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42ND ANNUAL CONFERENCE AND ANNUAL GENERAL MEETING, ABEOKUTA NIGERIA, 15TH - 18TH OCTOBER, 2018

24th September, 2018

Dear Noah *et al*,

LETTER OF ACCEPTANCE

We are happy to inform you that your extended abstract titled **"MICROBIAL AND SENSORY EVALUATION OF MOINMOIN PRODUCED FROM BAMBARA GROUNDNUT AND RED KIDNEY BEANS BLENDS"** By *Noah, A.A. with reference number (ABST 105), has been accepted for presentation at the technical session of the 42nd Annual Conference of the Nigerian Institute of Food Science and Technology holding in Abeokuta between 15th and 18th October, 2018. The final conference program and mode of presentations will be announced at a later date.

Accordingly, your abstract will be published in the Conference Book of Extended Abstracts.
Please note that accepted oral papers are to be presented using Microsoft Power-Point. Authors of accepted Posters are to strictly adhere to the poster guidelines below.

Guidelines for Poster Preparation

- ✓ Posters should include abstract, introduction, methods, results, conclusions, references and clearly presented charts, tables and schemes, graphs where applicable.
- ✓ Posters must be printed on a single sheet flex material not exceeding the 90x120 cm format.
- ✓ The title should be centred in the upper part, in bold, font size of 80 to 100-points (pts) and Arial or Helvetica readable from 2-6m away.
- ✓ Author's name, affiliation, email (corresponding author) centred under the title
- ✓ Fonts; Main text 24 to 30 pts Headings 50 to 60 pts Caption of Tables, Figures and Photographs minimum of 18 pts. Photographs should be of reasonable size in relation to the overall poster presentation.

We look forward to meeting you in Abeokuta come October 2018.

Congratulations!

For - Prof. Shittu Taofik

Deputy Editor-in-Chief, Nigerian Institute of Food Science and Technology (NIFST)

MICROBIAL AND SENSORY EVALUATION OF MOINMOIN PRODUCED FROM BAMBARA GROUNDNUT AND RED KIDNEY BEANS BLENDS

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Introduction

Legumes have historically been part of expensive meals throughout the world as they have a major role to play in the fight against malnutrition. It is therefore necessary that their levels of consumption, which are already too low in a number of developing countries be increased [1]. Moinmoin is a steamed bean cake, or bean sponge cake or steamed bean pudding eaten all over Nigeria and beyond [2]. Presently, only cowpea seeds are being utilized in the production of moinmoin, despite the availability of other well-known legumes [3]. Hence, there is need to ascertain the quality and consumer acceptability of steamed bean cake or moinmoin produced from other legumes. Bambara groundnut *(Vigna subterranean*) (L) Verde is an African species that has been cultivated for centuries [4]. Bambara groundnut possesses sufficient quantities of nutrients such as proteins, vitamins and minerals. Bambara groundnut seeds provide an important source of crude protein (24%), carbohydrate (63%) and fat (6.5%). The seed is rich and has a good balance of essential amino acids [5]. Red kidney beans (*Phaselous vulgaris)* have greatest popularity in the United State of America and in developing countries [6]. Red kidney bean are excellent source of protein, starch, soluble and insoluble fiber, vitamin and minerals, especially zinc, magnesium and manganese. They are very low in fat [7]. The objective of the study was to evaluate the microbial, sensory properties and the effect of red kidney beans fortification on the quality of moinmoin produced.

Materials and Method

Bambara groundnuts and other ingredients were purchased at Sayedero market Ilaro while the Red kidney bean used for this study was gotten from Agricultural development programme Oko –oba Agege, Lagos. Bambara nut seeds were cleaned and sorted. Clean seeds (200g) were soaked in cold water for 8hrs, dehulled and dried at 65^{o}C for 48hrs in air draught drier (memmet, Germany). The dried sample material was milled into powder using hammer mill and sieved through 0.8mm and sieves. The sample was packed in high density polyethylene and stored at room temperature. The red kidney bean seeds was soaked in cold water for 10 min, dehulled and dried at 65°C for 48 hrs. The dried sample material was milled and sieved to a fine red kidney flour. The preparation of moinmoin involves the replacement of a part of the Bambara flour with 10% (AB, 20% (AC), 30% (AD) 40% (AE) of red kidney beans (see Table 1). The 100% Bambara (AA) serve as the control. A modified recipe of [1] was used for moin-moin preparation. 100g of the blended Bambara and Red kidney beans flour (A to E) were each mixed with all the ingredient, warm water (60°C) was then added in a mixing bowl with a single spoon to form a smooth pasta, dispensed into a plastic plate, covered and steamed for 1 hr. Moinmoin samples were subjected to sensory evaluation using nine (9) point hedonic scale [8] and Microbial analysis using total plate count, salmonella and fungi count. The resulting data was analysed using analysis of variance [ANOVA] to establish significant differences among samples.

Results and Discussion

The result of the sensory evaluation of moinmoin produced from Bambara nut and red kidney beans blends are presented in Table 1.The sensory quality attributes shows significant difference ($P>0.05$) in the attribute. Bambara nut AA (100:0) had the highest preference in terms of color, AB(90:10) had the highest preference in terms of taste and AC(80:20) had the highest value in terms of flavor, AD(70:30)

and AE(60:40) had preference in terms of texture while the overall acceptability shows that 80:20 was preferred than the other samples with respect to colour, taste, flavor, texture and overall acceptability. Microbial analysis shows that total plate count ranges from 2.15×10^4 for sample A, 2.45×10^4 for sample B, for sample C 1.65×10^4, for sample D, 2.05×10^4 , for sample E 1.75×10^4 cfu/g respectively. The fungi count ranges from 2.35×10^4 for sample A, 1.65×10^4 for sample B, 2.15×10^4 for sample C, 1.65×10^4 for sample D, 1.55×10^4 cfu/g for sample E. This shows that the total plate count were not more than the standard.

Table 1: Sensory evaluation of moin_moin made from blended bambara with red kidney bean flour.

PARAMETERS	AA{100%}	AB{90:10}	AC{80:20}	AD{70:30}	AE{60:40}
COLOUR	6.83±1.27	6.75±0.97	6.75±1.76	6.58±1.51	6.58±1.44
FLAVOUR	5.92±1.83	6.25±0.87	6.75±1.91	6.92±1.38	6.33±1.50
TASTE	6.42±1.73	6.92±1.56	6.50±1.98	6.33±1.30	6.33±1.37
TEXTURE	5.75±1.82	6.08±1.16	6.50±1.68	6.75±1.14	6.83±1.85
	6.08±2.11	7.00±2.09	7.00±2.09	6.58±1.16	6.08±1.83

Values are mean standard deviation of duplicate determination.
AA - 100% bambara flour, AB - 90% bambara with 10% red kidney flour, AC - 80% bambara with 20% red kidney flour, AD - 70% bambara with 30% red kidney flour, AE - 60% bambara with 40% red kidney flour.

Conclusion

This study therefore suggests that fortification of Bambara nut with red kidney beans improves the organoleptic properties of moinmoin. Hence, the fortification of Bambara-red kidney beans should be encouraged.

References

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