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BIOCHEMICAL, NUTRITIONAL AND ORGANOLEPTIC ASSESSMENT OF UNRIPE PAPAYA (*CARICA PAPAYA*)

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Sensory analysis (or sensory evaluation) is a scientific discipline that applies principles of experimental design and statistical analysis to the use of human senses for the purposes of evaluating consumer products. By applying statistical techniques to the results it is possible to make inferences and insights about the products under test. The attributes selected are of primary importance to the consumer as well as the manufacturer. Hazard Analysis and Critical Control Point (HACCP) is an internationally recognized system for reducing the risk of safety hazards in food. A HACCP System requires that potential hazards are identified and controlled at specific points in the process. A HACCP System requires that potential hazards are identified and controlled at specific points in the process. In the course of this research project, a novel gastronomical product was prepared and its sensorial assessment was carried out. During the preparation of the novel food product, all the critical points were identified, and remedial measures were applied. Thus, the principles of HACCP were successfully applied and Total Quality Management was achieved. The Novel Product thus produced was subjected to sensory evaluation by a group of semi-trained panellists and the data was analysed by statistical methods.

Keywords: Unripe Papaya, Sensory Evaluation, Hazard Analysis Critical Control Points (HACCP), Nutrition, Food Science

INTRODUCTION

Your diet is a bank account. Good food choices are good investments, as stated by Bethenny Frankel. Your daily food choices affect how you feel today, tomorrow and in the future. Good nutrition is an important part of leading a healthy lifestyle.

In modern times, pharmaceutical products are the chief channels of therapy. However, rising concerns of side effects and toxicity associated with long-term usage have raised questions on the safety and efficacy of various drugs. To address this concern, the purview of a branch of

integrative nutrition also focuses on recognizing and elevating the therapeutic potential of the diet by incorporating simple remedial measures.

Thus, the need of the time is to reinvent traditional recipes promising consumer convenience. For this reason, the focus is also shifting towards the development of novel products using unexplored ingredients and nutritional sources.

The main objective of this research is to highlight the nutritional superiority of unripe papaya and incorporate it into a novel product. During the course of Novel Product

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Development, the critical points were identified, and remedial measures were applied. Thus, the principles of HACCP were successfully applied and Total Quality Management was achieved. The Novel Product thus produced was subjected to sensory evaluation by a group of semi-trained panellists and the data was analysed by statistical methods.

HAZARD ANALYSIS CRITICAL CONTROL POINTS

Implementing a HACCP System requires that both Prerequisite Programs and HACCP Plans are implemented. Prerequisite programs are programs that are put in place in the facility to control hazards in the environment, preventing contamination of the product. Prerequisite programs ensure a hygienic environment, and good manufacturing processes for personnel that reduce the risk of contamination of the food product. HACCP Plans are prepared for each process or product, and identify possible hazards and controls in place to make sure the hazards are eliminated or controlled to ensure acceptable levels in the food product.

SENSORY EVALUATION

Sensory evaluation is a scientific discipline that analyses and measures human responses to the composition of food and drink, e.g., appearance, touch, odour, texture, temperature and taste. In schools it provides an ideal opportunity for students to evaluate and give feedback on their dishes, test products and experimental designs.

Product Introduction

Sev puri is an Indian snack and a type of chaat. It is a speciality that originates from Mumbai, Maharashtra. Although there is no fixed recipe for sev puri, the basic ingredients used widely are the same. Sev puri is essentially made of puri which is loaded with diced potatoes, onions, three types of chutneys: tamarind, chili and garlic and topped with sev. This product was fortified by adding boiled unripe papaya pulp to the potato mixture, as well as its extract to the chutney.

The sample was evaluated by a semi-trained panel consisting of 31 members. Quality attributes such as aroma, taste, colour and general acceptability of the products were evaluated. The responses were assembled and statistically analyzed.

