NALI CASSAVA PRODUCTS DEVELOPMENT – PROSPECTS, PROBLEMS AND SOLUTIONS

ABSTRACT

Whole cassava tuber was processed as a replacement for maize in livestock feed using a combination of controlled soaking and thermal treatment to achieve polymerization resulting in modified starch which has been used to feed poultry and goats for up to 8 years. A shelf life of over 3 years was achieved under ambient conditions. However, the cyanide content evaluation is still on going as well as the development of a pilot plant for commercial production.

INTRODUCTION

Cassava is a biopolymer. Biopolymers are polymers that are generated from renewable sources and are often biodegradable with the action of micro-organisms, heat and moisture.

Cassava, an edible root that grows well in poor conditions, is the third largest source of calories for people in the tropics. However, as a self-defence mechanism against attack from pests and predators, cassava releases hydrogen cyanide upon damage to its cells. Sun-drying, fermentation and other traditional processing techniques can successfully eliminate the hydrogen cyanide but it may remain and cause a variety of illnesses, including tropical ataxic neuropathy and epidemic spastic paraparesis, if pre-consumption treatment is substandard (Crawford, 2014).

All the cassava plant species are known to contain cyanide. Toxicity caused by free cyanide (CN^-) has already been reported, while toxicity caused by glucoside has not. The lethal dose of CN^- is 1 mg/kg of live weight; hence, cassava root classification into toxic and non-toxic depending on the amount of cyanide in the root. Should the cyanide content be high enough to exceed such a dose, the root is regarded as toxic (Creda & Mattos, 1996).

Modified starch is native starch that has been changed in its physical and/or chemical properties. Modifications may involve altering the form of the granule or changing the shape and composition of the constituent amylose and amylopectin molecules. Modifications are therefore carried out on the native starch to confer it with properties needed for specific uses. When a starch is

modified chemically or physically, the properties of the native starch is altered. Various modifications give the starch properties that make it useful in many industries such as food, pharmaceutical, textile, petroleum, and paper pulp industries (IITA, 2005).

The different ways of modifying native starch consist in altering one or more of the following properties: paste temperature, solids/viscosity ratio, starch paste resistance to reduction of viscosity by acids, heat and or mechanical agitation (shear), retrogradation tendencies, ionic and hydrophilic nature. Modifying starch is important to provide the following properties: thickening, gelatinization, adhesiveness and/or film-formation, to improve water retention, enhance palatability and sheen and to remove or add opacity. (IITA, 2005)

METHODOLOGY

Raw tubers were harvested, washed and subjected to controlled soaking and water treatment. Thereafter, the tubers were dehydrated and put through a size reduction machine.

RESULTS

The products obtained was granular in nature and non-hydroscopic. When exposed to weather. Using the hammer mill, it can be reduced to various mesh sizes to suit birds of different ages. Exposed to ambient conditions, it has remained dry and hard for more than 3 years. It has been used to replace 50% of maize in broiler ration, starter and finisher for 8 years, with no adverse effect. Instead, it reduced wetness of the litter. Broilers raised in this ration still attained finished live weight of 3kg in 9 weeks.

REFERENCES

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