

Sensory Evaluation and Demonstration of Some Common Bean Dishes at Basketo Special Woreda, Southern Ethiopia

Ermias Dureto^{1*}¹Arbaminch Agricultural research Center, Southern Agricultural Research Institute, Ethiopia**Abstract**

Sensory evaluation and demonstration of some common bean dishes were conducted. Boiled common bean was added into triangular shaped kitta (bread) and boiled to prepare sambusa (snack food in Ethiopia). For kik preparation, Common bean passed all the necessary steps similar to that of shiro but the difference is common bean dehulled, roasted and slightly milled. Flavor boosting ingredients prepared and mixed with cooked common bean to prepare ful (breakfast food in Ethiopia) usually prepared from faba bean and consumed with bread. There was no significant difference in sensory characteristics using a five-point hedonic scale of prepared dishes. Sensory evaluation indicated that overall acceptability decreased as common bean processed into flour due to its beany flavor.

Keywords

Sensory; Common Bean; Dishes; Soaking

Introduction

Common bean (*Phaseolus vulgaris* L.) is one of most important legume crops grown in all continents of the world. It belongs to family *Leguminosae*. (Broughton et al., 2003). Total production exceeds 23 million Metric tons (MT) of which 7 million MT were produced in Latin America and Africa [1]. In Ethiopia, the crops have been cultivated in different parts, mainly at central, eastern, and southern parts of the country. The area under common bean production in Ethiopia is currently 673,847.61 hectare (32.2%) with the total dry bean production of 845116.905 tons (25.7%) [2].

Common bean is a staple food that does not require any industrial processing; it is the most important protein source in the developing world and, besides the caloric intake, common bean also provides minerals, fiber, thiamine, folate, and phytochemicals with analgesic and neuroprotective properties [3,4].

In Ethiopia common bean is mostly consumed as mixture of other food grains as flavor booster which is locally called Nifro. It is important for the consumers to be aware of different types of dishes prepared from this crop. It is also important for small-scale cafeteria holders to know how to utilize regarding to their daily utilization for making different food types such as bread, sambusa, kikwot, shirowot (souse) and ful. Diversified bean products are crucial in order to make farmers benefited from safe food products and thereby to enrich daily diet. Assessed sensory characteristics were (color, taste, flavor, mouth feel/texture and overall acceptance) by using five point hedonic scale (1= Dislike very much, 2= Dislike, 3= neither like nor dislike, 4 = Like and 5= Like Very much). Hence, the objective of this paper is to evaluate sensory acceptability and demonstrate some common bean dishes.

Materials and Methods

Common bean of locally available variety was collected from local markets of Laska town, Basket special woreda, southern Ethiopia. For demonstration and sensory evaluation purpose a total of 30 females were selected from Basketo special woreda. Participants whose age is in between 18 to 40 were used for sensory evaluation after permission obtained from local administrator of the study area.

Preparation of common bean shiro

Common bean was grinded, soaked for 24hr and it was exposed to direct sun light. Dried common bean was roasted and milled for shiro flour preparation. A tea spoon full of processed hot pepper, sliced garlic, 5 ml of vegetable oil and sliced onion was used to increase the flavor of shiro. After sauce prepared pre-processed common bean flour was added into boiling ingredients. After mixing all ingredients and cooking for about 20 minutes including cooling.

Preparation of Kik

Common bean was cleaned, soaked overnight and boiled for 30 minutes to remove seed

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coats. After doing so it was washed and drained and sun dried. Dry common bean slightly milled in the manner that does not form flour which is locally called kik (yetekeka boloqe).

Preparation of sambusa

To prepare sambusa (common snack food in Ethiopia) from common bean, cleaned common bean was washed, boiled for 30 minutes and cooked. Wheat flour was used to prepare kitta (bread) having triangular shape common in Ethiopia. After adding flavoring ingredients into cooked common bean gently mixing it with cooked common bean.

