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QUALITY AND SAFETY PROPERTIES OF STREET VENDED BESKE (*fried soy cake*) IN ILORIN METROPOLIS

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ABSTRACT

Street food contamination is assumed to be inevitable by the nature of the trade, yet millions of people depend on this source of food. *Beske* is a fried coagulated soy-milk popularly consumed in Ilorin. In this study the quality and safety of street vended *beske* in Ilorin metropolis was investigated. *Beske* samples were collected from randomly selected vendors from six main areas of Ilorin, Kwara state in sterile containers and were taken to the laboratory for chemical analysis with the laboratory prepared sample. A structured questionnaire was used to obtain information on the safety measures practiced by the vendors. The results indicate that about 48% of them have toilet around their processing centers and used different inappropriate materials for packaging of *beske*. On sensory quality, the samples obtained from the vendors were preferred in taste than the laboratory prepared sample while a contrary result was obtained for general acceptability. The chemical analysis revealed that the protein content of the samples ranged between 28.80 and 31.27% while moisture content ranged from 18.82% to 39.80% indicating that the product is highly perishable. Free fatty acid (FFA) values of all the samples were very low ranging from 2.05% to 2.12%. The total viable count ranged between of 16×10^{-7} to 401×10^{-7}cfu/g. *Escherichia coli* was not detected in all the samples which suggest non faecal contamination of the product. However, *Staphylococcus aureus* was detected with the count ranging from $5 \times 10^{-7}$to 11×10^{-7} cfu/g above the acceptable level recommended for ready to eat foods. Therefore, it was recommended that the producers of street vended *beske* should improve on food safety and hygiene practices; proper packaging and handling should be practiced to avoid post production contamination.

Keywords: Quality, safety, street vended beske (*fried soy cake*), Ilorin

INTRODUCTION

Street vended foods are prepared and or sold by vendors in the street or market for immediate consumption or consumption at a later time without further processing or preparation (Mensah *et al*., 2002). It is also described as ready-to-eat food or drink sold by hawker, or vendor, in a street or other public place, such as a market or fair. It is often sold from a portable food booth, food cart, or food truck and meant for immediate consumption (Artemis and Bhat., 2000). FAO (2007) reported that around 2.5 billion people eat street food every day. Though street vended foods are relatively cheap and accessible, their safety and quality have remained a serious issue of concern to health experts and international bodies (Agu, 2011). According to the World Health Organization (WHO, 1984) and Ashenafi (1995) street vended foods are prone to be contaminated by either

spoilage or pathogenic micro-organisms. The Food and Agricultural Organization (FAO, 1997) also maintained that street vended foods are prone to poisoning due to improper and unhygienic handling of the foods and the unregulated nature of the sector of the economy. Other studies have also suggested that food sold by the streets have strong epidemiological links with illness. This is due to widespread food borne diseases from food vendors who lack an adequate understanding of the basic food safety measures. Major sources contributing to microbial contamination are the place of preparation, utensils for cooking and serving, raw materials, time and temperature abuse of cooked foods and the personal hygiene of vendors (De Sousa, 2008).

Microbial contamination of ready to eat foods sold by street vendors and hawkers has become a major health problem. Street food vendors are mostly uninformed of good hygiene practices (GHP) and causes of diarrhoeal diseases (Mensah *et al*., 2002). This increases the risk of street food contamination (Bhaskar *et al*., 2004, Tambekar *et al*., 2009) ranging from the initial contamination of raw foods with pathogenic bacteria and other microorganisms to subsequent contamination by vendors during preparation, post production and handling of leftover. There are many factors that should be considered for assessing the quality and safety of street foods (Mankee *et al*., 2003). The vendors could be carriers of pathogens like *Esherichia coli, Shigella*, *Campylobacter*, *Staphylococcus aureus and Salmonela* who eventually transfer these food borne hazards to consumers.

Different kinds of food products are vended in different parts of the world. In Nigeria, the common street vended foods includes; fried meat, bean cake (*akara*), fried fish, *suya*, fried yam, *kulikuli*, groundnut, kunnu, sobo and *beske* among all others Though some factors such as the social and economic status of the people of the community determines the type of food that can be vended in a particular area.

