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Sensory Evaluation of the Developed Product

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Abstract:- This study provides sensory acceptability test of the developed products utilizing 9-point hedonic scale score sheet and rank preference. This aim to determine sensory acceptability of the developed product in terms taste, color and aroma along three group of respondents and determine the most preferred formula for each product.

Descriptive research method was employed in this study. On the other hand, operational principles in selecting panelist, design of the sensory area and coding samples were considered along the research. For the data analysis, arithmetic weighted mean and rank were used. Results of the research showed that sensory acceptability of the three products (Corned Lawlaw, lawlaw in Oil and Bottled Sisog lawlaw) 7.48, 7.31 and 7.10. For the group of respondents ages 30 and above is 7.60, 7.50 and 7. Likewise, the Bottled Sisig is the most preferred product, followed by corned lawlaw and lawlaw in Oil. It is therefore recommended to conduct consumer testing to further determine the wide range acceptance in the market. Also, conduct similar test but with the aid of Analysis of Variance for the variables as statistical tool.

Keywords:- *Sensory Acceptability, Rank preference, 9-Point hedonic scale, Food Products*

I. INTRODUCTION

The sensory quality of foods is one of the most important factors influencing a consumer's decision to buy, as this aspect makes an immediate impression. Sensory testing as an approved testing method is therefore increasing in importance in many areas of food production. This course provides you with an introduction to this field. You learn about the theory and practice of the fundamentals of human sensory perception, the most important testing methods and the most important frame conditions for sensory testing (Tzu Graru).

Sensory evaluation is a scientific discipline that is used to measure, analyze, evoke, and interpret the reactions to those characteristics of foods and materials as they are perceived by the senses of sight, smell, taste, touch, and hearing. Sensory evaluation involves the measurement and evaluation of the sensory properties of foods and other materials. Sensory evaluation also involves the analysis and the interpretation of the responses by the sensory professionals. Linking of sensory testing with other business functions is essential, because it is essential for the sensory professional to understand the marketing strategy. Sensory evaluation principles have their origin in physiology and psychology. The information derived from experiments with the senses has a major influence on test procedures and on the measurement of human responses to stimuli. Sensory information is used as a part of marketing decision to identify and quantitatively model the key drivers for a product's acceptance, and is now generally recognized as a core resource for any sensory program.

The discipline of hedonic response flourished swiftly in 20th century along with the growth of food processing industries. It encompasses a set of techniques required for the precise measurements of human reactions to foodstuff ultimately persuading the consumer perceptions. According to the Institute of Food Technologists (IFT), sensory evaluation is a scientific method used to evoke, measure, analyse and interpret those responses to products as perceived through the senses of sight, hearing, touch, smell and taste (Stone and Sidel 1993; IFT 2007). Since its advent in 1940s, sensory assessment has been established as an exciting, dynamic and continually evolving discipline that is now renowned as a scientific field in its own right. The sensory professionals are regularly challenged with problems which call upon widespread skills derived from array of disciplines, like bio-sciences, psychology, statistics and often required to work with other experts from these areas. Furthermore working with a human as 'measuring instrument' is challenging due to great variability. Today's lifestyle is entirely different; hypermarkets are offering consumers a great range of food products. The competition between food processing industries is escalating for more space in superstores; hence sensory analysis has become vital part of food production. Sensory evaluation has emerged as an essential component of food product development and standards for setting up, testing, analyzing and interpreting sensory results are now at an advanced stage. Moreover, innovations and advancements in electronic devices have further simplified the evaluation process.

The sensory quality of food products has been considered an important factor since the beginning of the food industrialization process due to its influence on the overall quality of the product. Quality, in terms of sensory properties, is related to the adequate levels of sensory attributes considering the appearance, aroma, flavor, and texture. Sensory analysis is used to characterize and measure sensory attributes of products. Sensory Analysis is the description and scientific measurement of the attributes of a product perceived by the senses: sight, sound, smell, taste and touch. By understanding sensory data, one can offer food-product development guidelines as to which property should be emphasized when making product-development decisions. This decision process includes processing ingredient and economic considerations. Not merely food "tasting" it can involve describing food color as well as texture, flavor, aftertaste, aroma, tactile response, and even auditory response. Sometimes sensory analysis is used interchangeably with sensory evaluation.

