

## The contribution of root and tuber crops to the nutritional requirements of the developing countries of the tropics: A review

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Root and Tuber Crops comprise cassava, sweet potatoes, yams and aroids. They are grown in many tropical regions of the world. In Africa, Nigeria is the largest producer of cassava followed by Thailand in Asia and Brazil in America. These crops which are widely consumed in many developing countries are rich in carbohydrates but are generally poor in proteins and lipids. Cassava and yams are rich in fibre and constitute a major source of dietary fibre in West African sub-region since these crops constitute the main staple foods of the area. Yam and cassava are good sources of vitamin C but poor in other vitamins including vitamin A and B-group vitamins which occur in reasonable amounts in sweet potato and cocoyam.

However, the use of root and tuber crops as food carries with it certain risks attributable to the presence of toxicants and anti-nutrients in them. Cassava contains cyanogens principally linamarin (0.015-1.00g HCN/kg) which may result in cyanide poisoning; sweet potatoes contain trypsin inhibitors which affect the availability of proteins from this source. Alkaloids and tannins are present in some species of yams. Alkaloids are toxic while tannins may reduce the availability of proteins from yams. However, alkaloids are water soluble and are effectively removed by soaking in water. Oxalate accumulates in root and tubers as soluble, insoluble or a combination of both. Soluble oxalate is toxic because it inhibits calcium absorption. However, the level of oxalate in these crops (0.5-0.8g/100g) is too low to pose a threat to consumers. Phytates are also present in root and tuber crops and they reduce mineral element availability from foods.

In spite of the present of toxic and anti-nutritional substances, root and tuber crops contribute significantly to the nutritional needs of the developing countries and will remain the dominant source of affordable energy in these countries in the foreseeable future.

### Biography

A. E. Abara pursued his B.Sc. Honors in Chemistry from University of Ibadan, Nigeria in 1974 and M.Sc. in Food and Management Science from Queen Elizabeth College (King's College) of the University of London in 1979. He Completed his Ph.D. in Nutrition and Food Science from University of Calabar, Nigeria in 1997. He taught for over 37 years at the tertiary institution level and he is currently in the Department of Chemical Sciences, Cross River University of Technology, Calabar in Nigeria. He has several publications in foreign and local journals in the area of food and nutritional biochemistry. His current research interests include amongst others: Chemical composition and nutritional value of foods and foodstuff, The effects of wet and dry heat on the composition of yam foodstuffs, Variability in nutrient composition of plant foods in Cross River State, Nigeria, Comminution of local food materials and consequences.

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