IOSR Journal of Environmental Science, Toxicology and Food Technology (IOSR-JESTFT)
e-ISSN: 2319-2402,p- ISSN: 2319-2399.Volume 14, Issue 2 Ser. I (February. 2020), PP 10-13
www.iosrjournals.org

Sensory Properties of Sausage Roll Produced From Cashew Nut Butter

*Jegede O.A.,[1]Olubode T., [1] Ibrahim K.O., [1]Akinola M.O., [1]Ojo F. K.,[1] andOyeleke E.O. [1]

[1]*Department of Home and Rural Economics, Federal College of Agriculture, Moor Plantation Ibadan, Oyo State, Nigeria*

***Abstract**: Cashew nut kernels are important nut consumed in Nigeria due to their sensory and nutritional attributes. The effect of substitution of margarine with cashew nut butter in sausage roll production was studied. Cashew nut (Anacardium occidentale L.) butter was produced and incorporated into the ingredients used for the production of sausage roll. Sensory evaluation was carried out at the Home Science Kitchen, Federal College of Agriculture, Ibadan. 30 panelists consisting of students of and members of staff who were familiar with eating sausage roll were employed for the process. Three sausage samples were produced, one made with commercial margarine which was the control, second with 100% cashew nut butter and the third with 50% margarine and 50% cashew nut butter. The result showed that sausage roll made with 100% margarine had the highest overall acceptability of 8.3 with sample C being sausage made with 50% cashew nut butter and 50% commercial margarine having a score of 7.5. Sample C had a comparative mouth-feel with the control as well as in overall acceptability. The use of cashew nut butter in confectionaries could be done at 50% level of substitution.*

***Keywords:** snacks, margarine, nuts, butter, cashew*

Date of Submission: 17-01-2020 Date of Acceptance: 05-02-2020

I. Introduction

Cashew nut (*Anarcadium occidentale*) is a heart – like shape fruit widely grown in tropical countries of the world. Cashew industry is ranked third in the world production of edible nuts with world production in 2017 amounting to 3,971,046 tonnes [1]. West Africa provides nearly half (49%) of the world total production of cashew. The major cashew producing region of the world is West Africa, South East Asia and East Africa [2]. Nigeria produced an estimated 98,253 tonnes in 2017. Production of cashew nut comes both from wild and cultivated trees. Cashew apples are sometimes made locally into fruit drinks, wines and pickles. In some countries, they are also dried to produce a date like caramel fruit [3]. One of the most important product of cashew tree is the nut, it is often used in baking and confectioneries. It is rich in minerals and vitamins that are essential for robust health [4]. They are excellent source of copper, and a good source of phosphorus, magnesium, manganese and zinc. Cashew nuts are good sources of pantothenic acid, pyridoxine, riboflavin and thiamin [5]. Approximately 82% of the fat is unsaturated fatty acid which makes it good for health and most especially for the heart [6]. Although, cashew is known to have some anti – nutritional factors and components such as tannin and oxalates which can affect it utilization [7]. However, methods used for its processing help to reduce the percentage concentration of the components to minimal level that makes it safe for human consumption [8]. Cashew nuts are cholesterol free and their high anti-oxidant content assist in lowering the risk of coronary hear and cardiovascular diseases [9]. Primary product of cashew nut is the edible portion of the nut and it is consumed in three ways: directly by the consumer as roasted and salted nuts, in confectionery and bakery product and as butter spread on bread [10,11,12]. Fat and oil function in various ways in batter and dough,they tenderize baked products, improve mouth-feel, contribute structure, lubricate, incorporate air and transfer heat [13].Only about 3% of the cashew produced in Nigeria is locally processed. Hence, the aim of this research was to provide alternative use for cashew nut by processing it into butter and using it in baking process. Using cashew nut butter in bakery could help improve the nutrient composition of baked goods, ensure proper utilization of the nut, as well as create variety in flavour and taste of baked goods available for consumption.

II. Materials And Methods

2.1. Raw material source

Unroasted cashew nuts were purchased from a *Bere* market in Ibadan, Oyo state, Nigeria. Food ingredients such as wheat flour, sugar, salt, margarine, egg and baking powder were purchased at *Apata* market in Ibadan, Oyo state, Nigeria. The emulsifier was purchased from *Agbeni* market in Ibadan.

2.2. Cashew nut processing

The processing of cashew nuts was done using the method described by [14]. A batch of dried wholesome cashew nut was steamed in a pressure pot for 5 minutes and then allowed to cool. The cashew nuts weremanually separated into two equal halves using knives. The kernels were then separatedfrom the shell using small knives. The nuts were then oven dried in a cabinet (Gallenkamp) oven at a temperature of 50℃ for 5 hours to reduce the moisture content to between 5 – 6% for ease of keeping and to help reduce the anti-nutritional factors to a minimal level. The testa of the dried kernel were removed manually, packaged and stored in an airtight container.