RESULTS AND DISCUSSION

The following tables present a summary of the responses given by the panellists:

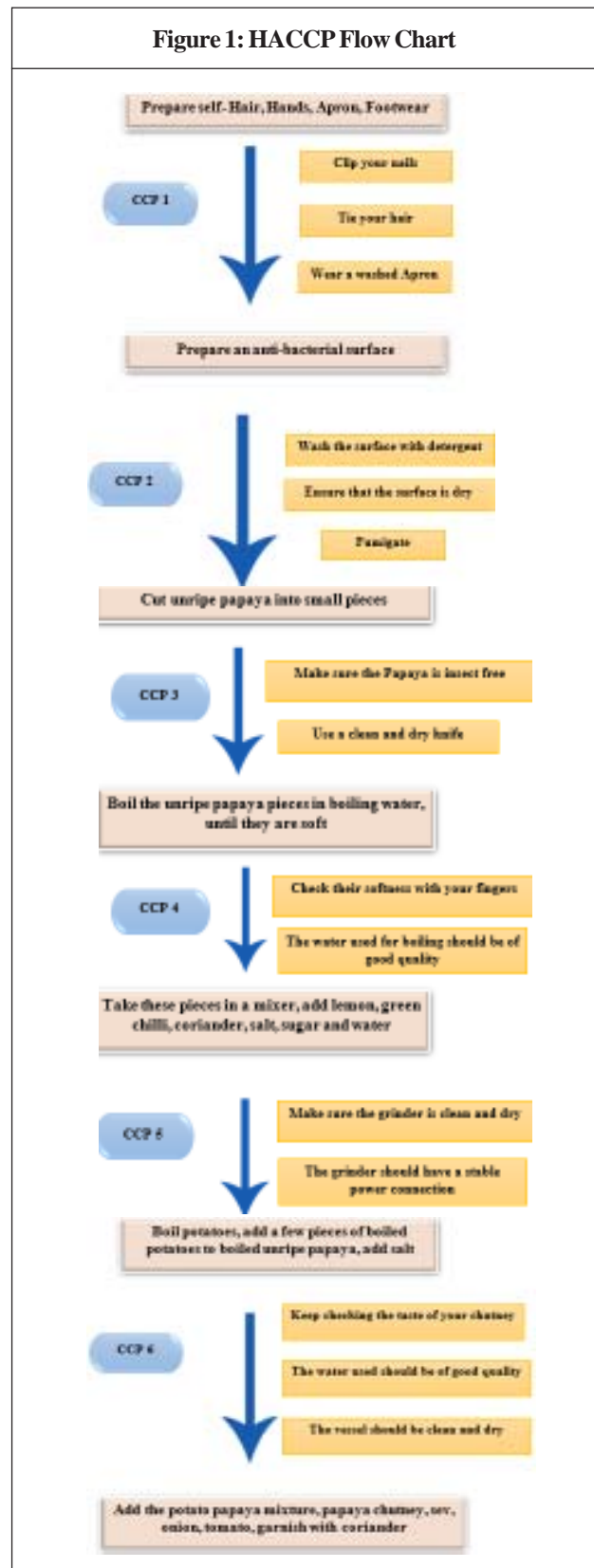


Figure 2: Response of Subjects on the Awareness of the Texture of Unripe Papaya

