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Nutritional Profile of Three Candidate Food Ingredients for Food-to-food Fortification in Benin (West Africa)

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Abstract

Malnutrition especially micronutrient deficiencies (MNDs) among infants is an important public health problem. Food-to-food fortification using local food ingredients is a cost effective and sustainable approach to overcome this issue. This research aimed at characterising three selected food ingredients candidate for food-to-food-fortification to enhance micronutrients intake among children aged 6–59 months in Benin. The local food ingredients were selected based on their availability and use as traditional food fortificant. There were characterised for their dry matter, ash, iron (Fe), calcium (Ca), zinc (Zn), magnesium (Mg), phosphorus (P), copper (Cu), sodium (N), manganese (Mn), vitamin C and total phenolic compounds contents using standard methods. Pro-vitamin A, phytate and tannin contents of the selected food ingredients were collected from literature. *Adansonia digitata* fruit pulp, *Moringa oleifera* leaf powder and Cochlospermum tinctorium root powder were the selected food ingredients. Baobab fruit pulp mineral contents in mg/100 dw were 9.9±0.1 for iron, 0.9±0.1 for zinc and 402.2±3.4 for calcium. As *moringa* leaf powder and Cochlospermum tinctorium root powder are concerned, their iron, zinc and calcium contents in mg/100 g dw were 34.1±2.2 and 26.8±2.7; 9±0.0 and 0.9±0.0 and 2054.9±11.5 and 1061.3±11.5 respectively. *Adansonia digitata* fruit pulp had 372.7±12.2 mg/100g dw of vitamin C content, 2128.2±44.5 mg eq AG/100g dw of total phenol content and 287.5±201.0 mg/100g dw of phytic acid content. *Moringa oleifera* leaf powder and Cochlospermum tinctorium root powder had respectively 24.6±1.4 mg/100g dw and 23.4±1.3 mg/g dw of vitamin C content, 2256.7±259.0 mg eq AG/100g dw and 2694.6±29.8 mg eq AG/100g dw of total phenol content and 829.0±23.0 mg /100g dw and 500.0±200 mg/100g dw of phytic acid content. The present study demonstrated the nutritional potential of these local food ingredients for food-to-food fortification.

Keywords: *Adansonia digitata* fruit pulp, Cochlospermum tinctorium root powder, food-to-food fortification, minerals, *Moringa oleifera* leaf powder, vitamins

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