Preparation of common bean ful

Processing of common bean to prepare ful is not different from other above house hold processing techniques. Cleaned, soaked and dried common bean was boiled for about 30 minutes for easy dehulling. Draining the water and rewashing and cooking common bean to add into sauce. Participant farmers were invited to prepare the dish and important feedback was collected.

Data collection and analysis

Before data collection on sensory evaluation of common bean dishes, untrained female farmers and Development Agents (DAs) oriented on hedonic scaling. The collected sensory evaluation data of common bean dishes were analyzed by using SPSS version 20. Preference ranking method was used to put different kinds of dishes based on their sensory attributes and results were presented by using table for descriptive statistics Table (1).

Result and Discussion

In the present study, common bean of different locally available varieties were used for demonstration of dishes such as sambusa, kikwet, shro wet and ful. Preference ranking method was used. Food samples have the order of ranking as common bean ful first by all the sensory parameters such as color, taste odor, texture and over all acceptability. The reason behind is for ful preparation common bean was sorted, washed, soaked for 24 hours and mixed with different flavor boosting such as salt, onion, oil, garlic, processed hot pepper and these are prepared as sauce. Shiro is relatively less accepted dish from common bean based on sensory evaluation results. This is in line with similar study conducted on effect of processing method on sensory characteristics of biofortified common bean flour [5]. This is also may be due to people are not aware of common bean shiro and one of the sensory parameter has negative effect on shiro sensory acceptance is its beany nature which is common for legumes. During sensory evaluation and demonstration evaluators mentioned that common bean dishes are acceptable and none of the participants disliked much the prepared common bean dishes

Four food samples of common bean were evaluated for their sensory attributes such as color, texture, odor, taste and general

Mean sensory scores of Common bean dishes				
Parameters	A	B	C	D
Color	4.37±0.77	4.77±0.5	4±0.85	4.67±0.48
Taste	4.17±0.75	4.7±0.5	4.47±0.78	4.8±0.46
Texture	4.47±0.68	4.87±0.3	4.5±0.73	4.77±0.43
Odor	4.3±0.75	4.77±0.4	4.57±0.57	4.9±0.3
Over all acceptance	4.7±0.47	4.97±0.2	4.73±0.45	5±0.00
LSD	NS	NS	NS	NS
Overall rank	4 th	2 nd	3 rd	1 st

Results are presented as mean±SD, where A= shiro, B= kikwet, C= Sambusa, D= Ful, NS= non significant

Table 1: Summarized table for sensory attributes of common bean dishes by using 5 point hedonic scale

acceptability. Totally 30 female farmers participated on sensory evaluation of common bean dishes feed backs were collected. Due to untrained panelists consumers oriented how to conduct sensory evaluation. Before any action materials kept clean and to reduce intra communication among the evaluators care has taken as much as possible. Assessors used water to clean their mouth before and after conducting sensory evaluation. According to farmer's sensory evaluation of dishes using five point hedonic scales and preference ranking method to put in order of sensory acceptance. Common bean "ful" ranked 1st, "kikwet" 2nd, common bean "sambusa" 3rd and common bean "shiro" ranked 4th. All the food samples prepared from common bean scaled above three from total of five point hedonic scales. Analysis indicated that among four food products prepared common bean "ful" has got highest acceptance by all sensory parameters except for its color. Next to "ful", "kik" wet of common bean ranked second by all sensory parameters except for its taste. "sambusa" and "shro" of common bean ranked third and fourth respectively. However, "sambusa" got highest general acceptance than "shro" by taste, texture and odor it got least acceptance by its color [6-11].

Conclusion and Recommendation

Common bean being the versatile crop, farmers can prepare different local foods such as "ful", "kik" "Sambusa", "shro" and other possible dishes. This is because common bean do not require any industrial processing to prepare different kinds of dishes in household level.

Overall acceptability decreased as common bean milled due to its beany flavor. It is therefore recommended that flavor boosting agents can be added to reduce the beany taste. Being beany is the natural characteristics of legume crops such as common bean.

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