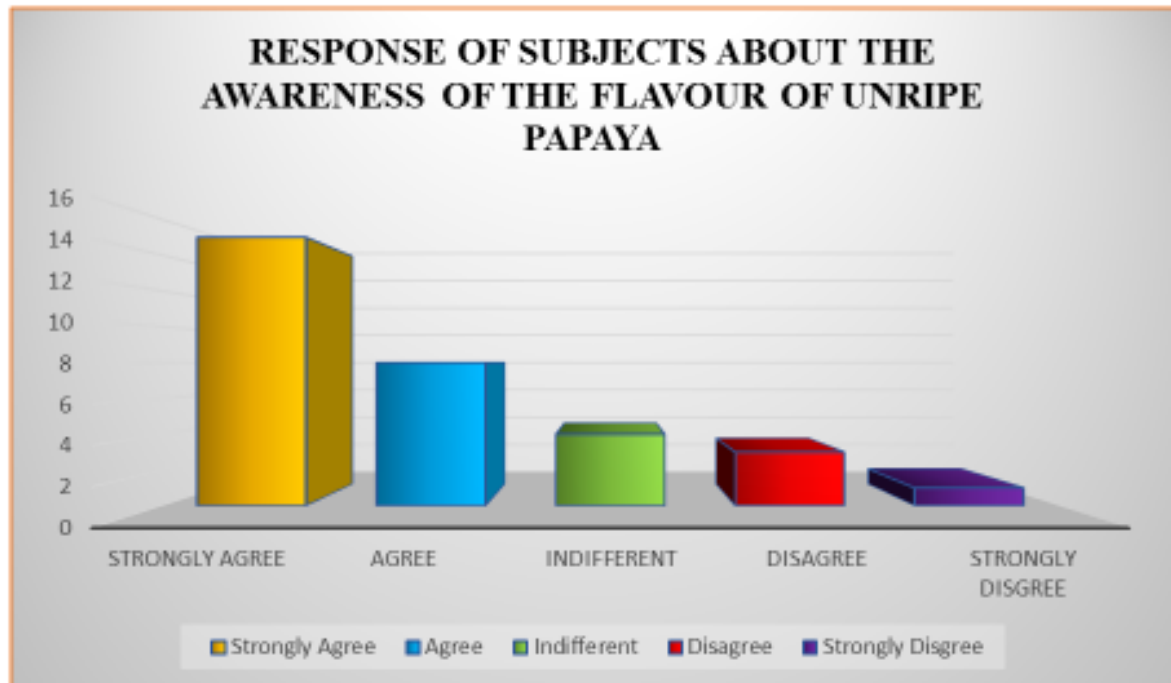


Figure 3: Frequency of the Consumption of Unripe Papaya by the Subjects

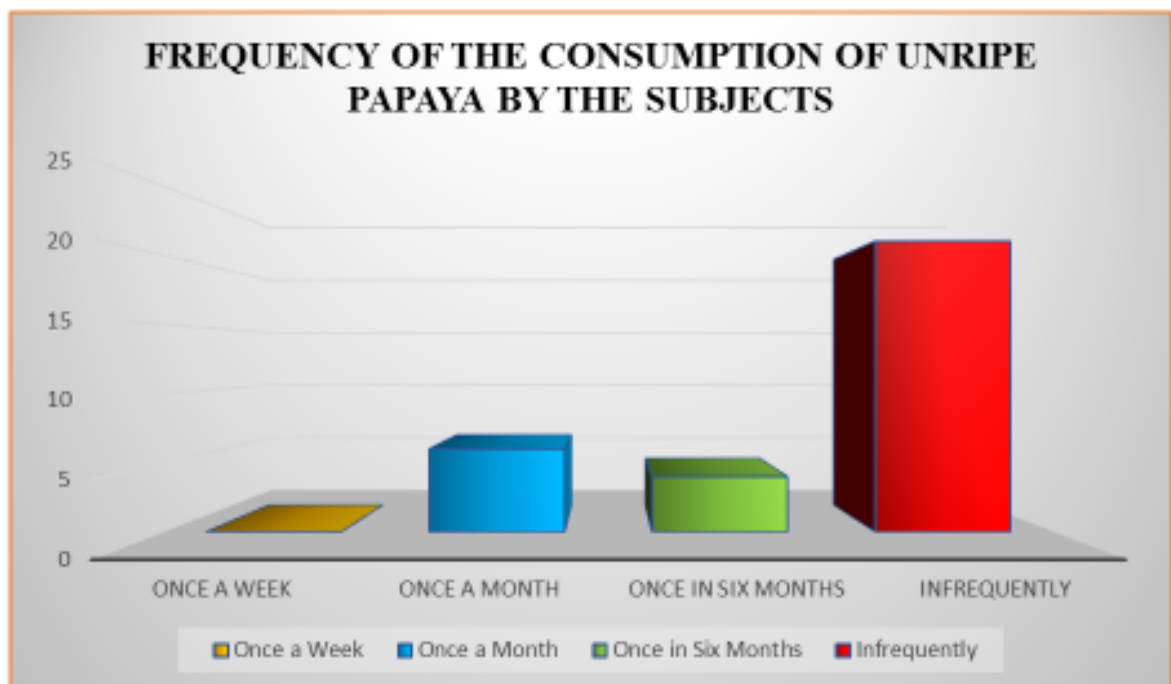


Figure 4: Preference of Papaya by Different Members of the Family

