Yacon Based Snacks: A Source of Fructooligosaccharides, Phenolic Compounds, Antioxidant Activity and Low Glycemic Index.

Grace Ng'endo Miringa[1]

[1]Dedan Kimathi University of Technology Institute of Food Bioresources Technology Nyeri, Kenya.

[1]Corresponding Author Email: gracemiringa11@gmail.com

Abstract

Yacon is a sweet-tasting Andean tuber that is grown in South American countries, China etc. but not very well known in Kenya. It has been used in the formulation of various products e.g. yacon syrup, yacon candies, yacon flour used to make cakes, biscuits etc. Yacon is a functional food due to the nutritional value of its composition represented by its fructooligosaccharide content. Snacking is the most common social activity and is generalized by high carbohydrate content thus the leading cause of non-communicable diseases. Therefore, development of snacks with health benefits is an opportunity for the food sector. The present review aims to broaden discussions of the functional properties attributed to snacks formulated with yacon flours, which possess beneficial properties i.e. high protein, fiber, antioxidants and total polyphenols contents. Its prebiotic and low glycemic index properties essential for prevention of non-communicable diseases. According to studies done, biscuits formulated with yacon flours have recorded high protein, fat, mineral and fiber content as compared to wheat flours. Fiber contents are greatly increased with addition of yacon flour due to high fructooligisaccharide. A snack formulation of banana flours and yacon flours showed an increase in the antioxidant activity and total polyphenol content greatly attributed to the yacon flour added. Snack formulations with yacon flour have shown high amounts of slow digestible starch and resistant starch that attribute to low glycemic index thus very beneficial for diabetic patients. The fructooligosaccharide in yacon that is greatly retained in yacon flours is not digestible by the human enzymes thus after consumption it is selectively fermented in the colon by a group of bacteria mostly, Bifidobacterium, thus a prebiotic. It modulates the intestinal microbiota thus facilitating the exclusion of potential pathogens by competition and modulating the immune system increasing defenses of the host. There are few studies done on this, clinical evidence is scarce, making it necessary that more studies are done. The availability of yacon is still new; its popularity depends on publications aimed at consumer education and new products development by food industries.

Keywords: Yacon, snacks, glycemic index, prebiotics, antioxidants.