻¹ for zinc, 0.3 to 0.17 mg 100g⁻¹ for chromium and 0.015 to 0.05 mg 100g⁻¹ for selenium. Millet grains, sesame and pumpkin seeds were used to prepare the food supplement, which had bioavailability of zinc and iron from algorithms studies of 37.4 % and 1.2 %, respectively, while the levels of dialyzable zinc, iron and chromium was 34.4 %, 24.2 % and 17.4 %, respectively. The in vitro study indicated that the food formulation meets 5 x iron and 2 x zinc RDA. The bioavailable iron and zinc are capable of boosting the immune system and therefore delay early use of ARVs by people living with HIV and AIDS (PLWHA).