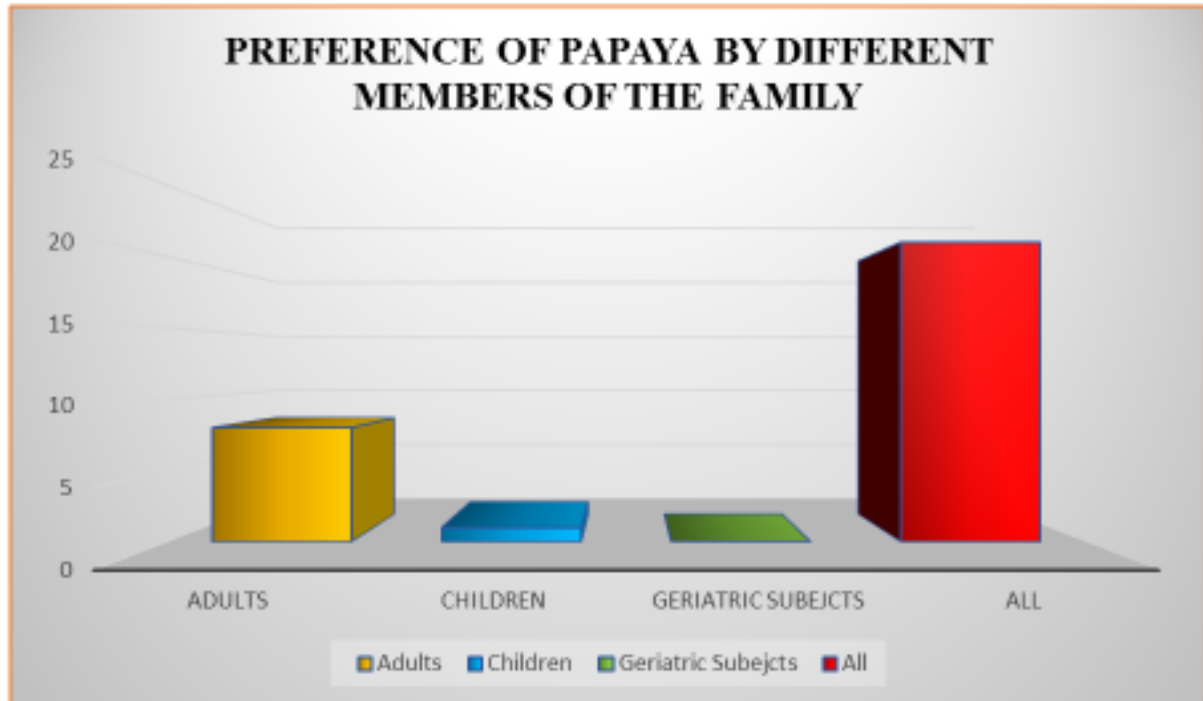


Figure 5: Response of Subjects about their Liking Towards Sev Puri

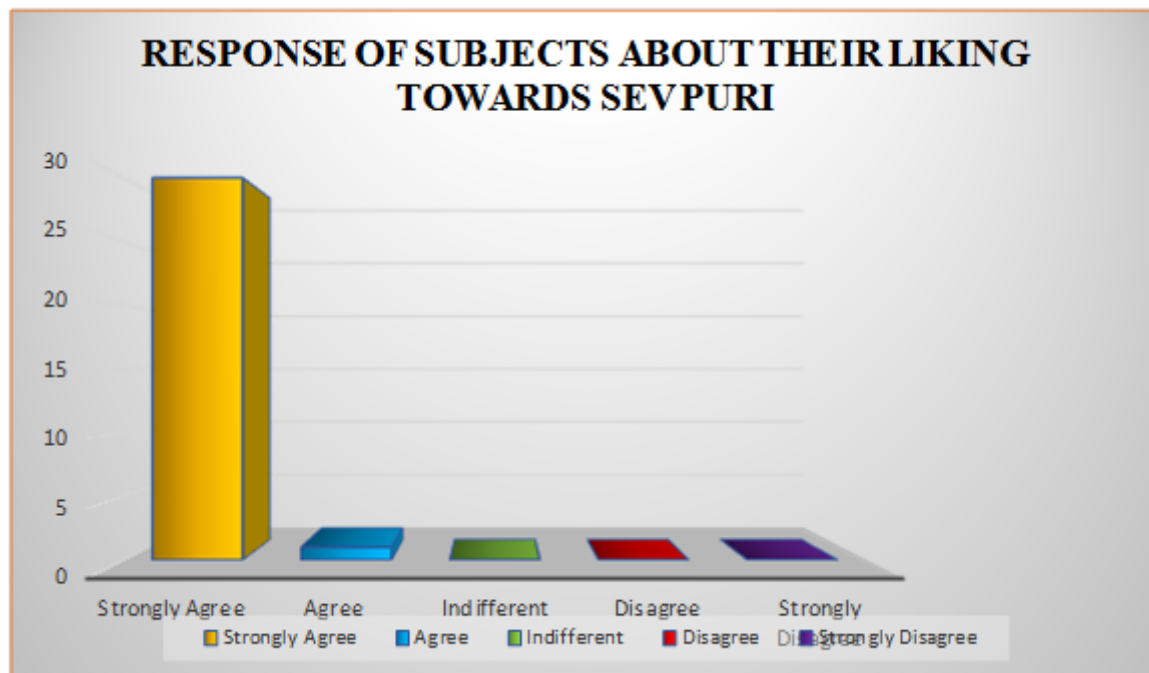


Figure 6: Opinion of Panellists about their Willingness to Buy the Product if Commercially Available