Sensory analysis examines the properties (texture, flavor, taste, appearance, smell, etc.) of a product or food through the senses (sight, smell, taste, touch and hearing) of the panelists. This type of analysis has been used for centuries

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for the purpose of accepting or rejecting food products. Historically, it was considered a methodology that complements technological and microbiological safety when assessing the quality of food. However, its important evolution and impact in recent decades has placed it as one of the most important methodologies for innovation and application to ensure final product acceptance by consumers

In the process of designing food products, it is important to recognize the needs of the customer, direct the designed product towards them, and then communicate and explain the value of this designed product to the consumer [9]. Consumers buy image, comfort, nutrition, using their senses, sensory sensitivity, they buy sensory properties. That is why sensory methods are an important, integral tool that should be used in NPD process. When designing products, the most important quality feature of a product is its direct relationship to satisfaction, perception and ultimate acceptance by the consumer of the sensory qualities of the product (’Sullivan). Sensory evaluation and new product development are strongly linked. Sensory analysis methods can be used at many stages of the design process to assess the quality of the product and the expectations of consumers and their reactions to the product. Following the framework indicating the importance of sensory evaluation.

Sensory evaluation is a multidisciplinary science used to understand human perception and response to the sensory characteristics of foods and non-foods. Products attain market success when they meet consumer need and expectation, and when their benefits are well communicated to the target consumers. Thus, this paper seeks to determine sensory acceptability of the developed product to gain products importance in the market space and able to meet consumers preference and needs.

- **OBJECTIVES**
  - Determine sensory acceptability of the developed product in terms taste, color and aroma along the three group of respondents
  - Determine the most preferred formula for each product

II. MATERIALS AND METHODS

- *Materials Preparation*. The materials used in this study are the food samples, distilled water, palate cleanser (unsalted cracker), tissue, sample container, research questionnaire and ballpen.

The food three food samples were coded accordingly. Sample size of each sample is 30g. The sample container used is clean and identical for all samples at all sessions. Serving temperature was at room temperature to remove possible errors and bias on the samples.

As to the flow of this study, Figure 1 shows a flow diagram of the procedures of this study. The food samples were prepared, collected and coded accordingly. It is followed by subjecting each sample to sensory evaluation using the 9-point Hedonic Scale score sheet. After which, the panel of evaluators were given another set of questionnaires for preference test, and asked them to rank in descending order to determine their most preferred product.

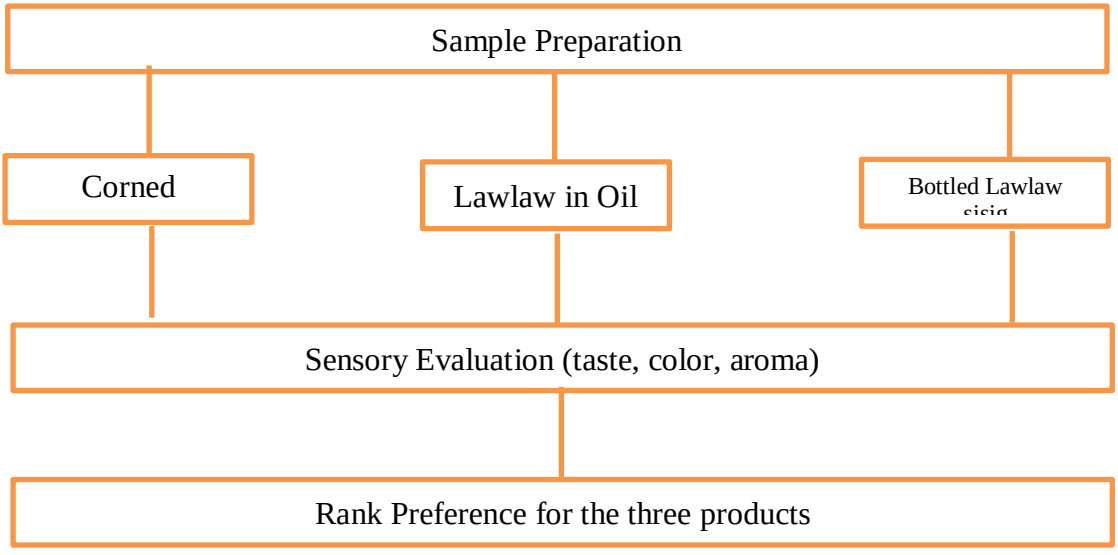

Fig. 1: Flow of Sensory Evaluation of Developed Products

- *Samples and Sensory Panels.* The samples of this study are shown in Table 1. The three food samples were replicated by 30 and divided into 3 for the different age groups having 10 panels each.