Ilorin is the capital city of Kwara state in North central part of the country. It houses many higher institutions such as University of Ilorin, Kwara state Polytechnic, a teaching hospital and three research institutes. It is regarded as a civil servants town because of the low level of industries and commercial centers. It is therefore apparent that the town will have a blend of poor and above average income earners that are reported to be associated with street vending nutrition.

Beske is a very popular soy bean snack in the North central that is usually sold through street vending. It is a very cheap source of plant protein and expected to be consumed within 1-3 days after production. Thus, the handling may have an implication on food safety. Little or no information is also available on vending of *beske* in Nigeria. It is therefore imperative to access the food safety and implications of vending *beske* using Ilorin as a case study. Therefore, the objective of the study is to determine the quality and safety of street vended *beske* in Ilorin metropolis.

MATERIALS AND METHODS

Samples of vended *beske* were randomly collected from six (6) major areas for chemical analysis and sensory evaluation. They were carefully packaged in low density polythene bags (Ziploc) and taken within few minutes to laboratory for analysis. A laboratory sample of *beske* was produced which served as the control against the samples collected from the study areas. The traditional method as described by Ikuomola *et al.*, (2013) was used.

Data Collection

Structured open ended questionnaire was used to obtain information from the vendors of *beske*. Oral interview was conducted for the respondents that could not read and understand the content of the

questionnaires. There are over twenty wards in Ilorin, for the study ten wards were randomly selected. The questionnaire describes the post handling, packaging and preservation methods of the street vended *beske*. The questionnaires were developed based on FAO/WHO (2013) procedure on good practice and hygienic requirements for food and were administered to five vendors per ward making a total of 50 respondents.

Proximate composition

Moisture, lipid, ash, protein and crude fibre contents of beske samples were determined by standard methods of analysis (AOAC, 2010). Carbohydrate content was determined by difference.

Microbial analysis

Total viable bacterial counts

Dilution of 10^{-1}, 10^{-2}, 10^{-3}, $10^{-4,}$ 10^{-5}, $10^{-6}$and 10^{-7} of the *beske* homogenate were prepared and inoculated onto sterile petri dishes. Plate count agar (Oxoid) media were then poured. Plates were inoculated at 37˚C for 48 hours in a carbon dioxide incubator or under anaerobic conditions using a gas pack anaerobic jar. Colonies were then counted and reported as anaerobic total bacterial count. In case of a spore forming count, the food homogenate was boiled first at 75-80˚C and then rapidly cooled. Serial dilutions of 10^{-1}, 10^{-2}, 10^{-3}, $10^{-4,}$ 10^{-5} and, 10^{-6} were prepared and inoculated onto the surface of sterile and dried plate count agar media. These were incubated finally at 37˚C for 48 hours (ICMSF, 1998; AOAC, 2000)

Detection of *Escherichia coli*

One ml of each of the decimal dilutions of the *beske* homogenate was plated on poured Eosine Methylene Blue Agar (Oxoid) and then incubated at 37˚C for 24 hours. Counts were calculated from the number of growth on the plates. The colonies with green metallic sheen were counted as *Escherichia coli* (ICMSF, 1986; AOAC, 2000).

Detection of *Staphylococcus aureus*

A sample of 0.1 ml of the *beske* homogenate and dilutions was inoculated on Baird-parker (Difco) agar plates and inoculated at 35-37˚C for 48 hours. Colonies appearing to be black and shiny with narrow white margins and surrounded by clear zones were identified by coagulase test reactions. The coagulase test was carried out by first, inoculating typical colonies in brain heart infusion broth (Difco) and incubating at 37˚C for 24 hours. From the resulting cultures, 0.1 ml was then added to 0.3 ml of rabbit plasma in sterile tubes and inoculated at 37˚C for 4 hours. The formation of a distinct clot was evidence of coagulase activity (ICMSF, 1986; AOAC, 2000).

Free Fatty Acid Determination

The acid value is the number of mg of potassium hydroxide (KOH) required to neutralize 1 g of a sample. Sample (5 G) was weighed accurately and dissolved in 50 ml ethanol-ether mixture (1:1). Few drops of phenolphthalein test solution was then added and titrated with 0.1 mol/l ethanolic potassium hydroxide until the pink color of the solution persisted for 30 seconds. Acid value was calculated by the formula below.

$$\text{Acid value} = \frac{\text{potassium hydroxide consumed}}{\text{Weight (g) of the sample}} \times 5.611$$

Sensory analysis

Sensory properties of the *beske* obtained from the vendors were compared with the laboratory sample and using twenty panel members that were familiar with *beske*. The samples were coded and presented in identical containers. A 9- point hedonic scale and multiple comparison test as described by Ihekoronye and Ngoddy (1985) was used. The scale ranged from like extremely (9) to dislike extremely (1) for *beske*. Each of the samples was rated for appearance, aroma, taste, texture and overall acceptability (Iwe, 2002).

