

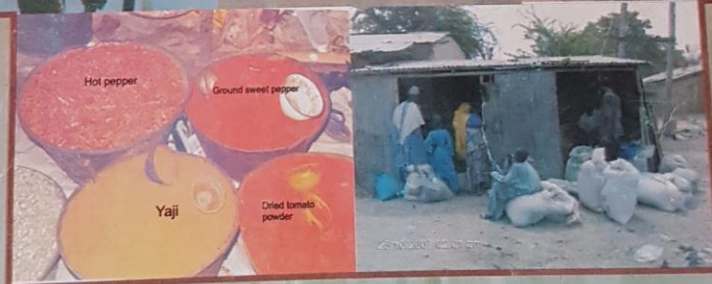


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PROCEEDINGS

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On **FOOD PROCESSING IN THE SEMI-ARID REGIONS:
CHALLENGES AND OPPORTUNITIES**



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COMPARATIVE STUDIES OF ALCOHOL PRODUCED FROM TWO VARIETIES OF SWEET POTATO (*Ipomea batatas*)

Balogun, M.A., O.R. Karim and Kolawole, F.T.

Department of Home Economics and Food Science, University of Ilorin, Ilorin.

INTRODUCTION

Sweet potato (*Ipomea batatas*) is an important neglected crop, in the Agricultural policies of many tropical countries, including Nigeria (Okonkwo *et al.*, 2008). The crop, however, outrank most carbohydrate foods in vitamins, minerals and energy contents (Ihekoronye and Ngoddy, 1985). The main advantage of potato as a starchy root crop over many other root crops is the high content of fermentable material which can yield higher amount of ethanol. Alcohol production from sweet potato is a sequence of chemical processes designed to saccharify the potato starch, fermenting the resulting solutions and then distilling the alcohol. The usefulness of alcohol in alcoholic beverages, in food and chemical industries cannot be overemphasized. Therefore, this study is aimed at comparing the potentials of two varieties of sweet potato in alcohol production.

MATERIALS AND METHODS

Two varieties of sweet potato; the white and yellow were used for this research. The two varieties and sorghum grains were purchased from Owode market in Offa, Kwara State, Nigeria. The sorghum grains served as a source of beta and alpha amylase which was used eventually in alcohol production. The method described by Asiedu (1989) was used to prepare the malted sorghum in order to obtain alpha and beta amylase. Alcohol was produced from the two varieties of sweet potato using the method described by Sulaimon (2008). The pH, sugar content and alcohol content were determined using AOAC (2006) methods, while the specific gravity was determined using the method described by Idowu and Durotimi, (2003).

RESULTS AND DISCUSSION

The results in Table 1 showed that the white spp. had higher yield of 90.18% than the yellow spp. 83.75%. This may be attributed to the higher starch content of the white spp. making it more susceptible to enzymatic breakdown, while the yellow spp. contains some level of carotene, this may probably account for its lower yield as compared to the white spp. However, both varieties can be said to be good sources of alcohol as they both produced considerably high yields. This value is in agreement with Lyons *et al* (1995) on production of alcohol. Similarly, the sugar content after distillation for white and yellow spp. was also considerably high with values of 52% and 51.7% respectively. This observation suggests that there are still more sugars available for conversion into alcohol. Hence, increasing the fermentation period may further increase the alcohol yield. The pH of the white spp. is 5.84 and 4.93 for yellow spp. specific gravity for both spp. had almost equal values of 0.8500 and 0.8300 for white and yellow spp. respectively. Sweet potato should therefore be used as a source of ethanol (alcohol) in Nigeria for domestic and industrial use and also for exportation purposes. Government should also ensure that agriculture

is encouraged through funding of agricultural projects for large scale production of sweet potato with its resultant yields of alcohol.

Table 1: Chemical Composition Alcohol produced from two varieties of Sweet potato

Sample	Sugar content	Specific gravity	Yield of Alcohol %	pH
White spp.	52.0%	0.8500	90.18	5.84
Yellow spp.	51.7%	0.8300	83.75	4.93

REFERENCES

- AOAC, (2006). Official Methods of Analysis. Washington DC: Association of Analytical Chemists
- Asiedu, J.J. (1989): Processing Tropical Crops 2nd Ed. Macmillan Education Limited Ibadan Pg. 22-23.
- Idowu, S.D. and Durotimi O. (2003): Chemical Instrumentation and Laboratory Manual 2nd Ed. Jones Printing Press Offa. Pg. 20-34.
- Ihekoronye, A. I. and Ngoddy, P.O. (1985): Integrated Food Science and Technology for the Tropics. Macmillan Ltd, London. pp. 180-189.
- Lyons, T.P., Kelsall, D.R. and Murtagh, J.E. (1995): The Alcohol Textbook, Nottingham, University Press, UK.
- Okonkwo, E.U., Ubani O. Z., and Nwaubani S.I. (2008): Potentials of utilization of sweet potato (*Ipomea batatas*) chips in Nigeria NIFST 32nd Annual Conference Proceedings (2008).
- Sulaimon M.A. (2008): Comparative Studies of Alcohol Produced from Two Varieties of Sweet Potato (*Ipomes batatas*) unpublished thesis, Federal Polytechnic , Offa, Kwara State