In selecting panel of evaluators, guidelines in sensory evaluation were followed such as to not include smokers, with illness and pregnant. They are also informed that during the tasting, talking with each other is prohibited since they may affect the result of their judgement about the food products. Also, wearing of strong perfumes is not allowed.

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Food Samples	Number of Replications	Number of Panels	Age Group
Corned Lawlaw	10	10	13-18
	10	10	19-30
	10	10	30 up
Lawlaw in Oil	10	10	13-18
	10	10	19-30
	10	10	30 up
Bottled Lawlaw sisig	10	10	13-18
	10	10	19-30
	10	10	30 up

Table 1. Lists of Food Samples, Number of Replications, Number of Panels

- *Design of sensory evaluation.* As to Sensory Laboratory Set Up and Equipment The physical setting was design to minimize the subject's biases, maximize their sensitizing, and eliminate variable which do not came from the product themselves. The test area is free of crowding and confusion, as well as comfortable, quiet, temperature controlled and free from odour & noise.

- *Questionnaire.* There are two type of questionnaire used in the study. The first questionnaire is the 9-point Hedonic scale score sheet, that includes variables such as color, taste and aroma. The hedonic scale was used to determine degree of acceptability of one or more products. This scale is a category-type scale with an odd number categories ranging from "dislike extremely" to "like extremely." A neutral midpoint (neither like nor dislike) is included. Consumers rate the product on the scale based on their response. Along with the rank preference, this test asks the consumer to order the samples based on preference, with a ranking of "1" meaning most preferred.

- *Research Method.* Descriptive Research was employed in the study. Descriptive research refers to the methods that describe the characteristics of the variables under study. This data aims to know the extent to which different conditions can be obtained among these subjects

- *Statistical Tool:* In determining the acceptability of the three food samples (food products), arithmetic weighted mean was used for each variable. As to rank preference, rank average was used.

III. RESULTS AND DISCUSSION

This section provides data on the sensory acceptability of the developed product along the target group of consumers.

