ACCEPTABILITY OF ASSORTED *OFADA* RICE DISHES FOR SALE IN LOCAL EATERIES

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Abstract

The sensory qualities and acceptability of Ofada rice prepared in different varieties were determined in this study by twenty-eight sensory panelists. A completely randomized design (CRD) test was performed to determine the significant difference in the treatments for each of the parameters with alpha at 0.05. The findings show an insignificant variation in the mean response of the samples evaluated since the F-value of 1.047 is associated with the p-value of 0.00. Therefore the study concludes that the sampled local food products are highly influenced by colour, taste, and appearance among others as evidenced by the perceived sensory characteristics. The study recommends the development of an operational dietary instruction on the health and related benefits of consuming the food product to promote its patronage in Nigerian eateries by consumers.

Keywords: Ethnic foods, culinary tourism, gastronomy, hospitality, Nigerian restaurants.

Introduction

Rice is a major serving commodity in most local eateries in Nigeria. The availability of the commodity is year-round with its relative affordability. Particularly, the *Ofada* variety is fast gaining popularity from Ogun State to other locations across the southwestern states of Nigeria. The *Ofada* is a ready to eat rice variety, which mainly attracts its preparation and service in major motor parks and along the streets (Nwokorie and Ayogu, 2021).

Studies have shown that the average food consumer is keen on variety in the consumption of food products (Nwokorie and Ayogu, 2021; Morquecho-Campos, De Graaf and Sanne, 2020; Nwokorie and Ezeibe, 2017) in a bit to eat foods that contain the various categories of nutrients. The *Ofada* rice is notably prepared and served in a particular pattern (Adebowale, Sanni, Karim and Ojoawo, 2010) that distinguishes it from other rice products. The patterning of the product is a major factor that makes it synonymous with the Ogun people of Nigeria and by extension, its narrow acceptability by a majority of local consumers. Consequently, the *Ofada* rice has suffered a very slim breakthrough into the Nigerian restaurant market due to the monotonous style of its preparation and service to the local consumers.

Although the *Ofada* rice is an ethnic delicacy, serving the meal in assorted dimensions could create the possibility of a breakthrough for the food product in the vast local restaurant industry as well as encouraging its consumption by other ethnic nationalities in ways that best suit them. The general acceptability of the food commodity by a larger number of people would also spur the production of the product, thereby improving the food chain of the local economy.

Again, the traditional method of preparing the *Ofada* rice dish (Anuonye *et* al., 2016; Gyimah, Johnson and Takeshima, 2016) stimulates the offensive smell of the food product in its traditional pattern. Aroma has been shown to have a major influence on consumption (Girona-Ruíz, *et* al., 2021; Morquecho-Campos *et al*., 2020; Yin, *et al*., 2017) and cannot be underemphasized in the case of acceptability of *Ofada* rice. The aroma could play a major role in the general acceptability of *Ofada* rice by consumers outside the local region, hence it is imperative to try other cooking patterns that could be expedient to its acceptability by a majority of the consumers. The acceptability of the *Ofada* in assorted patterns by more diners across other geographical locations will surely create a boost for the sale of the commodity in the restaurant industry, which could also serve as an alternative to the imported rice variety to benefit the Nigerian food chain.

Specifically, the present study attempts to determine the acceptability of the *Ofada* rice prepared in two varieties other than the traditional method by considering their sensory attributes. The study is expected to help restaurant practitioners consider the advantage of introducing the food product as a way of expanding their product chain. It will also serve as a tool for new product development for the food industry by way of diversifying the patterning of already existing food products.

