

Sensory Evaluation of Ashgourd and Amla Based Juice and Soup

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Abstract- Sensory evaluation of food is a growing science, which is of particular interest for typical products such as those having a Ash gourd and Amla based Juice and Soup. This manuscript will concentrate mainly on two products: (a) Juice and (b) Soup. The main objective of the study was to analyse the sensory scores of the various samples of the juice and soup rank the different samples according to their sensory qualities, using statistical analysis. The general sensory attributes colour, flavour, aroma and taste were also ranked according to their importance in the overall acceptability of the drinks etc. The product was judged as the first in ranking and 'taste' as the best quality attribute. These implicate the importance of sensory evaluation in identifying consumers' preferences and also the competency of statistic approach in decision making.

Index Terms- Developed product, Ash gourd juice and soup and sensory evaluation.

I. INTRODUCTION

Sensory evaluation is one of the methods used in identifying the market acceptability especially in food or drink based products. It is useful for product development and improvement since the most important factor for a particular market can be identified and improved [1], [2]. Influential factors are essential for consumers to get the best product and for manufactures to develop and sell the best product. Sensory evaluation is also necessary to ensure that their products will be succeeding in the marketplace. Sensory analysis is too commonly often overlooked as a requirement before product launched. The implications again back to the successfulness of products to survive in market. Today's consumers are discerning, demanding and more knowledgeable about food and expect products which are safe, good value and of high sensory quality.

Ash gourd is grown throughout India and found in both cultivated and non-cultivated lands and genetic variability is present for fruit shape, size, days to flowering, wax deposition and other vegetative characters. Chhattisgarh state has good genetic diversity for various characters and no exploration has been taken to trap the diversity. Genetic variability is present especially for fruit characters, days to flowering and days to maturity. In spite of being in cultivation science ancient times and the presence of the wide germplasm had created wide genetic variability for various characters conscious evaluation and exploitation of germplasm has not been given much emphasis till

date. At present there is urgent need to develop early maturing high yielding variety possessing desirable processing traits. The genetic improvement of any crop depends upon the available genetic variability for quantitative traits and its judicious exploitation through efficient breeding methods (Cruess, w.v,1958). Amla is highly acidic and astringent in taste due to which they are unpalatable and unsuitable for direct consumption. The excellent nutritive value and therapeutic value of the amla fruit offers an untapped potential for processing into several quality products. Hence, they are consumed mainly in the processed forms (Gudapaty et al., 2010). Amla fruit is processed into murabbas, candy, dried chips, jelly, squash and syrup (Barwal et al., 2010). To make amla a fruit of mass, products need to be developed which are attractive, tasty and which can be consumed as food items, but at the same time retain its nutritive and therapeutic values (Pathak, 2003).

In the present study objective was overall acceptability of a beverage based on juices and soups, which aggregated the sensory evaluation of juice and soup with the higher vitamin content of together with the bioactive components of both raw materials. Response surface methodology (RSM) was used to model the sensory acceptability response of consumers, to generate a predictive equation with the variables studied.

Objectives

- To standardize the procedure for preparing juices and soups from the selected samples.
- To develop the Ash gourd and Amla based juice and soup by using different variations.
- To assess the sensory evaluation of the formulated juices and soups.

II. MATERIALS AND METHODS

1.1. Procurement of Raw Materials

The Raw Materials were procured from the local market namely Ash gourd, amla, sugar, potato, ginger, tomato, pepper and binders and corn starch) and otherspices in the Salem market, Tamilnadu

1.2. Location of the study

The study was conducted in the department of clinical nutrition and Dietetics at Periyar University, Salem, Tamilnadu

1.3. Standardization of Juice and Soup samples

Standardization was done by blending ash gourd, amla and ginger juice and soup in different quantities.

The steps for the formulation and processing of ash gourd and Amla based juices and soups were discussed. The standard procedures used for product development is mentioned in Table 1 & 2.

Table -1
Ash gourd and Amla based Juices

S. No.	Juices (variations)	Ingredients	Method
1	Variation-1	Ash gourd juice-300ml, Amla juice-40% Ginger juice-5% Sugar-45%	Take required quantity of juices from the extraction of Ash gourd , Amla and ginger then blend all the above three juices add sugar and cardamom for taste and mixed well till the sugar dissolved & serve cold
2	Variation-2	Ash gourd juice-400ml, Amla juice-50% Ginger-5%, Sugar-60%	

Table-2
Ash gourd and Amla based Soups

Ingredients	Method
Ash gourd juice-300ml, Amla juice-20% Ginger-2% Onion-30% Potato-30% Tomato-15% Corn starch-10%	All ingredients are washed and cleaned then Cut into small pieces and remove damaged portion. the above mentioned ingredients with 150ml of water and pressure cook for 10-15min. Mash the cooked ingredients and filtered and add corn flour, salt and chilli powder boil for 5 min and serve hot
Ash gourd juice-400ml Amla juice-20% Ginger-2% Onion-40% Potato-40% Tomato-20% Corn starch-10%	

1.4. Sensory Evaluation

Sensory evaluation was conducted for all the standardized juice and soup samples and also for best accepted samples selected by trained panel members using 5 point Hedonic scale. The beverages were prepared in the Department of clinical Nutrition and dietetics, Periyar University, Salem. The two types of juice and soup were first standardized at different levels. This procedure for attribute development was parallel to that used in some other recent sensory studies (Vara-Ubol et al. 2004; Matta et al. 2005; Chambers et al. 2006).