RESULTS AND DISCUSSION

Safety measures practiced by producers of street vended *beske* in Ilorin metropolis

The personal and environmental status of the *beske* vendors is shown in Table 1. It revealed that 48% of the respondents had toilet around their processing center and 52% did not while 86% of the respondents washed their hands after visiting the toilet and 14% did not. It can be inferred that toilet facility is available to the vendors but at a far distance from the processing center and as the vendors washed their hands after visiting the toilet there is poor possibility of contamination of the *beske* with feacal materials microorganisms such as *Escherichia coli*. Most of the producers used water from bore hole (52%), while 34% of the respondents used municipal water, 10% used water from well and 4% from other sources. Earlier studies on bacteriological quality of water used by some street vendors revealed frequent contamination with coliforms and fecal coliforms (Rane, 2011). The water used for the production may be a source of contamination. However, as *beske* is a fried product, it is expected that destruction of microorganisms might have occurred during frying. The post production and packaging methods are therefore important to safety issue. Most street vendors of *beske* in Ilorin (68%) displayed their product in plastic containers, 14% in glass, 4% used tray and 2% used other forms of materials. The use of plastic container by the vendors may be due to availability and durability of the container against glass cage. Majority (88%) of the vendors used fork to pick the product for sale to avoid contamination while using unsterilized polythene bag for packaging. The result also showed that 24% of the respondents packaged their *beske* with used waste papers. Type of packaging material has a great link on safety of food. Hence, sterility of packaging materials used for vended food must be taken into consideration. The survey revealed that 72% preserve and re-fry the following day for sale, 22% consumed and6% discard their left overs. The results also showed that only 28% of the respondents preserved their product using refrigeration, while 30% kept at room condition. *Beske* contain high moisture content (18-30%) thus very prone to microbial spoilage, therefore keeping at room condition may not be appropriate to prevent spoilage.

Table 1: Safety measures practiced by producers of street vended *beske* in Ilorin metropolis

Items	**Frequency**	**Percentage**
Availability of toilet		
Yes	24	48.0
No	26	52.0
Total	50	100.0
Source of water used for production		
Tap	17	34.0
Bore hole	26	52.0
Well	5	10.0
Other sources	2	4.0
Total	50	100.0
Container of the product		
Plastic	40	80.0
Show glass	7	14.0
Tray	2	4.0

Others	1	2.0
Total	50	100.0
Mode of picking for vending		
With hands	2	4.0
With fork	44	88.0
With polythene bag	4	8.0
Total	50	100.0
Packaging material		
Paper	12	24.0
Polythene bag	38	76.0
Total	50	100.0
Handling of left over		
Preserve and Re – fry	36	72.0
Consume	8	16.0
Discard	3	6.0
Total	50	100.0
Preservation method		
Refrigeration	14	28.0
Submerged in oil/water	21	42.0
Room condition	15	30.0
Total	50	100.0

(Field Survey, 2017)

Plate 1: Freshly pressed and cut *beske* samples

Plate 2: Frying *beske* samples

Plate 3: Laboratory prepared *beske* samples

Plate 4: Fried street vended *beske* samples

Proximate composition of street vended *beske* in Ilorin metropolis

The result of the proximate composition of the street vended *beske* samples is shown in Table 2 The results obtained showed that there were significant difference ($p<0.05$) between the proximate compositions of the *beske* samples. The results further revealed that the sample obtained from Oke- Ose had the least moisture content of 18.82 % and the laboratory prepared *beske* had the highest moisture content of 39.80%. The moisture content contradicts the findings of Adegoke *et al*., (2002) of 12.44 to 15.11%. Moisture content is an indication of the susceptibility of the food to microbial spoilage. The high moisture content observed in this study indicates that *beske* is a highly perishable food product and prone to post-production contamination, therefore appropriate handling is required.

