



Processing Techniques for utilization of African Yam Bean Seeds



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Symposium of African Yam Bean,



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Importance of African Yam Bean Seeds



- good source of protein- It contains all the amino acids found naturally in plant protein (Ekop, 2006).

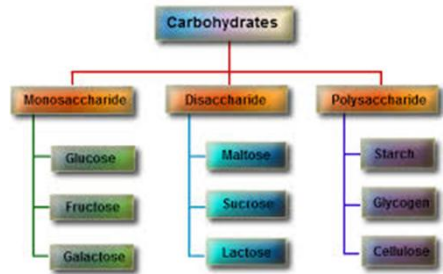
- protein →



- fiber →



- carbohydrate →

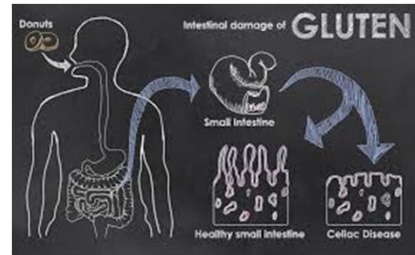


- rich in minerals such as phosphorus, iron and potassium,



Limitation

- anti-nutrients



- eg: trypsin inhibitors, haemagglutins, phytate, tannin, oxalate and other alkaloids (Nwokolo 1987; Ajibada et al; 2005; Fasoyiro et al; 2006)

Effect of Antinutritional factors

- Reduction in availability of nutrients and causes growth inhibition
- contribute to flatulence production
- Others such as alkaloids and lectin can be toxic for human and animal nutrition (Oboh et al; 1998)





Limitation

- Another drawback to the utilization of AYB is its long cooking time when compared with that of cowpea



- However, the quality of foodstuff may be improved by processing.



Justification

- food processing technologies can provide alternative for improving the nutritional quality of food plants
- Any procedure that would increase nutrient content, quality, availability, shelf life, flavor, aroma, palatability and reduce bulk in legumes, cereals, roots and tubers would be of value in Nigeria.



Justification

- This would alleviate the problem of PEM and its accompanying results, particularly of infant morbidity and mortality. The procedure would not only produce foods adequate in nutritive value but also would be well accepted and tolerated by the target groups



Objectives-Utilization

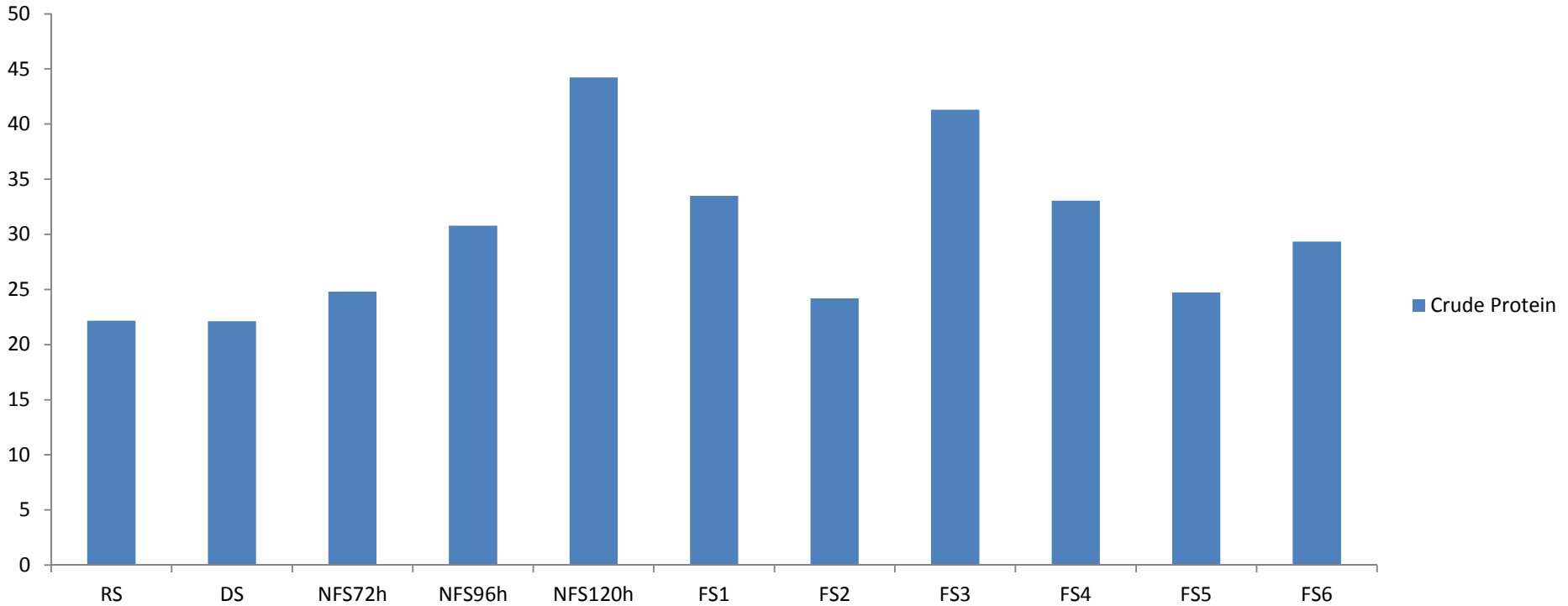
- Determine different fermentation technique that can improve the protein content of the seed in the production of a traditional condiment
- isolate and characterize the microorganisms associated with fermentation of AYB and determine the level of involvement of each of the isolate in fermentation of the seeds –
 - Development of starter culture for production of “otiru”



methodology

- Otiru was produced by natural fermentation of the seeds
- It was soaked in water overnight then boiled for 2hour and dehulled to remove the antinuritional factors and fermented naturally up to 120 hours
- It was observed that AYB fermented at 120hour has the highest protein content of compare to the raw

Effect of fermentation on AFB



Protein enrichment was highest in the sample fermented with *Aerococcus viridans* (FS3-41.30 %) while the lowest value of 24.20% was recorded in seeds fermented with *Bacillus* spp (fs2).The values of other starter culture fermented samples were 33.50% (seeds fermented with *Lactobacillus* spp) ,33.05 % (seeds fermented with *Pediococcus* spp), 24.73% (seeds fermented with *Saccharomyces cerevisiae*)



Recommendation /conclusion

- It was discovered that “otiru” was preferred to the common “iru” produced from African Locus bean seeds which is very difficult to produced
- Condiment is one of the major income generating business by most market women in Nigeria and the iru condiment production is limited because of the long cooking time of 12 hours prior to fermentation



Recommendation /conclusion

- Unlike African yam bean seeds which can be cooked for 2 hours after soaking
- Women are the major group that will be involve in the value-chain production of” otiru”, the male/female farmer will plant the seeds, harvest, while the market women group will be involved in the processing and production of “otiru” which can then be packaged in wet fermented or dried form for income generation and for improving food security by solving the problem of Protein-Energy Malnutrition and helping to contribute to wealth creation in the country

Thank you