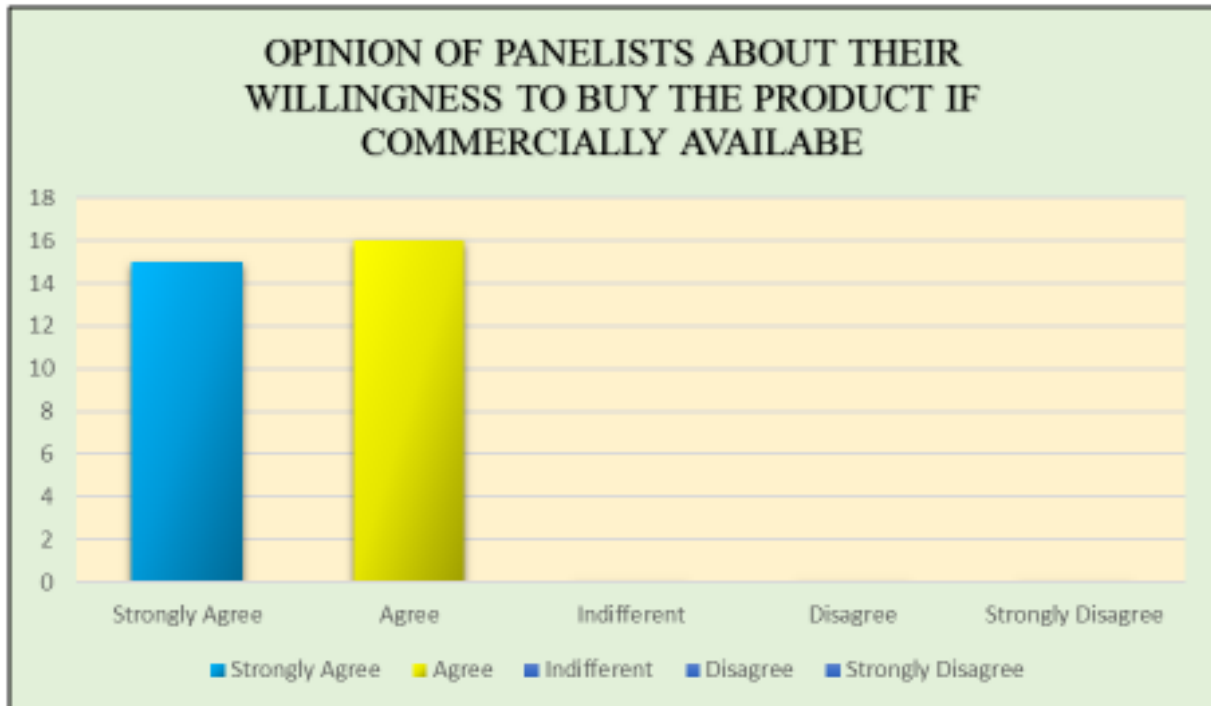


Figure 7: Response of Panellists on the Incorporation of Unripe