The ash content is an indication of the presence of minerals in the food samples. The ash content of the street vended *beske* ranged from 4.93% to 5.75%. The sample prepared in the laboratory from had the least ash content (4.93%) while the sample obtained from Gaa- Akanbi area had the highest value (5.75%). Awonuga (2016) reported a range of 2.59 - 3.41% for *beske* produced with varied amount of soybeans and yellow maize, while Ikuomola *et al*. (2013) who studied the effect of soaking period on yield and proximate composition of a Nigerian fried soy bean snack, *beske* obtained ash content ranging from 1.00 to 2.27%. This could be due to varietal differences, geographical location where the soy bean was sourced from or the processing method (soaking period) that was employed.

The protein content of the samples ranged from 28.80% to 31.27% with sample obtained from Oke-ose having the lowest value and the laboratory sample had the highest protein content. The result is in variance with the result of Ikuomola *et al.* (2013) who reported 18.21 to 21.88%. The differences in the protein content among the samples could be due to the volume of water used for dilution which could increase or decrease the concentration of soy milk after sieving. Another reason could be due to inability to regulate temperature and time during boiling of the milk as protein is denatured at high temperature above 37°C. The bulk of roughages in food is referred to as fiber and is estimated as crude fiber. Crude fiber represents the content of the non-digestible components of food, such as lignin, cellulose and hemicelluloses. These are essential in human nutrition, since they enhance the transit time through the bowels, facilitates bowels movement thus reducing the risk of colon cancer (Song et al., 2015). The crude fiber content of the laboratory sample is relatively low (2.59%) and while the sample obtained from Gaa-Akanbi recorded the highest value (9.84%).The results are in contrary to the laboratory prepared samples reported by Awonuga (2016).There was a significant difference ($p<0.05$) in the crude lipid content of the street vended *beske* samples from Ilorin metropolis. The crude lipid content ranged from 19.35% to 25.15%. The result is in variance to the report by Ikuomola *et al*., (2013) who reported 22.14% to 38.83%. Soy-bean contains about 19.94% fat and a good source of fat soluble vitamins. The fat contents of the sample may therefore be as a result of the fat content of the bean and the deep frying method employed by the respondents, like all types of food with a high fat content, lipolytic (enzymatic hydrolysis by lipases and esterases) and oxidative (chemical) changes are likely to occur during storage of the *beske* samples.

There was a significant difference ($p<0.05$) in the carbohydrate content of the street vended *beske* samples. The values ranged from 20.33% to 33.72%. The sample obtained from Oja-Oba recorded the highest value while the sample obtained from Ipata had the least value. This result corroborates the findings of Ikuomola *et al*., (2013) and Yuen ching low (1997). The

carbohydrate content explained that a balance in protein and energy level may be achieved with consumption of *beske* and justify why *beske* is consumed as a snack or fast food in the area of study. The caloric values of Oke-ose and laboratory prepared samples were highest (1296.21 kJ) and lowest (1072.96 kJ), respectively. A significant difference ($p<0.05$) was obtained. The least calorific value of recorded for the laboratory prepared sample is found to be relatively low when compared to the recommended daily allowance (RDA) for a complete food (FAO/WHO, 2003). Therefore *beske* may not be regarded as a complete food (meal).

Microbial property of street-vended *beske*

The result of microbial properties is shown in Table 3. The results revealed the total viable count (TVC) of the *beske* sample were in the range of 16×10^{-7} to 401×10^{-7}cfu/g and evidence of contamination with *staphylococcus aureus* as 5×10^{-7} to 11×10^{-7} cfu/g were obtained. *Escherichia coli* was not detected in all fried *beske* samples which in all cases suggests non faecal contamination of the product. The isolation of *Staphylococcus aureus* can be attributed to post processing contamination. The high microbial count may be as a result of contamination of the sample during production. Adetunji *et al*., (2007) reported that most ready to eat food are usually contaminated after production down to distribution. The presence of *Staphylococcus* in the samples is therefore an indication of human contamination after production. This could be from direct human contact such as fingers or indirectly during picking of the samples from container. According to Madueke *et al*., (2014) microbial guideline for cooked food stipulated that the plate count must be less than 10×10^5cfu/g for ready to eat foods. The microbial load of all the street vended samples were higher than stipulated, hence their consumption may constitute health risk. The food contamination might have been due to unhygienic production practices, prolonged exposure to the environment and poor handling during packaging and vending.