Methodology

Collection of Data

The raw materials for the study were sourced at the local market in the Ilaro Community of Ogun state. The panelists for sensory assessment were made up of the study population selected from the 38 Higher National Diploma students of the Department of Hospitality Management, The Federal Polytechnic Ilaro, Nigeria. The sample size for the study was abridged to 35 using the Taro Yamane formula for sample size determination (Nwokorie, 2021; Yamane, 1967). The 35 panelists were available for the sensory assessment and were presented with a structured sensory assessment sheet prepared on a 9-point hedonic scale (1 = dislike extremely, 9 = like extremely) to retrieve their responses. The attributes of the responses are colour, appearance, flavour, texture, and overall acceptability. However, 28 usable responses were selected for analysis, making up to an 80% return rate of the research instrument which is appropriate for analysis as posited by Evans, Peterson and Demark-Wahnefried (2004). Data were analyzed in descriptive statistics, ANOVA, and Duncan Multiple Comparison Techniques.

Recipes for the Food Products

Recipe for Jollof *Ofada* rice (Sample A)
500g rice
100g vegetable oil
Salt to taste
10g of Curry
10g thyme
100g of grounded pepper
100g onion
50g tomato puree
4cubes of Maggi

Cooking Method

i. pick the rice, rinse and drain out the water
ii. place a pot on the fire, pour in the vegetable oil, and leave it to get hot
iii. add the onions, grounded pepper, and tomato puree to the hot vegetable oil and stir thoroughly.
iv. add the Maggi seasoning, salt, curry, and thyme to the sauce and leave to cook for some minutes.
v. pour in the rice, stir together add water and leave to cook for about 45 minutes
vi. when done, pour inside a casserole dish and serve hot.

Recipe for fried *Ofada* rice (sample B)
500g of rice
100g vegetable oil
100g onions
10g sweet corn
10g green peas
10g French beans
10g spring onion
100g liver

Green pepper
Pinch of salt
Seasoning to taste
Water

Cooking Method

i. pick the *Ofada* rice and rinse
ii. pour inside a colander to drain out the water
iii. place a pot on the fire, pour in the vegetable oil and allow it to get hot
iv. add chopped onions to the oil and stir fry to a golden brown colour
v. pour the rinsed rice into the oil and stir together gently
vi. add all the seasoning (Maggi, salt, curry) and stir
vii. add two litres of water, cover, and allow to cook for about 15 minutes
viii. open and stir to check for the seasoning and softness of the rice
ix. pour in the liver, green peas, sweet corn, French beans, carrot, spring onion, stir thoroughly, and leave to steam for about 5 minutes and pour inside a casserole dish

Results and Discussion

Table 1: Descriptive Statistics of Local Recipe based on the sensory attributes

Rice Varieties	Block	Mean	Std. Deviation	N
A	Colour	8.43	.790	28
	Appearance	8.50	.694	28
	Texture	8.07	.716	28
	Flavour	7.89	.832	28
	Overall Acceptability	**8.54**	**.637**	**28**
	Total	8.29	.771	140
B	Colour	8.32	.905	28
	Appearance	8.29	1.213	28
	Texture	8.11	.875	28
	Flavour	7.75	1.456	28
	Overall Acceptability	**8.36**	**1.446**	**28**
	Total	8.16	1.209	140
Total	Colour	8.38	.843	56
	Appearance	8.39	.985	56
	Texture	8.09	.793	56
	Flavour	7.82	1.177	56
	Overall Acceptability	8.45	1.111	56
	Total	8.23	1.014	280

Source: Statistical extracts

Table 1 depicts the descriptive statistics of different food recipes analyzed for their appearance/colour. The colour, appearance, texture, and flavour treatments of Sample 'A' indicates that, on an average of 8.43±0.790, 8.50±0.694, 8.07±0.716, and 7.89±0.832 respectively, sample A was 'very much liked' based on the sensory analysis. This can also be seen from the overall acceptability of Sample 'A' on the overall mean response score of 8.54±0.637. However, the mean response of Sample 'B' which was estimated at 8.32±0.905, 8.29±1.213, 8.11±0.875, and 7.75±1.456 on colour, appearance, texture, and flavour also indicated that the food recipe was 'very much liked.'

The outcome implies that both samples can be recommended due to their high level of acceptability. Although the rate of likeness varies among individual panelists because some of them viewed that Sample 'A' is more preferred due to the addition of the necessary ingredients that enhanced the flavour. However, both samples were found to be tasteful. It can also be seen in figure 1 that Sample 'A' is more preferred as the sample has a higher mean of evaluation.