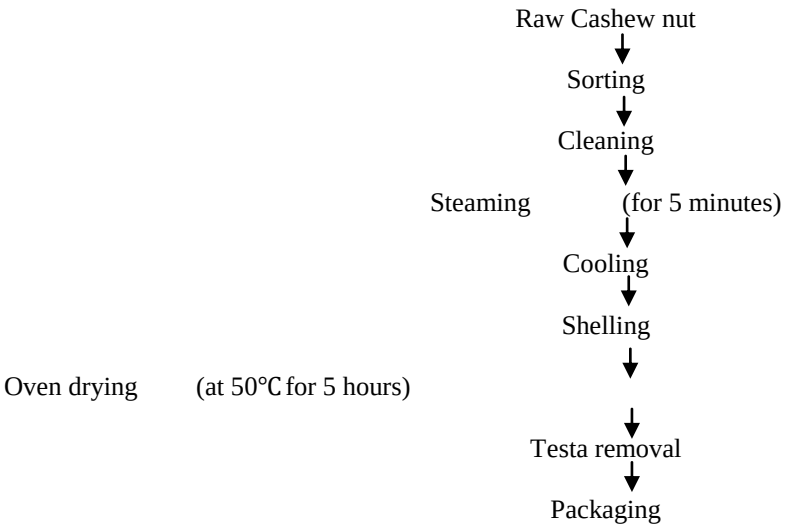

Figure 1. Flow chart for the production of cashew nut

2.3. Cashew nut butter production

Dried kernels were ground into very fine paste using a blender (Shasio model number XA150410204077). Other ingredients such as 2g of sodium chloride, 3 tablespoons of vegetable oil, 1 tablespoon of emulsifier (lecithin) were measured and mixed with the cashew paste to produce cashew nut butter. The butter was the packed into small polypropylene containers and stored at room temperature about 27℃.

2.4. Sausage roll production

The sausage dough was prepared using the rubbing method [15]. Flour was sieved into a bowl;baking powder and salt were added to it. 100% margarine was added to a portion of this. 100% cashew nut butter was added to another portion of flour, baking powder and salt. The third sample had 50% margarine and 50% cashew nut butter which were added to a mixture of flour, baking powder and salt.

2.4.1 Recipe formulation (%)

A 500g Flour, 2 tablespoonbaking powder & 1 teaspoon salt + 100% (200g) margarine (Sima) Control
B 500g Flour, 2 tablespoon baking powder & 1 teaspoon salt + 100% (200g) cashew butter
C 500g Flour, 2 tablespoon baking powder & 1 teaspoon salt + 50% (100g) margarine and 50% (100g) cashew butter

2.5. Sensory evaluation

Sensory evaluation of sausage roll produced from substitution of cashew nut butter in the production of sausage rollwas carried out using 30 panelists comprising of students and members of staff of the Federal College of Agriculture, Ibadan Oyo State. The three differently coded samples of sausage rolls were presented to the 30 panelist who were familiar with eating sausage rolls. The panelist were asked to assess the three sausages and compare them in terms of sensory attributes such as colour, taste, aroma, texture, mouth-feel and overall acceptability using the 9 – point hedonic scale, with 9 representing like extremely and 1 representing dislike extremely. Panelists were provided with drinking water to rinse their mouth in between the evaluation.

2.6. Statistical analysis

Result of sensory evaluation was compiled and analyzed using the Statistical Package for Social Science (SPSS 25), and subjected to statistical analysis using the Duncan Multiple Range Test (DMRT).

III. Result And Discussion

Table 1. 0 Sensory parameters of sausage rolls prepared from cashew nut butter

Sample	Colour	Taste	Aroma	Texture	Mouth-feel	Overall – acceptability
A	8.3_a	7.8_a	7.9_a	8.0_a	7.8_a	8.3_a
B	7.0_b	7.3_b	7.5_a	7.4_b	6.9_b	7.4_b
C	7.5_b	7.3_b	7.5_a	7.4_b	7.3_{ab}	7.5_a

Values with same letter in a column are not significantly different at 5% level of probability by Duncan Multiple Range Test (DMRT)

Legend:

A 100% Commercial margarine (control).

B 100% Cashew nut butter.

C 50% cashew nut butter and 50% commercial margarine.

Table 1.0 shows the sensory evaluation of sausage roll samples prepared from wheat flour, margarine, and cashew nut butter. There was no significant difference in the colour of sausage roll made with 100% cashew nut butter and sausage made with 50% cashew nut butter and 50% commercial margarine. Sample A with mean value of 8.3 was the most preferred in terms of colour by the panelist. Colour is a very important parameter in judging properly baked products it not only reflect the use of suitable materials, but also provides information about the recipe and quality of the product [16]. The result shows that sample B and C were within same range with the control in terms of taste and aroma. Addition of the cashew nut butter was observed to influence the texture in which sample B and C were comparable. Sample C had a comparative mouth-feel with the control as well as in overall acceptability; hence, the use of cashew nut butter in confectionaries could be at 50% level of substitution. Integrating cashew nut butter into snacks may be a healthy way of ensuring regular consumption of the nuts and seeds [17].

