Title Nutritional facts, product diversification and value addition in tropical tuber crops for food and nutritional security in India

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Citation Abstracts of 7th International Postharvest Symposium 2012 (IPS2012). 25-29 June, 2012. Putra World Trade Centre (PWTC), Kuala Lumpur, Malaysia. 238 pages.

Keywords tuber crop; nutritional fact

Abstract

Tropical tuber crops having high carbohydrate, low fat and plenty of energy contribute significantly to the nutrition and livelihood of millions of people around the world. Generously endowed with calories, these crops are known to supply food for satisfYing hunger of human being over the years. In the era of extensive population growth, tropical tuber crops, the concentrated source of energy and nutrition will not only playa vital role in food and nutritional security of poverty stricken rural population in India but also offer a wide potential in the food, feed and industrial sectors through diversified and value added products. Although a number of tropical tuber crops are grown in India, the important tubers are cassava, sweet potato, yams and edible aroids. Apart from starch, although the tubers are rich in dietary fibre, vitamins and minerals, some anti-nutritional factors like cyanogens in cassava and oxalates in aroids limit their use as staple food. So, specially processed value added ready-to-cook and ready-to-eat products with a better consumer appeal is the only alternative for greater use of these crops in India. Although, these crops are relatively tolerant to many biotic and abiotic stresses, the tubers are widely spoiled during storage on account of their physiological and biochemical changes and also by attack of microorganisms and pests. An attempt was, therefore, made under All India Coordinated Research Project on Tuber Crops at Bidhan Chandra Krishi Viswavidyalaya, Kalyani, West Bengal, India to assess the nutritive value of these tubers and to develop value added diversified products with enhanced market appeal. Processing technologies developed for tropical tuber crops at different research institutes in India have also been discussed in this paper for promotion of these crops as an alternate source of safe and nutritious food. Marked variations in nutritional value were observed not only among different tuber crops but also within the cultivars of same crop. Starch as the major constituent of tubers was found to vary from 12 per cent in taro to 29 per cent in cassava. The crops like sweet potato, cassava, yam, taro and elephant foot yam were found to be rich in starch and minerals. The orange-fleshed sweet potato was marked as a rich source of~-carotene, a precursor of vitamin A, whereas the elephant foot yam, taro and yam were found to be comparatively rich in protein. From various researches on post-harvest processing of tropical tuber crops, a nwnber of diversified value added

products have been developed in India. Among these, 'rava', 'porridge', fried chips, noodles, starch based wafers, 'pappads' from cassava; jam, soft drinks, pickles from sweet potato; dried cubes, pickles, fried chips from elephant foot yam, and noodles from yams are some nutritionally rich products capable of ensuring food, nutrition and livelihood security of resource poor farmers in developing countries.