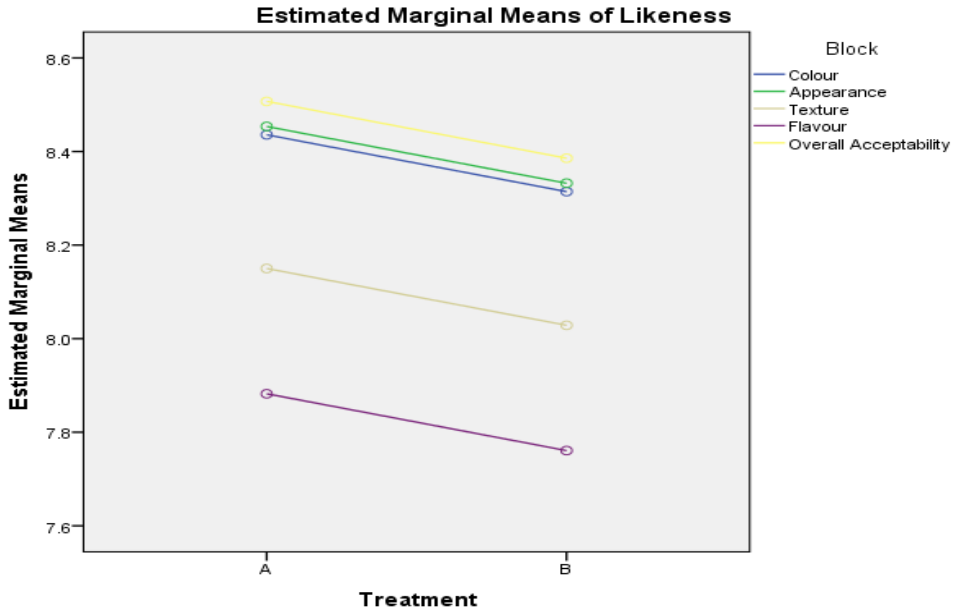


Figure 1: Estimated marginal means of the samples

Figure 1 shows that the overall acceptability of the samples under study is high as the yellow line is higher than the other characteristics of measuring the likeness. It can also be observed that the Jollof *Ofada* rice is more acceptable.

Table 2: Grand mean of recipe based on level of likeness

Dependent Variable: Likeness				
Treatment	Mean	Std. Error	95% C.I	
			Lower Bound	Upper Bound
A	8.286	.084	8.121	8.451
B	8.164	.084	7.999	8.329

Source: Statistical extracts

*Code: C.I = Confidence Interval

Evidence from Table 2 indicates that the difference in the mean of the response of the samples is negligible, as it indicated that the panelists rated the two samples equally.

Table 3: Estimated mean of overall acceptability

Mean	Std. Error	95% C.I	
		Lower Bound	Upper Bound
8.225	.059	8.108	8.342

Source: Statistical extracts

The grand mean of 8.225 with ±0.059 in table 3 indicated that the samples were highly accepted by the panelists, as this may serve as an avenue for national and international recognition of the food product. This is a result of the characteristics possessed in terms of colour, appearance, texture, and flavour in line with the findings of Silva, *et* al. (2021) Nwokorie and Kwusi (2020), Kourouniotis, *et al.* (2016), and Ordabayeva and Chandon (2016).

Table 4: ANOVA between-subjects effects

Source	Type II Sum of Squares	df	Mean Square	**F**	**Sig.**
Recipes	1.032	1	1.032	1.047	**.307**
Characteristics	15.736	4	3.934	3.991	**.004**
Error	270.057	274	.986		
Total	19229.000	280			

a. R Squared = .058 (Adjusted R Squared = .041)

In table 4, the test of significance indicates an insignificant difference in the mean response of the samples evaluated since an F-value of 1.047 with an associated p-value of 0.00 ≤0.05 significance level, implying that there is no variation in the likeness of the two samples. Although, the sensory characteristics were also found to be significantly different (p-value ≤0.05) as attached to each of the samples.

