

•MINERAI AND VITAMIN CONTENTS OF PRETREATED BAMBARA GROUNDNUT’S (*VIGNA SUBTERRANEAN*) CAKE

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INTRODUCTION & AIM

Legumes are key sources of protein and fat in tropical regions like Nigeria.. Bambara groundnuts (*Vigna subterranea*) belongs to the family of Fabaceae. It is a potential food security crop locally known as 'Okpa' in the Eastern part of Nigeria, highly nutritious, rich in carbohydrates (60%), fat (6%), protein (21%) and essential amino acids—particularly lysine, leucine, and the sulphur-containing methionine which enhances it's protein quality. Despite its high nutritional value, it remains underutilized and limited due to its beany flavor. Thus, this study evaluated the mineral, vitamins and sensory properties of pre-treated Bambara groundnut flour cake samples.

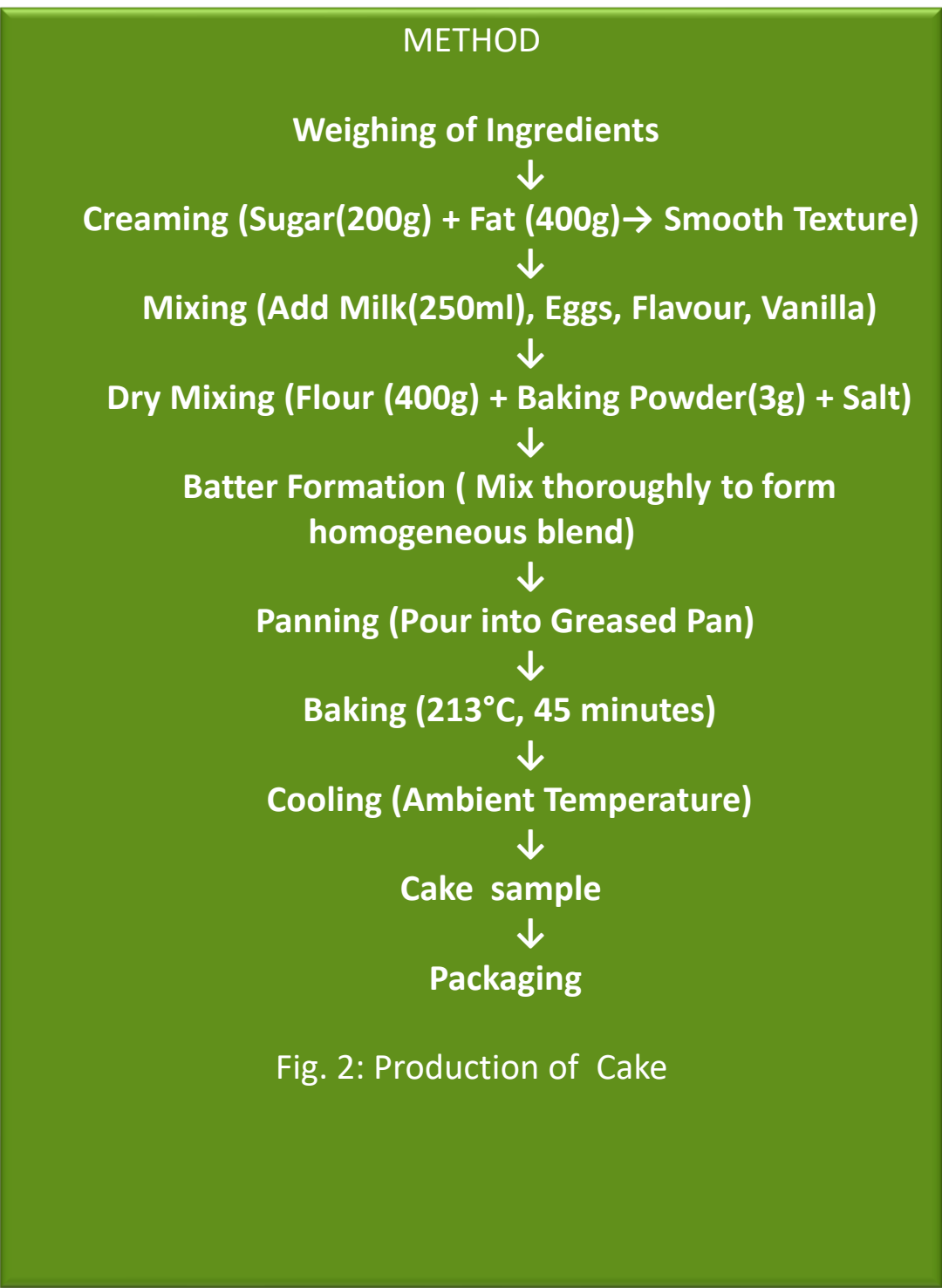
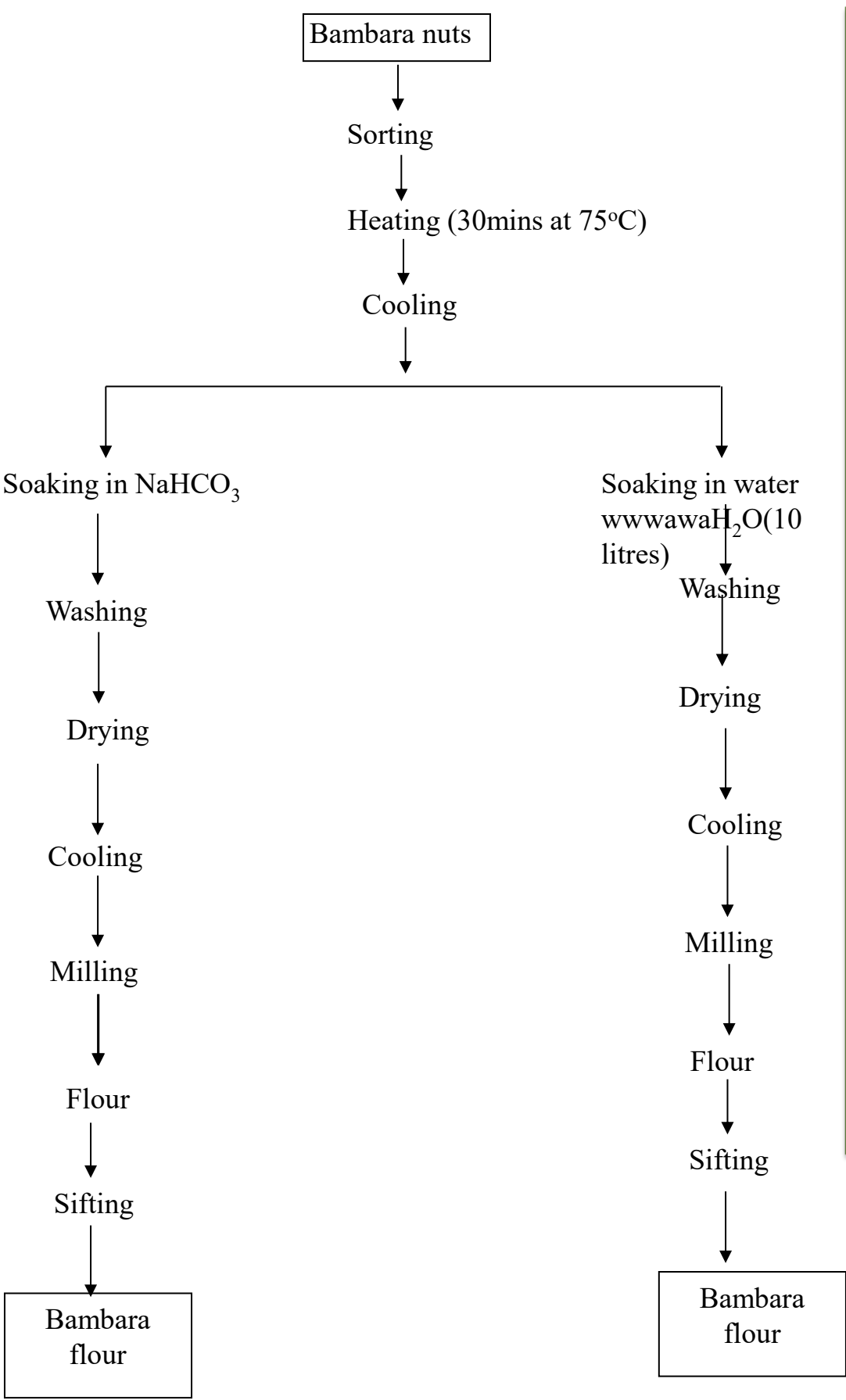