Table 2: Proximate composition of street vended *beske* in Ilorin metropolis

Samples	Moisture%	Ash%	Crude Protein%	Crude Fiber%	Crude Lipids%	Carbohydrate %	Calorie(KJ)
OO	$18.82^{f}\pm0.63$	$5.53^{b}\pm0.03$	$28.80^{de}\pm0.08$	$9.77^{ab}\pm0.021$	$19.35^{d}\pm0.05$	$33.72^{a}\pm0.54$	$1170.49^{bc}\pm8.60$
AM	$23.36^{cd}\pm0.78$	$5.53^{b}\pm0.03$	$29.07^{de}\pm0.15$	$9.76^{ab}\pm0.021$	$24.93^{ab}\pm0.04$	$24.34^{c}\pm0.53$	$1191.15^{b}\pm13.05$
OK	$16.51^{f}\pm0.55$	$5.57^{b}\pm0.03$	$28.44^{e}\pm0.12$	$9.64^{c}\pm0.021$	$22.42^{b}\pm0.59$	$32.41^{a}\pm0.97$	$1296.21^{a}\pm4.16$
GA	$21.11^{de}\pm0.70$	$5.75^{a}\pm0.04$	$29.38^{cd}\pm0.20$	$9.84^{a}\pm0.020$	$23.70^{c}\pm0.14$	$28.22^{b}\pm1.00$	$1176.75^{bc}\pm7.85$
KU	$26.38^{b}\pm0.88$	$5.51^{b}\pm0.03$	$30.14^{bc}\pm0.08$	$9.73^{b}\pm0.021$	$20.58^{c}\pm0.14$	$22.66^{cd}\pm1.04$	$1092.26^{d}\pm10.86$
IP	$25.62^{bc}\pm0.85$	$5.52^{b}\pm0.03$	$30.92^{ab}\pm0.24$	$9.77^{ab}\pm0.021$	$17.84^{ab}\pm0.91$	$20.33^{d}\pm1.95$	$1151.32^{c}\pm5.70$
CO	$39.80^{a}\pm2.67$	$4.93^{c}\pm0.01$	$31.27^{a}\pm0.90$	$2.59^{d}\pm0.078$	$25.15^{a}\pm1.26$	$32.31^{f}\pm2.97$	$1072.95^{d}\pm17.13$

Mean±SD. Mean with the same superscripts along a column are not significantly different ($p\leq0.05$)
OO- Oja-Oba, AM- Amilegbe, OK- Oke-Ose, GA- Gaa-Akaabi, KU- Kulende, IP- Ipata, CO-Laboratory prepared sample

Table 3: Microbial load of street vended *beske* in Ilorin metropolis

Samples	Total viable count (cfu/g)	*Escherichia coli* (cfu/g)	*Staphylococcus aureus* (cfu/g)
OO	339×10^{-7}	-	11×10^{-7}
AM	401×10^{-7}	-	10×10^{-7}
OK	201×10^{-7}	-	-
GA	459×10^{-7}	-	9×10^{-7}
KU	-	-	-
IP	16×10^{-7}	-	10×10^{-7}
CO	-	-	5×10^{-7}

Mean±SD. Measn with the same superscript along a column are not significantly different (p>0.05)
OO- Oja-Oba, AM- Amilegbe, OK- Oke, GA- Gaa-Akanbi, KU- Kulende, IP- Ipata, CO-Control

Free Fatty Acid content of street vended *beske*

Free fatty acid (FFA) indicates the extent of hydrolysis of the ester linkages in lipids. The higher the FFA (>5), the more likely that hydrolytic rancidity has set in the product. The presence of free fatty acids is an indication of lipase activity or other hydrolytic action. Changes occur during storage that results in the production of an unpleasant taste and color. The unpleasant organoleptic characteristics are in part caused by the presence of free fatty acids but the major development of rancidity is brought about by atmospheric oxidation (auto oxidation) (Kwegyir,2014). The free fatty acid (FFA) ranged from 2.05 % to 2.12 % (Table 4). The sample obtained from Gaa-Akanbi had the highest free fatty acid while the one from Oja-Oba had the least value. This suggests that the level of decomposition in the *beske* was still low. This finding is similar to the findings of Barro *et al*., (2006) in which the authors proclaimed that by-products of soybeans are usually free or of low fatty acids hence, the justification for the low fatty acids present in the findings of the study. Adeyeye *et al*., (2013) also reported a similar finding.

