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Baobab as a Natural Micronutrient Dietary Complement for Nutrition Security: A Research Undertaking by the Baofood Project

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Abstract

Micronutrient malnutrition attacks more than 2 billion people worldwide. Many suffer from multiple deficiencies. Iron deficiency anemia affects 1.62 billion people and has severe implications on the physical and cognitive development of children. Zinc is important for growth and immunity because of its involvement in DNA and protein synthesis; 1.3 billion people or 17 % of the world's population is at risk of zinc deficiency. A recent study (2015) based on food supply suggests that 3.5 billion people are at risk of rickets and osteomalacia due to calcium or a combination of calcium and vitamin D deficiency. It is estimated that 90 million children <5 years and 22.24 million pregnant women suffer from subclinical vitamin A deficiency leading to lowered immunity and increased risk of mortality in children.

Forest trees are natural and traditional supplement to staple diets. Baobab represents one of those that sporadically supplements rural diets and serves as traditional medicine. It has therefore attracted attention for compositional investigation. Baobab leaves contain 5.4 g calcium per 100 g DM, 10–18 times more calcium than in the foodstuffs commonly known as calcium-rich (e.g. milk, green-leafy-vegetables and pulses). The pulp contains 318 mg/100 g, more than 2-times the calcium concentration in milk and 3–4 times that in leafy vegetables.

The magnesium content (339 mg/100 g dry sample) of the leaves and that of the seeds (402 mg/100 g dry sample) are 2.35 and 2.8 times that of pulses (144 mg/100 g); and pulses are commonly known as rich sources of magnesium. The leaves and seeds of baobab have better concentration of zinc, (4 and 5 mg/100 g respectively), than that of legumes (2.4 mg/100 g) and beef (1.6 mg/100 g).

Baobab leaves contain on the average 65 mg Fe/100 g sample, more than five times the level present in the richest conventional foodstuffs (11.9 mg Fe/100 g legume) and more than 15x that in meat (4.2 mg/100 g). The pulp has moderate iron concentration (about 4 mg/100g) that on the average is comparable to the amount in beef. The combination of its moderate iron and rich vitamin C content, about six times more than that in citrus fruits, makes the pulp a desirable complement of a daily diet.

Keywords: Baobab, deficiency, micronutrients, natural supplements

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