Changes in the Nutritive Value of Two Yam Species (Dioscorea dumetorum and D. rotundata) during Growth and Storage of the Tubers

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ABSTRACT

Changes in chemical composition were measured on two Cameroun yam cultivars from Dioscorea dumetorum and Dioscorea rotundata species during the last 6 months of vegetative cycle and 16 weeks of storage.

Dry matter content increased in the early stages of growth and during storage: changes were more important in D. rotundata tubers. Mineral content on dry weight basis was higher in immature tubers than in mature ones but did not change during storage. Lipid content did not change markedly. Crude protein content on dry weight basis increased slightly during growth but did not vary with storage period. Amino acid composition of proteins did not vary during growth and storage. Starch content increased until the eighth month of vegetative cycle and decreased during storage. Alcohol-soluble sugar content did not change markedly in D. dumetorum tubers, but in D. rotundata tubers it decreased strongly during growth and increased during storage. In both species, cell-wall carbohydrate content was higher in immature or stored tubers than in the freshly harvested mature ones.

Neither energy value nor chemical score of protein in the edible dry matter changed appreciably during growth and storage. Water content and storage depreciation (particularly hardening in D. dumetorum tubers) are in fact the main restrictive factors of the ability of yams to satisfy a large proportion of human nutritional requirements.