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Natural Means of Rectifying the Micronutrient Deficiency Problems in Africa

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Abstract

A test of nutritional adequacy of the diets in Africa indicated a deficiency of calcium in all countries, and poor levels of vitamin A, Fe and folic acid in some countries. In view of the composition of the diets which predominantly (>70%) consist of staple food, it is not surprising to encounter micronutrient deficiency problems. The levels of vegetables and meat in the diets of East Africa (80 g and 30 g per capita and day, respectively) are markedly lower than the world average (280 g vegetables and 112 g meat per capita and day).

African indigenous legumes excel staple foods by an average of 360% in both calcium and iron. Rich sources of calcium are rice bean (200 mg Ca/100 g), soya bean (186 mg Ca/100 g) and leafy vegetables (kale, baobab leaves and cabbages with average Ca content of 185 mg/100 g). The leaves of pumpkin, sweet potato, cassava and moringa with their calcium content of 246, 272, 403, 584 mg/100 g, respectively, have great potential of complementing the staple diets. Rich sources of iron include pigeon pea (15 mg Fe/100 g), bambara nut (12 mg/100 g) and a variety of beans (~ 10 mg/100 g).

The daily consumption of 100 g kale, cabbages or musk pumpkin can satisfy the requirement (4 mg day⁻¹) for beta carotene, the precursor of vitamin A. The leaves of sweet potato, pumpkin, cassava and moringa with their beta carotene content of 18 mg, 21 mg, 101.4 mg and 118.2 mg per 100 g, respectively, are rich sources of vitamin A.

The legumes and vegetables used as supplements for calcium, iron and vitamin A are also rich in folic acid. The fermentation of cereals and their products prior to food preparation can still raise the folic acid content to a level which when served with legumes can satisfy even the requirements of pregnant women.

A supplement of most pulses to a level of about 200 g d⁻¹ and that of fresh leafy vegetables to a level of about 400 g d⁻¹ can potentially meet the daily requirement for the critical micronutrients. Draught resistant leguminous plants (bambara beans, cowpea and lablab) are not only useful in enriching the daily diet but they can also be intercropped with cereals restoring nitrogen in the soil and repairing the degraded farm land.

Keywords: Africa, calcium, folic acid, iron, legumes, nutritional adequacy, staple food, vegetables, vitamin A