Papaya in their Daily Diet

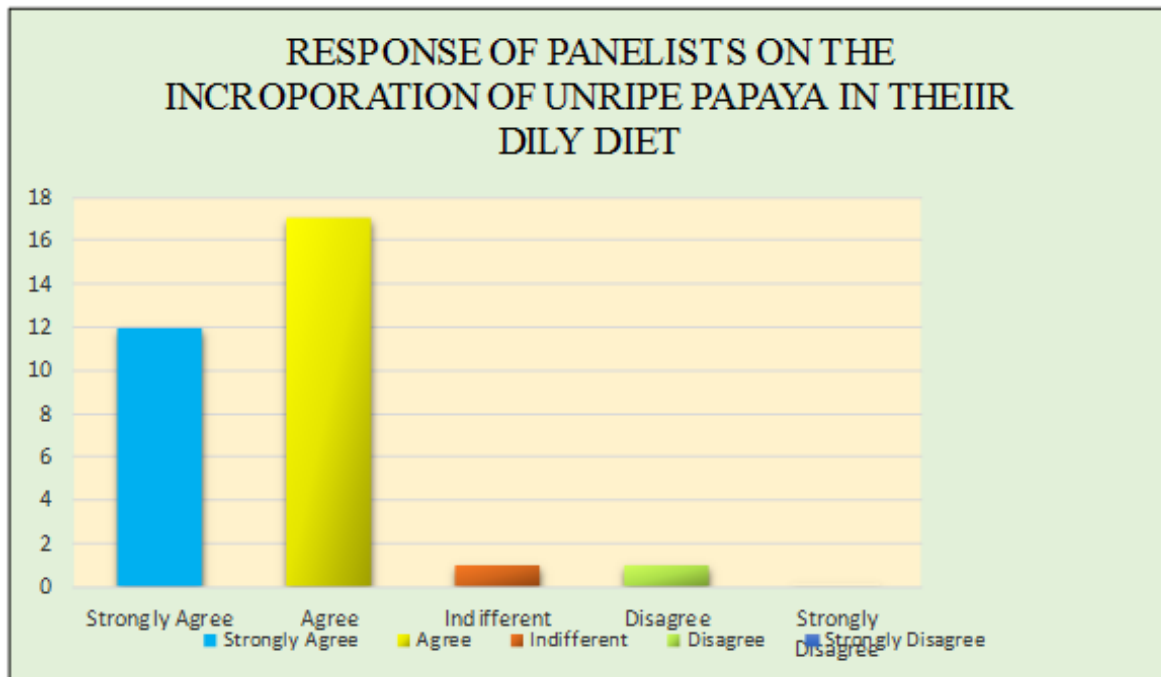
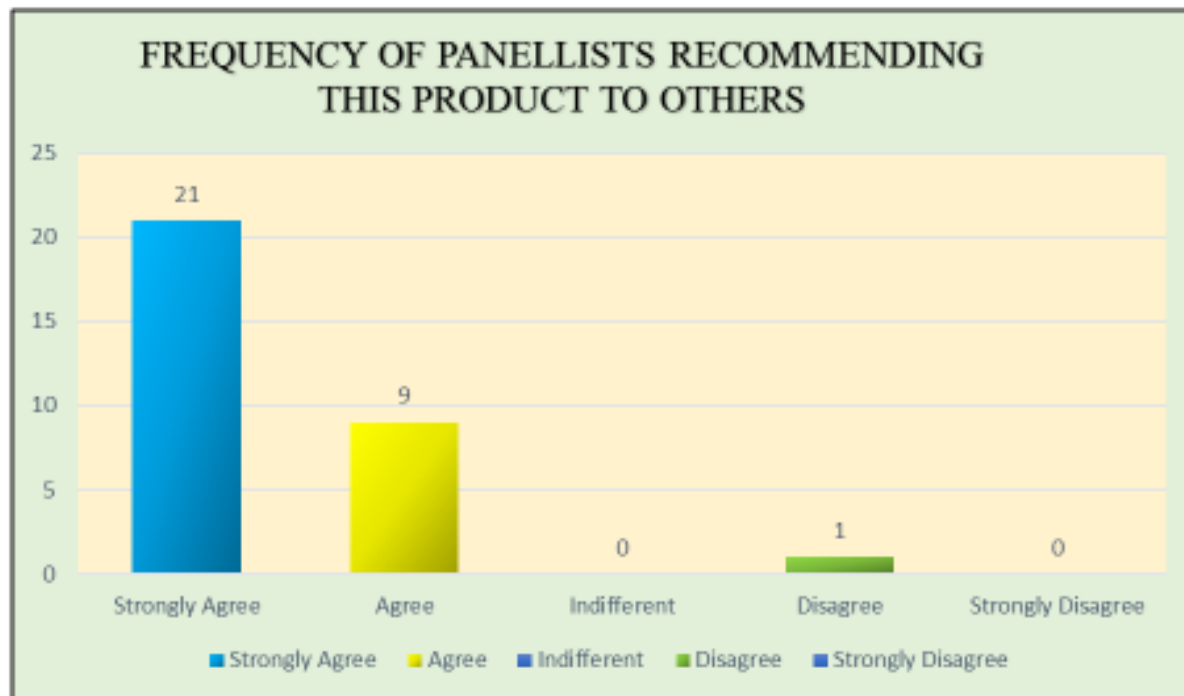