Table 4: Free Fatty Acid Content of Street Vended *beske*

Sample	Free Fatty Acid (%)
OO	2.05^{c}±0.01
AM	2.11^{ab}±0.00
OK	2.08^{bc}±0.00
GA	2.12^{a}±0.00
KU	2.06^{c}±0.01
IP	2.07^{c}±0.01
CO	2.11^{ab}±0.01

Mean±SD. Measn with the same superscript along a column are not significantly different (p>0.05)
OO- Oja-Oba, AM- Amilegbe, OK- Oke, GA- Gaa-Akanbi, KU- Kulende, IP- Ipata, CO-Control

Sensory quality of street vended *beske*

The sensory evaluation revealed that sample obtained from Ipata and Oja- Oba had the same mean scores of 5.40 for aroma (Table 5). This result conforms to the observations made from the survey that the producers used the same method of production which may be responsible for the values. According to Han (2001) the same production method is usually adopted for soy-cheese production within the same region. The aroma of *beske* is influenced by the frying condition (type of oil, temperature and time of frying). The result for the taste showed that the samples with the most preferred taste were the samples obtained from Gaa-Akanbi, Amilegbe, Kulende and the laboratory sample with values between 6.25 and 6.30. The samples with the least preferred taste were the samples obtained from Oja-oba and Oke-ose with 5.75 each. As observed from the results there was no significant difference ($p>0.05$) between the values. This shows that the *beske* produced in Ilorin metropolis all had similar taste which could be because *beske* vendors adopted similar method of production. Cardinale *et al*. (2005) mentioned that soybeans product, tofu, rarely have significantly different tastes. The overall acceptability of the samples was not significantly different ($p>0.05$). The score of the overall acceptability showed that the laboratory sample with the mean score (7.05±1.32) was most preferred, followed by sample obtained from Amilegbe with the mean score (6.55± 1.47). The least accepted is sample was the sample obtained from Ipata with a mean score of (5.55±1.64).

Table 5: Mean sensory scores of street vended *beske* in Ilorin metropolis

Sample	Aroma	Color	Taste	Texture	Acceptability
OO	5.40^{b}±1.54	6.45^{ab}±1.15	5.75^{a}±1.21	6.05^{a}±1.50	6.22^{ab}±1.24
AM	5.60^{bc}±1.70	6.40^{abc}±1.43	6.25^{a}±1.74	6.60^{a}±1.43	6.55^{ab}±1.47
OK	6.10^{bc}±1.48	5.30^{cd}±1.49	5.75^{a}±2.00	6.15^{a}±1.23	6.30^{ab}±1.49
GA	5.85^{bc}±1.57	5.35^{bcd}±2.03	6.30^{a}±1.30	6.05^{a}±1.47	6.10^{ab}±1.41
KU	5.70^{bc}±2.15	5.10^{d}±2.20	6.25^{a}±1.77	6.30^{a}±1.75	6.15^{ab}±1.69
IP	5.40^{b}±1.60	6.25^{abc}±1.62	5.90^{a}±1.29	5.85^{a}±1.53	5.55^{b}±1.64
CO	6.70^{a}±1.22	7.25^{a}±1.16	6.25^{a}±1.12	6.85^{a}±1.39	7.05^{a}±1.32

Mean±SD. Mean with the same superscripts along a column is not significantly different ($p\leq0.05$)
CO- Control, IP- Ipata, OO- Oja-Oba OK- Oke-Ose, KU- Kulende, GA- Gaa-Akanbi, AM- Amilegbe

CONCLUSIONS

The study further revealed that most street vended *beske* in Ilorin metropolis are not microbiologically safe due to high Staphylococcal contamination. Despite this level of findings, street vended *beske* were still mostly acceptable than the laboratory prepared sample in terms of color, texture and general sensory properties. It was observed that the *beske* vendors produced in fairly unsanitary environment and food safety measures. In conclusion, producers of *beske* may need to improve on their food safety measures. The study thus recommended that the government authorities

should regulate the activities of street vendors by enacting a code of practice for the street food business. Conditions should be put in place to ensure that food vendors comply with hygienic and sanitary conditions of handling of food. Street vendors should adopt proper food safety measures and packaging to reduce post production contamination.

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