

# Nutrient and Antinutrient Composition of Bouillon Cubes Developed from Fermented Condiments of *Ricinus communis* L. Seeds

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## Introduction

Fermented condiments are part of the diets in Africa

*Ricinus communis* is one of the seeds processed into a fermented condiment

They are usually in form of slurry or loose solids and wrapped in leaves

The development of fermented bouillon cubes offers an opportunity to enhance the safety and attract more consumers to the product

## Methods

Bouillon cubes were developed using cassava binders at fermented condiment to binder ratio of 20:5, 20:10 and 20:20

Proximate, total carotene, vitamin C, minerals and antinutrient analyses were carried out using standard procedures

## Results

Protein and fat content decreased while the carbohydrate content increased significantly ( $P < 0.05$ ) with increasing binder proportion

The total carotene content increased with increasing binder concentration while the vitamin C did not vary significantly

Na, K, Zn and Fe increased with increasing binder concentration while Ca did not vary significantly

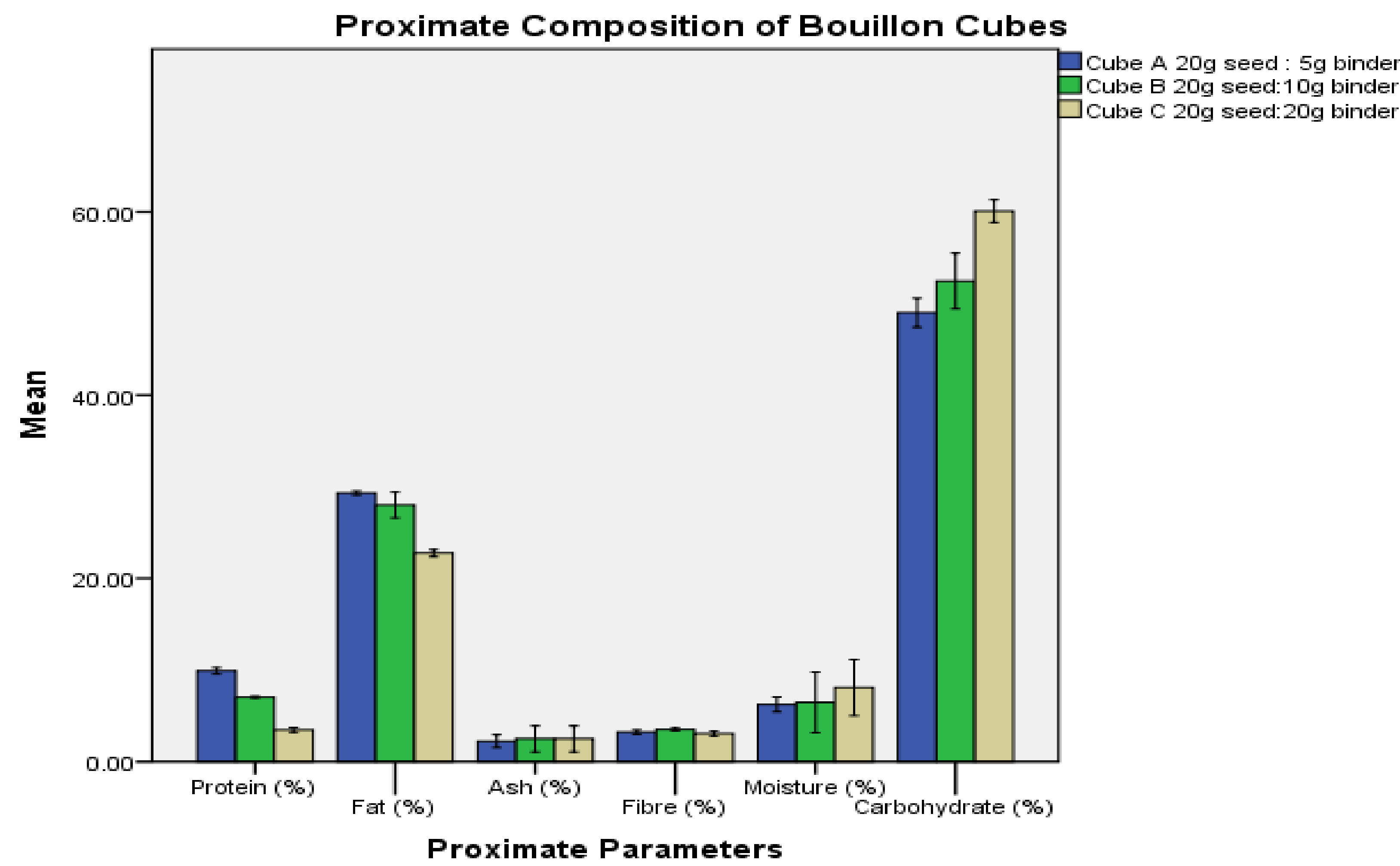
Phytate was significantly higher in cubes made at fermented condiment to binder ratio of 20:20 than other cubes

## Conclusion

The addition of cassava binder in the production of fermented bouillon cubes of *R. communis* is promising, however, cubes produced have decreased protein content and increased phytate content

## Recommendation

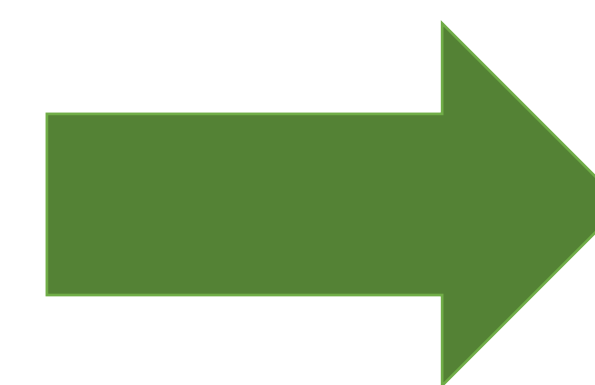
The use of high protein binders or blend of binders should be considered for the development of this novel product as they are known to be rich sources of protein



*Ricinus communis* L. Seeds



Local condiment wrapped with leaves



Condiment developed into bouillon cubes

**Mean Values of Phytate and Mineral Composition of Bouillon Cubes developed from *Ricinus communis* L. Seeds**

Cube Samples	Phytate Mg/g	Fe Mg/g	Zn Mg/g	Na Mg/g	K Mg/g	Ca Mg/g
A (20:5)	0.32 <sup>a</sup>	0.62 <sup>a</sup>	0.63 <sup>a</sup>	1.25 <sup>a</sup>	35.9 <sup>a</sup>	0.14
B (20:10)	0.35 <sup>a</sup>	0.91 <sup>b</sup>	0.75 <sup>a</sup>	1.73 <sup>b</sup>	36.0 <sup>a</sup>	0.15
C 2(20:20)	0.44 <sup>b</sup>	0.93 <sup>b</sup>	0.80 <sup>b</sup>	3.13 <sup>c</sup>	64.4 <sup>b</sup>	0.15

Values with different superscripts within a column are significantly different at  $P < 0.05$



## Acknowledgements

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