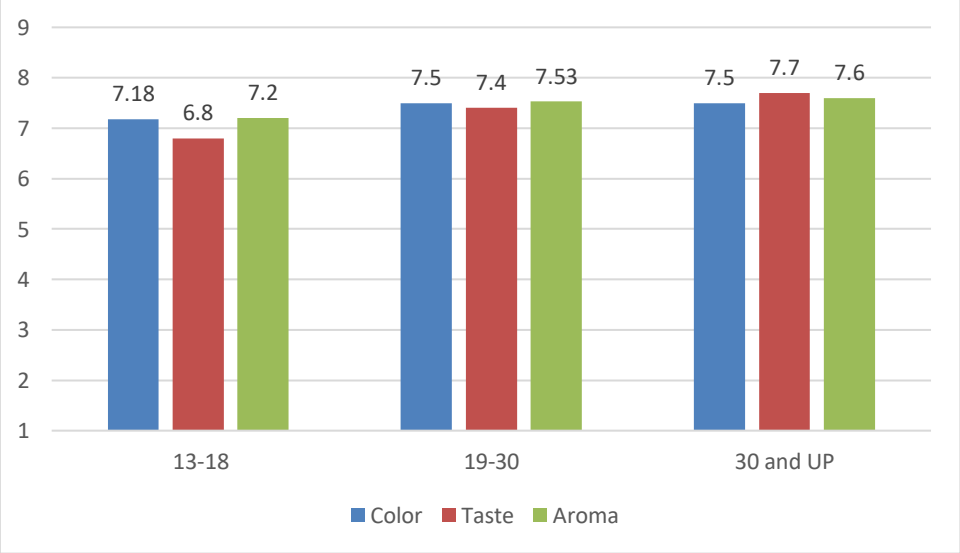

Table 2: Sensory Acceptability of Corned Lawlaw

It can be gleaned in Table 2 the result of sensory acceptability of **Corned Lawlaw** along the three groups of respondents. Along with the parameter of "Color", the product got a weighted mean score of 7.5 and as interpreted as *Like moderately* for the groups 19-30 and 30 and UP as to the group of 13-18 with a weighted mean average of 7.18. As to "taste" acceptability, the highest weighted mean score of 7.7 and interpreted as *Like very much* was noted in the age group of 30 and UP, followed by 7.4 (age group 19-30), and 6.8 (age group 13-18). The result implies that along with the "taste" Sensory acceptability, the respondents of ages group 30 and UP preferred the taste of the Corned Lawlaw. On the otherhand, along with the acceptability of Aroma, the product got the highest means score of 7.6 and lowest means score of 6.8.

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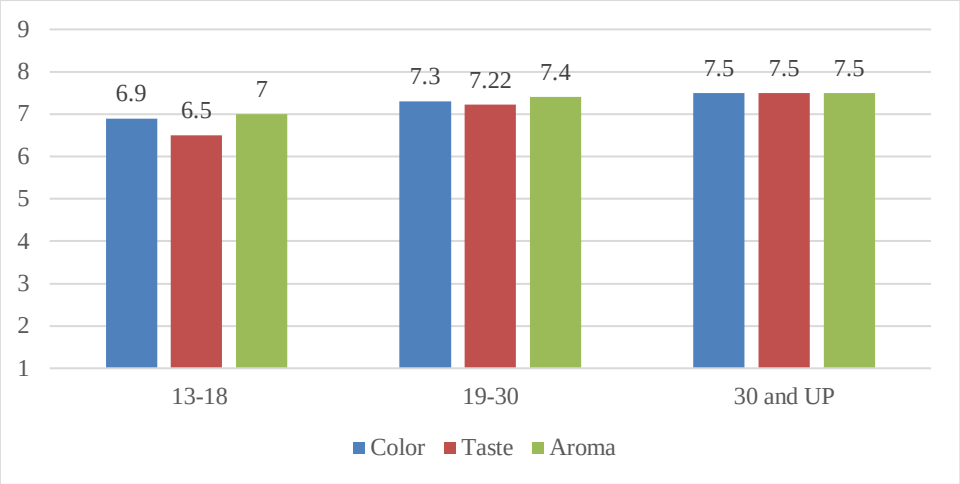

Table 3: Sensory Acceptability of Lawlaw in Oil

Table 3 presents the result of sensory acceptability of **Lawlaw in Oil** along the three groups of respondents. Along with the parameter of "Color", the product got a highest weighted mean score of 7.5 and as interpreted as *Like moderately* for the groups 19-30 and 30 and UP, and lowest mean score of 6.9. This shows that the product is most preferred by the respondents of ages of 30 and UP along with the color. As to "taste" acceptability, the highest weighted mean score is 7.5 and interpreted as *Like very much and was again given by the* age group of 30 and UP, followed by 7.22 (age group 19-30), and 6.5 (age group 13-18). The result implies that along with the "taste" Sensory acceptability, the respondents of ages group 30 and UP preferred the taste of the Lawlaw in Oil. On the otherhand, along with the acceptability of Aroma, the product got the highest means score of 7.5 and lowest means score of 7.0

