NUTRIENT ANALYSIS AND SENSORY EVALUATION OF VEGETABLE CAKES

Bodunde, Ifeoluwa Omolara, Tijani, Munirat Adesewa
Department of Human Nutrition and Dietetics, Lead City University, Ibadan, Nigeria
bodunde.ifeoluwa@lcu.edu.ng

INTRODUCTION & AIM

Micronutrient deficiency is a public health concern, especially in Africa (1)

Snacks are a crucial part of dietary patterns, providing energy and nutrients.

This study aimed to develop cake fortified with cabbage (CC), Tete (TC), Amunututu (AC), and to assess their nutrient content, and acceptance.

METHOD

1 Vegetables were freshly purchased, sorted, blended and mixed with cake batter for baking.

2 Nutrient analysis was done using the standard procedure of the Association of Analytical Chemists

3 Sensory hedonic test was conducted on cake samples after a-day storage at room temperature by 10 panelists who were natural cake lovers on a 5-point Likert scale

4 Data were subjected to analysis of variance using SPSS v26 and means were separated using Duncan's Multiple Range Test at $p < 0.05$

Legend

A: Tete cake

B: Cabbage cake

C: Amunututu cake

D: All three combined

E: Plain cake

RESULTS & DISCUSSION

- The inclusion of vegetables to plain cake increased moisture, fibre, and ash content.
- Fat, carbohydrate and protein contents reduced with the inclusion of vegetables.

- Cakes with vegetable had increased potassium, calcium, beta carotene, and vitamin C content.
- There was no significant difference between sodium contents of all cakes with vegetables and plain cake except for cake with cabbage which had the lowest sodium content.

- Plain cake was most preferred for colour, aroma, texture, and taste.
- For overall acceptability, although plain cake was most acceptable, among vegetable cakes, cake with amunututu was the least acceptable by panelists.

This shows that the addition of vegetables to plain cake can enhance the nutritional composition of cakes and be used to produce nutritionally improved cakes (2,3)

Table 1: Proximate composition of cake samples

SAMPLES	MOISTURE (%) Mean±SD	PROTEIN (%) Mean±SD	FAT (%) Mean±SD	FIBRE (%) Mean±SD	ASH (%) Mean±SD	CHO (%) Mean±SD
A	60.58±0.03[e]	6.28±0.11[b]	4.49±0.03[a]	0.97±0.02[e]	0.75±0.05[a]	27.91±0.16[b]
B	57.30±0.03[c]	7.05±0.12[c]	5.98±0.02[b]	0.87±0.04[d]	1.03±0.01[d]	28.63±0.14[c]
C	52.25±0.02[b]	8.30±0.12[d]	10.35±0.05[d]	0.65±0.02[b]	0.98±0.02[d]	28.00±0.14[b]
D	59.25±0.03[d]	5.90±0.11[a]	6.76±0.04[c]	0.77±0.03[c]	0.81±0.03[b]	27.28±0.13[a]
E	32.79±0.04[a]	9.46±0.10[e]	13.40±0.03[e]	0.01±0.01[a]	0.87±0.03[c]	43.48±0.12[d]

A- cabbage cake, B- Tete cake, C- Amunututu cake. D- cake with 33.3%cabbage, 33.3% Tete, and 33.3% Amunututu, E- plain cake; Mean values with the same superscript within the same column are not significantly different (p>0.05). CHO- carbohydrate

Table 2: Micronutrient composition of cake samples

SAMPLE	POTASSIUM (mg/100g)	CALCIUM (mg/100g)	SODIUM (mg/100g)	IRON (mg/100g)	BETA-CAROTENE (mg/100g)	VIT. C (mg/100g)
A	367.30±25.16[b]	159.08±0.00[b]	235.74±0.00[a]	1.34±0.00[a]	1.03±0.01[b]	8.73±0.06[c]
B	425.41±43.58[c]	228.96±0.00[e]	293.84±20.13[b]	2.57±0.01[e]	1.56±0.02[c]	8.73±0.12[c]
C	410.88±25.16[bc]	187.03±0.00[d]	317.08±20.13[bc]	1.81±0.01[b]	1.99±0.00[e]	7.40±0.26[b]
D	396.35±25.16[bc]	173.05±0.00[c]	328.70±20.13[bc]	1.96±0.00[c]	1.93±0.00[d]	7.63±0.46[b]
E	294.67±0.00[a]	117.14±0.00[a]	340.33±34.86[c]	2.11±0.00[d]	0.84±0.01[a]	2.67±0.15[a]

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CONCLUSION

Cakes with vegetables were nutrient dense and high in fiber, offering a healthier alternative to plain cakes. Panelists preferred plain cakes likely due to taste familiarity. However, cakes with vegetables were well accepted except Amunututu cake.

FUTURE WORK / REFERENCES

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