EFFECT OF SPICES ON ANTI-NUTRITIONAL PROPERTIES OF TIGER-NUT BEVERAGE (KUNUN AYA)

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Introduction

Beverage is any food intended to be taken in liquid form which includes juices, coffee, tea, soft and alcoholic drinks etc. Several kinds of fermented non-alcoholic beverages are consumed locally not for food value but rather for thirst quenching properties and for their stimulating effects.[1,2,3] Several studies have shown that Kunun aya extract is rich in nutrients such as carbohydrate, protein minerals and vitamins.[4,5] Tiger-nut beverages are popularly known in the northern part of Nigeria as Kunun aya, it is widely consumed for its thirst-quenching and nutritive properties. The study determined the effect of spices on anti-nutritional properties of tiger-nut beverage (kunun aya).

Materials and Method

Fresh Tiger nuts (Cyperus esculentus) and spices (ginger, clove and date) were purchased from Kure Ultra-market in Minna, Niger State. Tiger-nuts seeds were sorted, foreign materials, bad/cracked nuts, which may affect the taste and keeping quality of the drink were removed, washed and rinsed with portable water then soaked overnight to soften the fibre and to remove off-flavour. One kilogramme of the fresh tigernut was blended several times into slurry with water. The slurry was pressed using muslin cloth to recover the extract. The tiger-nut extract was mixed with ginger, clove and date at a varying proportions and then stirred thoroughly to have the spices properly dissolved and samples were later analysed for anti-nutrients such as tannins, saponins, alkaloids and oxalate. The results obtained from the anti-nutritional properties were subjected to one-way ANOVA and the means were separated by Duncan Multiple Range Test using SPSS version 20.

Results and Discussion

The results presented in Table 1. revealed that the blend of tiger-nut with ginger, cloves and date had highest saponin content (314.60mg/100ml) which was significantly (p<0.05) different from blend prepared from tiger-nut with date, tiger-nut with cloves and the control. Highest level of tannin content was observed in tiger-nut with cloves (25.45mg/100ml) which was significantly (p<0.05) different from blends prepared from tiger-nut with ginger, tiger-nut with date, tiger-nut with ginger, cloves, date and the control. However the lowest oxalate content (10.13mg/100ml) was observed in control sample and tiger-nut with ginger.

Conclusion

In conclusion the inclusion of spices (dates, clove and ginger) in the production of tiger-nut drink (kunun-aya) had significant influence on the anti-nutrient properties.

TABLE 1: Anti-Nutrient Content of Fresh Kunun aya with Spices

Parameters	Saponin	Tannin	Alkaloid	Oxalate
A	248.20a ±7.40	21.54c ±1.12	5.48a ±0.12	10.13a ±0.000
B	161.20b ±2.00	25.45d ±1.20	5.25ab ±0.30	28.13b ±0.00
C	189.00c ±4.60	16.80a ±1.17	3.84d ±0.03	28.13b ±0.00
D	314.60d ±1.40	17.30a ±1.08	3.76d ±0.04	18.00c ±0.00
E	154.80b ±0.40	16.08a ±0.08	4.86bc ±0.45	10.13a ±0.00
Sig.	0	0.005	0.001	0
Remark	*	*	*	*

Values with no common superscript in a row were significantly different from each other ($p \leq 0.05$)

* Significant
Sample A = Kunun aya and Ginger
Sample B = Kunun aya and Clove
Sample C = Kunun aya and Date
Sample D = Kunun aya, Ginger, Clove and Date
Sample E = Kunun aya (Control)

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