IV. Conclusion

This revealed that cashew nut butter may partially be included as fat in the dough used for the production of sausage roll to improve aroma and general acceptability of the snack. All the snack samples were within the acceptance range of the hedonic scale of 6 – 9. This may also be applied to other baked goods to improve the use of cashew nut. Cashew nut butter may also contribute to good health when applied in the production of baked goods because of its nutritional content.

References

[1]. FAOSTAT, Food and Agricultural Organization Statistics 2020 assessed 12/01/202 7:20pmwww.fao.org/faostat/en/#data/QC

[2]. Nitidae. The West African Cashew Section in 2018: *General trends and country profiles. Analysis of Cashew production, processing and trade in West Africa.*2019.*www.nitidae.org.*

[3]. T.F. Akinlamiand P.O. AkintokunChemical composition and physicochemical properties of cashew nut (*Anacardium occidentale L.*) oil and cashew nut shell liquid *Journal of Agricultural Food and Environmental Science (2) 1*. 2015 1 – 10

[4]. FAO, Small – scale cashew nut processing by S. H. Azam and E.C. Judge ITDG Schumacher Centre for Technology and Development 2001 assessed 12/01/2020 7:45pm www.fao.org/ag/ags/agsi/Cashew/Cashew.html

[5]. L. E. Griffin and L. L. Dean. Nutrient Composition of Raw, Dry-Roasted, and Skin-On Cashew Nuts. *Journal of Food Research*; Vol. 6, No. 6; 2017 13 – 28

[6]. J.H. Kelly,(Jr.) and J. Sabate. Nuts and Coronary Heart Disease: An epidemiological perspective *Br. J. Nutr*. 96 Supple 2: S61-7. PMID 17125535

[7]. T.N. Fagbemi, A.A. Oshodi, and K.O. Ipinmoroti Processing effect on some anti-nutritional factors and vitro multi enzyme protein digestibility (IVPD) of three tropical seeds Bread nut (*Artocarpusaltilis*), cashew nut (*Anacardium occidentale) Pak. J. Nutr. 4*: 2005 250 – 256

[8]. M. C. Ojinnaka, and F.U. Agubolum*Nutritional and sensory properties of cashew nut wheat based cookies*. MSc. thesis. Department of Food Science and Technology Imo State University, Owerri, 2000

[9]. L.A. Hammed, B.A. and K.A. Kolapo Growth and Nutrient uptake of cashew (*Anacardium occidentale L.*) Seeding as effected by nut size in the nursery *Afr. J. Agri. Res. 6(17)* 2011 3962 – 3971

[10]. W. Ezeagu Assessment of the situation and development prospect for the cashew nut sector: A report of the International Trade Centre UNCTAD/WTO (ITC) 2002.

[11]. J.R. Lima, D.S. Garruti and L.M. Bruno Physicochemical, microbiological and sensory characteristics of cashew nut butter made from different kernel grades-quality *LWT - Food Science and Technology45* (2012) 180-185

[12]. E.B. Dimic, V.B. Vujasinovic, O.F. Radocaj, and B.D. Boric Sensory evaluation of commercial fat spreads based on oilseeds and walnut*BIBLID*: 1450-7188 (2013) 44, 21-30

[13]. H. Zhong*Effect of lipid source on the physical and sensory quality of baked* products Master of Science in Dept. of Nutrition, Dietetics and Food sciences Utah State University Logan, Utah 2013

[14]. K.O. Falade, J.J. Chime, and O.S. Ogunlowo. Water sorption isotherms and heat of sorption of cashew nut pretreated by different methods. *J. Food Agric. Environ, 2*: 2004 83 -87

[15]. V.U Asumugha and B.C Uwalaka. Chemical and organoleptic evaluation of snacks developed from cocoyam (*Colocasiaesculenta, Xanthosomamafafa*) and wheat (*Triticumspp*) composite flour. *Nigeria Agriculture Journal 31:* 2000 78 – 88

[16]. F.M Abu-salem and A.A. Abo Arab. Effect of supplementation of Bambara groundnut (*Vigna subterranean L.*) flour on the quality of biscuits *African Journal of Food Science5(7*), 2011 376-383

[17]. K. Gorrepati, S.Balasubramanian, and P. Chandra. Plant based butter. *J.Food Sci.Technol.52*, 2015 3965 – 3976 doi: 10.1007/s13197-014-1572-7

Jegede O.A,et.al. "Sensory Properties of Sausage Roll Produced From Cashew Nut Butter." *IOSR Journal of Environmental Science, Toxicology and Food Technology (IOSR-JESTFT)*, 13(2), (2020): pp 10-13.