The samples were then given to the panellists with an evaluation form. They were asked to taste one sample at a time, and record their responses allowing time between samples so that

the tasters can record their opinion. Two variations of each juices and soups were made. The composition of the different beverages was subjected to sensory evaluation as presented in Table 3 & 4.

III. RESULT AND DISCUSSION

The data generated from the performs of sensory scores were statistically analysed using the values are expressed as Mean ± SD (Standard deviation) were executed with SPSS software (version 11.5) on descriptive analysis of Juices and Soups , while the hedonic ratings of the juice and soup quality were used for evaluating the consumer preference on texture, overall characteristics and purchasing decision.

Ash Gourd and Amla based juices and soups were evaluated by the paired preference, hedonic rating and multiple comparison tests using 20 semi-trained assessors for sensory evaluation. The average values for overall acceptability and statistical method are presented in Table 3. The standard deviation was within the expected range since each assessor judged the samples according to his own expectations with respect to the beverages.

Hedonic rating scale method was adopted to estimate the acceptance of the products totally 20 untrained responding were used for sensory analysis.

1.5. Statistical Analysis of Juices

Table-3

Statistical analysis in Different Variations of juices

S. no	Criteria (Sensory evaluation)	Juice (variation-1) Mean ± S.D	Juice (variation-2) Mean ± S.D
1	Appearance	4.30 ± 0.73	4.75 ± 0.44
2	Colour	4.35 ± 0.65	4.50 ± 0.51
3	Flavour	4.40 ± 0.68	4.30 ± 0.57
4	Consistency	4.25 ± 0.55	4.35 ± 0.48
5	Aroma	4.40 ± 0.68	4.70 ± 0.47

The above table depicts the sensory criteria of juice (variation-1) has the Mean and SD value was obtained to the appearance 4.30 ± 0.73, colour- 4.35 ± 0.65, flavour - 4.40 ± 0.68, consistency - 4.25 ± 0.55 and aroma - 4.40 ± 0.68.

The above table depicts the sensory criteria of juice (variation-2) has the Mean and SD value was obtained to the appearance 4.75 ± 0.44, colour- 4.50 ± 0.51, flavour - 4.30 ± 0.57, consistency - 4.35 ± 0.48 and aroma - 4.70 ± 0.47. Based on the

sensory evaluation of soup , soup-2 was highly accepted by the selected panel Member.

