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Phytate Content in Yam, Cooked Yam, and Yam Flour

Author: A. Bell, Centre de Nutrition, DGRST, B.P. 6163, Yaounde, Cameroun.

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ABSTRACT

Six species of edible yams (Dioscorea spp.), namely D. rotundata, D. cayenensis, D. dumetorum, D. alata, D. libretsiana, and D. schimperiana, were analyzed for phytate phosphorus, total phosphorus, calcium, magnesium, iron, copper, zinc, manganese, and crude protein. Changes during boiling and the preparation of flour were also studied.

Phytate phosphorus content in yam ranged from 28 to 143 mg/100 g dry weight. D. dumetorum and D. alata showed the highest values. Although some variation in the ratio of phytate to total phosphorus was observed (0.3 to 0.7), highly significant correlation coefficients were obtained for total and phytate phosphorus contents. The same observation was made for total proteins and phytate phosphorus contents in yam. Phytate retention was important when cooking in boiling water and in the traditional preparation of yam flour. Sun-drying after soaking in water led to a large reduction of the phytate content of flour.