

Editorial Comments:

Title: **Changes in Amino Acid Profile of African Yam Bean (*Sphenostylis sternocarpa*): The Effect of Different Processing Methods.**

The following title may better describes the aim and content of the manuscript

Amino acid composition, amino acid scores and predicted protein efficiency ratio of raw and cooked **African Yam Bean (*Sphenostylis sternocarpa*)**

The manuscript needs professional English Editing service

Abstract

The authors are requested to change the first sentences of the abstract to the followings
The amino acid composition of raw and heat processing was analyzed by amino acid analyser. The patterns of 7 essential amino acids were reported in g per 100 g bean protein and the amino acid score and predicted protein efficiency ratio were calculated and reported. B and the protein quality of the four products was predicted by calculating protein efficiency ratio.

Page 2 Materials and methods

Combine in one sentence!

They were winnowed, and extraneous materials were removed. The cleaned seeds were divided into four portions of 150g each

The beans after the removal of **extraneous** particles and cleaning were **divided into four equal portions of 150g each**. One portion was left intact and untreated which served as control [CON]. Cooking practices included conventional cooking [CONV-COOK] by adding water to the 150 g beans at 2:1 (w/w ratio) and boiling in an open pot for 120 minutes. Microwave Cooking [Microw-COOK] was completed by adding water to the 150 g beans at 2:1(w/w ratio) in a glass? Porcelain pottery and placing in a microwave (Sonic 5mw-70017, Japan)for 8 -10 minutes. Roasting [ROAST] of 150 g beans was completed in an oven preheated to 150°C for 20 minutes in the absence of moisture. The [CONV-COOK] and [Microw-COOK] preparations were dried at 65°C in an oven (Ocean Med., Mode DHG- 9053A, England) for 6h. The 4 bean preparations were ground electrically to fine flour to pass mesh sieves and saved in air tight containers for chemical analysis.

Nitrogen determination?? The method should be written down and the conversion factor nitrogen to protein

2.2 Amino Acid analysis

Weighed samples (150 mg) were hydrolyzed in 6 normal hydrochloric acid in sealed ampoules ??? under reflux???? for 16 hours???? 24 hours???. The acid hydrlyzate was neutralized to pH 7 with sodium hydroxide solution ????

The acid hydrolyzate was evaporated under vaccuo followed by washing with distilled water and the volume was brought to a constant volume. The amino acids were separated using amino acid analyzer ((Technicon Sequential Multisample (TSM), Technicon Instruments Cooperation, New York, USA). The details of the separating method was described [9]. 15 ??? AA were separated under this condition, while tryptophan was destroyed.

I assume that the operation and running of the analysis was not done in Nigeria. Such a fascinating machine is usually connected with software programs, sothat the calculation is done automatically.

Describing this naïve method of calculation by multiplying the width by half the height doesn't fit well when using such a valuable machine. It is much better to acknowledge the laboratory , where the analysis had been completed !!

Cooking (Sonic 5mw-70017, Japan) for **810** minutes? Does the author mean 8 – 10 minutes? This should be checked.

Nitrogen determination should be mentioned under materials and methods and the conversion factor from nitrogen into protein.

Table (1) Amino acid composition (mg/g nitrogen

Amino acid	Amino acid g/100g bean protein				FAO/WHO Reference Pattern
	CON	CONV- COOK	MICROWCOOK	ROAST	
Essentials	33.39				
Lysine	6.82				5.80
Methionine	0.80				2.50
Cystine	1.52				3.00
total sulphur A A	2.32				5.50
Phenyl alanine	3.78				6.30
Tyrosine	2.98				1.10
total aromatic A A	6.76				7.40
Leucine	6.69				
isoleucine	3.16				
Valine	4.01				
Threonine	3.63				3.4
Non-Essentials	44.86				
Aspartic acid	8.71				7.70
Glutamic acid	12.79				
Alanine	3.44				
Proline	3.59				
Serine	4.20				
Glycine	3.20				
Arginine	5.44				5.20
Histidine	3.49				2.80
Essential/Total AA %	42.7				

The authors are recommended to add one line for the sum of Methionine – Cystein Sulfur – containing amino acids. The sum of phenylalanine plus tyrosine should also be included in the table. The authors should complete Table (1) in the manner presented in the first column for the control beans. The optimum way for expressing the results is mg / g nitrogen. Amino acid composition (mg/g nitrogen)

Essential AA should make up 50 % of total AA in good quality proteins. In CON bean essential AA made up 42.7 % of total AA.

Author's Feedback:

I've affected the corrections. But for the table, what you suggested to be adjusted in Table 1 is already in Table 3 where the amino acids were categorized. Total aromatic amino acids were not calculated as a category because tryptophan was not analyzed for lack of funds. Remember aromatic amino acids include tyrosine, tryptophan and phenylalanine out of which tryptophan and phenylalanine are essential in human nutrition.

Sphenostylis sternocarpa is a very hard to cook bean variety. I don't think that much interest has been developed to improve it biotechnologically such as reducing cooking time as it has been done for other pulses. Roasting is a fast way of processing it and is eaten with palm kernel as a delicacy while cooking gives variety when combined with other foods such as cooked maize, yam etc. In fact, locally it is cooked in our villages for a long time on firewood and sometimes overnight before it is edible. Concerning the time it took for Microwave cooking it is 810mins equivalent to 13hours5mins. Microwave cooking was not done at a stretch. The Microwave was switched off at intervals to allow it cool during cooking time.