Table 5: Lack of fit tests of the samples (Likeness of the dependent variable)

Source	Sum of Squares	df	Mean Square	F	Sig.
Lack of Fit	.521	4	.130	.131	.971
Pure Error	269.536	270	.998		

Source: Statistical extracts

From the lack of fit test statistics in table 5, F-statistics of 0.131 with an associated p-value of 0.971 ≥0.05 implies that the outcome cannot reject the fact that the ANOVA test model fits the data well. This generally implies there is almost no difference between the samples.

Table 6: Duncan Multiple Range Post Hoc Tests on homogeneous subsets (characteristics)

Block	N	Subset	
		1	2
Flavour	56	7.82	
Texture	56	8.09	8.09
Colour	56		8.38
Appearance	56		8.39
Overall Acceptability	56		8.45
Sig.		.155	.199

Means of the groups in homogeneous subsets are displayed.
Based on observed means.
The error term is Mean Square (Error) = 0.986
a. Uses Harmonic Mean Sample Size = 28.000
b. Alpha = 0.05

On the homogenous subsets list in table 4, the Duncan post hoc test providing homogenous subset results for the groups are itemized in ascending means order. The means that are itemized under each subset consist of the set of means that are not significantly different. In subset 1, the mean response of flavour as a characteristic of the samples is significantly different from colour, appearance, and overall acceptability. Also, from subset 1, it is validated that flavour and texture of the recipes are not significantly different from each other as they form the same subset with p-0.155 ≥0.05 level of significance. From subset 2, it is also validated that the mean response of texture, colour, appearance and overall acceptability are not significantly different from each other (p-value 0.199 ≥0.05%) but were significantly different from the mean response of flavour and texture in subset 1. The implication in table 4 is that the panelists have more preference for the colour and appearance of the samples.

Implication of Findings

Culinary tourism is gaining popularity in sub-Saharan Africa in recent times. The ability of restauranteurs to rejuvenate the forgotten food dishes and maneuver existing ones to enhance tourists' (or guests') experience will create possibilities for the improvement of the experience economy. Findings reveal a high level of acceptability of *Ofada* rice in assorted patterns. The acceptability implies a possible introduction of a new food product for the development of gastronomy which would create new experiences and more economic opportunities in the food industry.

Additionally, the service of rice dishes could be remodeled by the addition of numerous rice dishes as a way of representing the rich cultural heritage of the host or host community at specific cultural events. Assorted *Ofada* rice could also be in the retinue of display at various food festivals and, or occasions, thus announcing that the Nigerian food chain could be engaged at world food fairs. New vistas of research in gastronomy could equally be opened to rejuvenate ethnic food dishes that have been overlooked, as well as remodel those already being served in the food industry.

Conclusion

This study has demonstrated that *Ofada* rice could be prepared and served in various acceptable assorted dish patterns using the local recipe. Findings from the preparation of the local food product for wider acceptability indicated that the two samples were found to be acceptable as they are mostly liked as assessed. These recipes would put the sample in the limelight if properly utilized. Furthermore, the result also indicated that the sampled local food products are highly influenced by colour, taste, and appearance among others as demonstrated by the perceived sensory characteristics. These sensory attributes should carefully be taken into consideration during the cooking process of the food product to overall its acceptability by consumers.

Recommendations

From the outcome of the sensory assessment, this study recommends that:

i. To encourage cuisine tourism, cooking methods other than the traditional style of preparing *Ofada* rice should be developed by other ethnic nationalities in Nigeria to spice up consumption variety across the local geographical spheres.

ii. In a bid to deal with the ordour through the usage of spices, caution should be applied in the spicing of the *Ofada* rice in any of the cooking methods bearing in mind allergies that may be synonymous with certain consumers

iii. A gradual process is important in the introduction of new food products in the restaurant industry to avoid the loss of customers. However, success would result in customer loyalty and gaining more market share.

iv. Restaurateurs should develop operational dietary instruction on the health and related benefits of consuming the food product to promote its patronage in Nigerian eateries by consumers.

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