Figure-1
Comparison of hedonic rating scale for different variations in juices

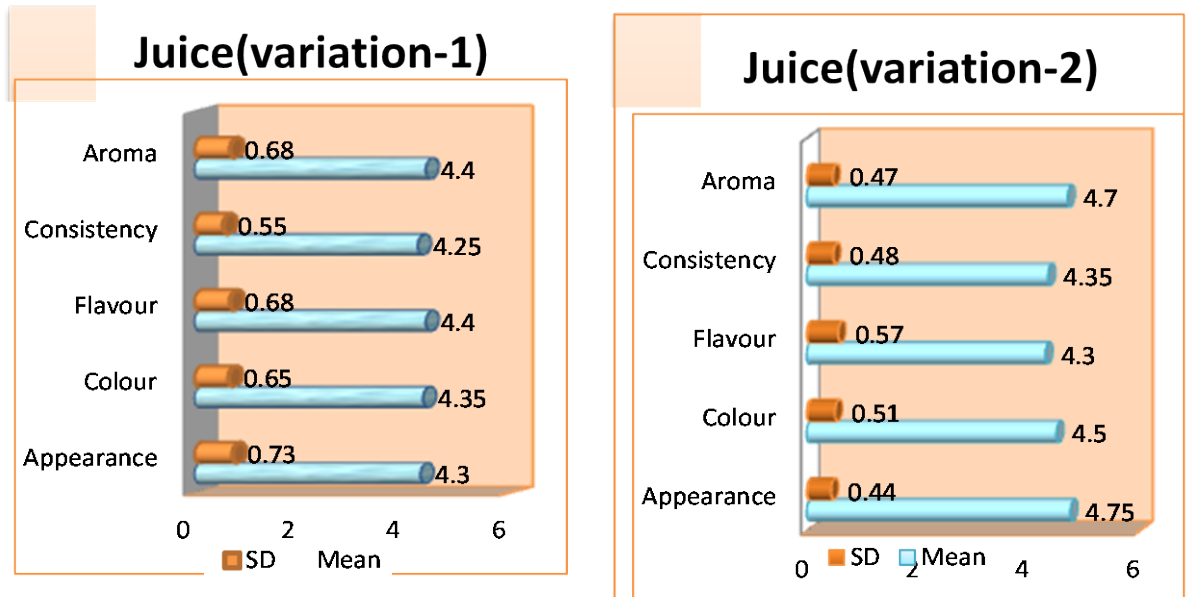


Table-4
Statistical analysis in Different Variations of soups

S. no	Criteria (Sensory evaluation)	Soup (variation-1) Mean ± S.D	Soup (variation-2) Mean ± S.D
1	Appearance	4.45 ± 0.51	4.45 ± 0.68
2	Colour	4.35 ± 0.67	4.50 ± 0.82
3	Flavour	4.25 ± 0.49	4.35 ± 0.74
4	Consistency	4.40 ± 0.75	4.55 ± 0.75
5	Aroma	4.35 ± 0.67	4.30 ± 0.73

The sensory evaluation of different variations of juices showed in the above table, that the content of aroma, consistency, flavour, colour, appearance was highly present in Variation-2 juice.

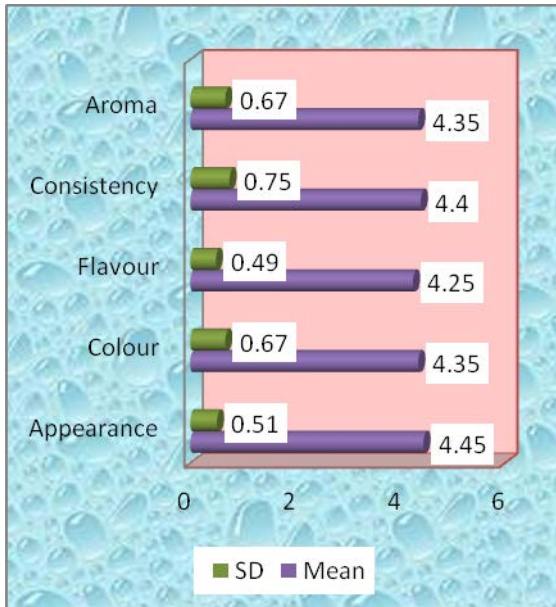
The above table depicts the sensory criteria of soup (variation-1) has the Mean and SD value was obtained to the appearance - 4.45± 0.51, colour- 4.35 ± 0.67, flavour - 4.25 ± 0.49, Consistency - 4.40± 0.75 and aroma - 4.35 ± 0.67.

The above table depicts the sensory criteria of soup (variation-2) has the Mean and SD value was obtained to the appearance 4.45 ± 0.68, colour- 4.50 ± 0.82, flavour - 4.35 ± 0.74, Consistency - 4.55 ± 0.75 and aroma - 4.30 ± 0.73. Based on the sensory evaluation of soup (variation-2) was highly accepted by the select panel member

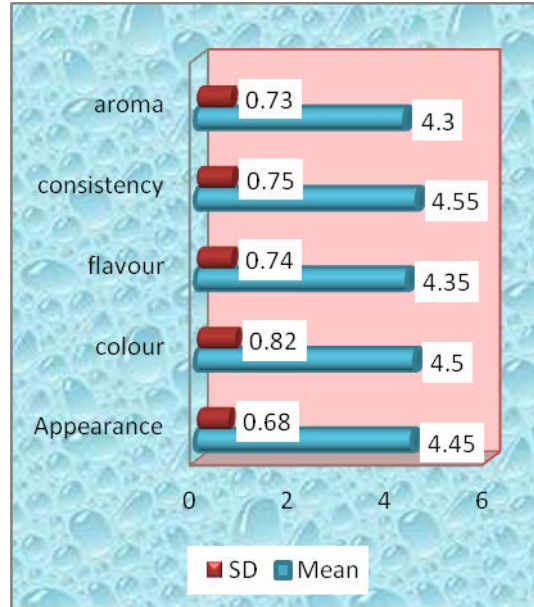
Figure-2

Comparison of hedonic rating scale for different variations in soups

Soup(variation-1)



Soup(variation-2)



The sensory evaluation of different variations of soups showed in the above table, that the content of aroma, consistency, flavour, colour, appearance was highly present in Variation-2 soup.

IV. CONCLUSION

A list of 20 descriptors suitable to profile fresh juices and soups were generated and used to evaluate the performance of a group of panellists with good experience in sensory analysis. This work has shown that the locally available vegetable juices and soups contain safe level of sensory evaluation for human consumption. Consumers bought juice and soup due to its taste and nutrients. Simultaneously, they also contain higher health benefits from juices and soups as well. The beverage produced by the improved processing method for a juice-2 and soup-2 has more acceptable quality attributes than the juice-1 and soup-1 from the traditional processing method and is considerably cheaper than similar products from conventional sources.

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