Figure 8: Frequency of Panellists Recommending this Product to Others



DISCUSSION

During the process of Novel Product Development, HACCP was carried out and critical points were established. Remedial Measures were implemented on all the critical points which ensured that the product was of a superior quality. HACCP is important because it prioritizes and controls potential hazards in food production. By controlling major food risks, such as microbiological, chemical and physical contaminants, the industry can better assure consumers that its products are as safe as good science and technology allows. Hence, a successful HACCP application has been actualized and a generic Total Quality Management (TQM) is the consequence of the same.

The Data Analysis from sensory evaluation shows that there is minimal awareness about the health benefits of Unripe Papaya. About 68% of the panellists claimed that they consume Unripe Papaya infrequently. Thus, there is a need to create awareness about the health benefits of Unripe Papaya.

30 out of 31 panellists said that they like to consume Sev Puri and therefore, loved the idea of incorporating Unripe Papaya in Sev Puri. The rating given on different attributes of the products such as appearance, taste, mouth

feel, aroma, texture, after taste of the product were on the higher side of the scale and indicated that the panellists enjoyed the product.

28 out of 31 panellists, i.e., about 90% of the panellists stated that the product was appropriately priced and exhibited Value for Money (VFM).

And, finally all of the panellists agreed that they would buy the product if it were commercially available. This shows a successful acceptance of the product.

CONCLUSION

Unripe Papaya has tremendous potential and has the capability of positively influencing various areas such as Biochemistry, Nutrition, Food Science, Product Development, etc.

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