Fig 1: Flow chat for Bambara flour production
Soaking= 10 litres of water; Soaking in 10% NaHCO₃ for 3hours; Drying in oven for 45mins after sundrying(5 days); Sifting(600 micron meter)

RESULTS & DISCUSSION
Table 1: Mineral Element Composition (mg/100g) of Cake Samples

Sample	Zn (mg/100g)	Fe (mg/100)	Ca (mg/100g)	Na (mg/100g)	K (mg/100g)	P (mg/100g)
CONTROL(WF)	3.84 ^a ±0.02	4.73 ^a ±0.04	45.34 ^b ±0.03	112.53 ^a ±0.11	277.77 ^a ±1.37	185.51 ^a ±0.13
BGSW	3.67 ^b ±0.02	3.83 ^b ±0.04	48.47 ^a ±0.11	109.37 ^b ±0.18	269.63 ^b ±1.71	178.29 ^b ±0.01
BGW	3.46 ^c ±0.00	3.61 ^c ±0.02	44.84 ^c ±0.12	106.77 ^c ±0.04	268.5 ^c ±0.00	175.72 ^c ±0.17
LSD	0.0551	0.1087	0.8653	0.3977	1.0297	0.3906

Table 2: Vitamin Content (mg/100g) of Cake Samples

Samples	Vitamin C (mg/100g)	Vitamin A (µg /100g)	Thiamin (mg/100g)	Riboflavin (mg/100g)
CONTROL(WF)	5.61±0.01 ^a	4.63±0.00 ^a	1.14±0.02 ^a	0.77±0.02 ^b
BGSW	4.72±0.00 ^b	4.56±0.06 ^b	1.09±0.00 ^a	0.71±0.01 ^{bc}
BGW	3.85±0.00 ^c	4.18±0.00 ^c	1.05±0.01 ^a	0.94±0.02 ^a
LSD	0.0260	0.00	0.0468	0.0609

Table 3: Sensory properties of Cake Samples

Sample	Texture	Aroma	Colour	Taste	Mouth feel	General Acceptability
CONTROL(WF)	8.65±0.67 ^a	8.70±0.57 ^a	8.30±0.57 ^a	8.70±057 ^a	8.55±0.69 ^a	8.65±0.67 ^a
BGSW	7.85±0.98 ^b	7.30±0.86 ^b	7.35±1.14 ^a	7.65±1.46 ^{ab}	7.10±1.52 ^b	7.85±0.88 ^a
BGW	8.00±1.05 ^{ab}	6.95±1.54 ^b	7.20±1.47 ^a	7.30±1.81 ^b	7.65±1.23 ^{ab}	7.75±1.77 ^a
LSD	0.8203	1.1441	1.2498	1.2685	1.3915	1.4142

a–c – Means with different superscripts along the columns differ significantly at P<0.05. LSD - Least significant difference. CONTROL – 100% wheat flour (WF), **BGSW= Flour made from Bambara nuts Pre-treated with 10% NaHCO₃**, **BGW= Flour made from Bambara nuts Pre-treated with H₂O**

CONCLUSION

Bambara groundnut flour (21% protein) could successfully replace wheat flour in cake production. Cakes produced were sensorially acceptable and nutritionally enhanced. Pretreatment with NaHCO₃ improved quality attributes

FUTURE WORK / REFERENCES

Further studies should explore composite blends and shelf stability of the cake samples