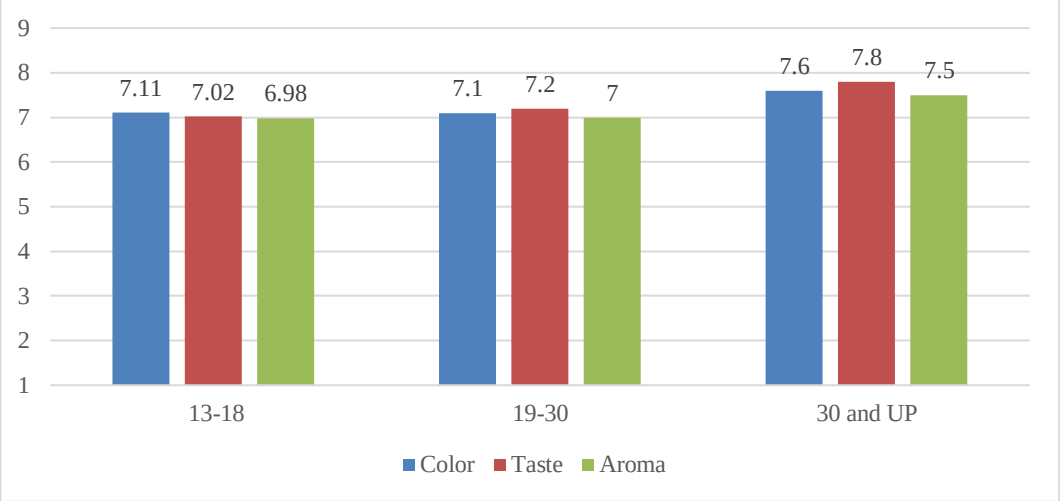

Table 4: Sensory Acceptability of Bottled Lawlaw Sisig

It can be gleaned in Table 4 the result of sensory acceptability of **Bottled Lawlaw Sisig** along the three groups of respondents. Along with the parameter of "Color", the product got a weighted mean score of 7.5, followed by 7.2 and 7.11. this shows that in terms of Color the product is most accepted by the group of respondents of ages 30 and UP. Along with the taste, the highest weighted score is 7.8, followed by 7.2 and 7.02. this also implies that the product in terms of taste is most accepted by the by the group of respondents of ages 30 and UP and least accepted by the group of respondents of ages 13-18 years old. Along with Aroma, the product got an average weighted mean score of 7.5, 7 and 6.98. The highest weighted mean score was given by the respondents of ages 30 and UP and lowest mean score was given by the group of respondents of ages 13-18 years old.

	Grp 1 13-18	Grp 2 19-30	Grp 3 31 and UP
Food Products	Rank	Rank	Rank
Corned Lawlaw	2	2	2
Lawlaw in Oil	3	3	3
Bottled Sisig Lawlaw	1	1	1

Table 5: Food Preference of Respondents

Table 5 shows the food preference of the three group respondents along the three products. It can be seen that along the three group of respondents the most preferred product Is the bottled sisig, followed by corned lawlaw and lawlaw in oil. Food preferences on the otherhand, are the evaluative attitudes that people express toward foods. This also show how much the respondents like and dislike the food products. Acceptance and preference of the sensory properties of foods are among the most important criteria determining food choice.

IV. CONCLUSION

Based from the data, it can be concluded that:

- Along with the group of respondents of 13-18 years old, the sensory acceptability of the Corned lawlaw along Color is 7.18, Taste,6.8 and Aroma 7.2. For the group of respondents of 19-30 years old, sensory acceptability in terms of Color, taste and aroma is 7.5, 7.4 and 7.53. While for the group of respondents of 31 yearss old above, the sensnory acceptability in ters of color, taste and Aroma is 7.5, 7.7 and 7.6.

  For the product lawlaw in Oil, the sensory acceptability in terms of Color, Taste and Aroma for the group of respondents 13-18 years is 6.9, 6.5 and 7. For the group of respondents ages 19-30, the sensory acceptability in terms of Color, Taste and Aroma is 7.3, 7.22 and 7.4. For the group of respondents ages 30 and above the sensory acceptability in terms Color, Tase and Aroma is 7.5.

  For the product Bottled Sisig lawlaw, the sensory acceptability in terms of Color, Taste and Aroma for the group of respondents 13-18 years is 7.11, 7.02 and 6.98. For the group of respondents ages 19-30, the sensory acceptability in terms of Color, Taste and Aroma is 7.1, 7.2 and 7. For the group of respondents ages 30 and above the sensory acceptability in terms Color, Tase and Aroma is 7.6, 7.8 and 7.5

- Along with the most preferred product, the three group of respondents concluded that the Bottled Sisig is the most preferred product, followed by corned lawlaw and lawlaw in Oil.

V. RECOMMENDATION

It is therefore recommended to conduct consumer testing to further determine the wide range acceptance in the market. Also, conduct similar test but with the aid of Analysis of Variance for the variables as statistical tool.

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