

CHAPTER III

RESEARCH DESIGN AND METHODOLOGY

This chapter provides a concise overview of the research designs utilized, the data sources employed, the research instrument and its validity, the study's population, the data collection process, and the statistical tool used for analyzing and implementing the collected data.

Research Design

The research designs that will be used in this study are selected to suit the needed method for data gathering and obtaining the study results. The study will apply two methods: the descriptive and experimental methods.

As a descriptive method it involves observing and describing the characteristics of a phenomenon without influencing it. In the researchers study the descriptive method could be used to gather initial data on the properties of pen shell and mussel meat, such as taste, texture, nutritional content, and cooking properties. Descriptive research would help in understanding the baseline characteristics of these ingredients before incorporating them into burger patties. Descriptive data can also provide insights into consumer preferences and attitudes towards alternative ingredients in burgers. On the other hand, understanding from the descriptive research, the experimental method allows the researchers to systematically manipulate variables to observe the effects. The researchers might design experiments to test different formulations

of burger patties, varying the proportions of pen shell and mussel meat, as well as other ingredients such as binding agents, spices, and fillers. By controlling variables and comparing outcomes, the researchers can assess the impact of using pen shell and mussel meat on the taste, texture, nutritional profile, and overall acceptability of the burger patties. Experimental research would provide empirical evidence on the feasibility and potential benefits of incorporating these ingredients into burger patties.

The respondent's recommendations are important therefore will be taken into consideration as the study progresses.

Sources of Data

This study will utilize two sources of data: the primary source and the secondary source. The primary source of data will be gathered through the study's own research process, which includes profiling the respondents, level of acceptability, and conducting sensory evaluations. The study will involve a diverse sample of respondents, including food entrepreneurs, cooks/chefs, food technologists, nutritionists/dietitian, consumers, and fisheries, who will provide valuable insights and feedback on the pen shell and mussel-based burger patties. By exploring the profile of the respondents, their perceptions, and their level of satisfaction, the study aims to obtain a comprehensive understanding of the feasibility and culinary potential of these seafood burger variations.

In addition to the primary source of data, the study will draw upon a secondary source of information. The secondary source may consist of existing

literature, research articles, and industry reports related to seafood utilization and culinary experimentation. These sources will provide a broader context and contribute to the knowledge base of seafood-based culinary innovations. By incorporating insights from the secondary source, the study aims to enhance its findings and recommendations, ensuring a well-informed exploration of the variation of burger patty utilizing pen shell and mussel. The combination of primary and secondary sources will facilitate a comprehensive analysis and provide valuable insights for culinary enthusiasts, chefs, and food industry professionals seeking to embrace the versatility of pen shell and mussels in burger creations.

Population of the Study

The researchers will gather insights and feedback from Professional Experts in the field which will be composed of (30) Professional Experts. Five (5) Food Entrepreneurs, five (5) Cooks/Chefs, five (5) Food Technologists, five (5) Nutritionists/Dietitians, five (5) Fisheries and five (5) Consumers. Each group of respondents has a specific purpose and contributes unique perspectives to the study. Professional Experts will evaluate the product sample to determine the level of acceptability and their recommendations to further enhance the quality of the product in making variation of burger patty utilizing pen shell and mussels.

Table A shows distribution of the target respondents.

Table A
The population of the study

Respondents	Frequency	Percentage
Food Entrepreneurs	5	16.67%
Cooks/Chefs	5	16.67%
Food Technologists	5	16.67%
Nutritionists/Dietitians	5	16.67%
Fisheries	5	16.67%
Consumers	5	16.67%
Total	30	100%

Research Instrument of the Study

The study will employ a multi-sectional survey questionnaire to comprehensively evaluate the sensory qualities, acceptability, and potential enhancements of the pen shell and mussel-based burger patties. This research instrument will consist of four sections designed to gather crucial insights from the respondents. The first section will focus on collecting demographic information, including age, sex, and profession, which will provide a contextual understanding of potential variations in perceptions and preferences across

different demographic groups. The second section will delve into the processes involved in creating the seafood burger patties, such as sourcing raw materials, processing methods, recipe standardization, storage, packaging, and product costing. This section aims to uncover practical considerations and challenges faced in the production of the seafood-based patties. The third section will assess the acceptability of the burger patties through physicochemical analysis, evaluating factors like pH level, moisture content, microbial analysis, and nutritional content. Additionally, sensory evaluation will be conducted to gauge the respondents' perceptions of appearance, aroma, taste, and texture. These assessments will provide a comprehensive understanding of the sensory appeal and nutritional qualities of the seafood-based patties. Finally, the fourth section will gather recommendations from the respondents on physicochemical analysis, evaluating factors like pH level, moisture content, microbial analysis, and nutritional content. Sensory evaluation of enhancing various aspects, including appearance, aroma, taste, and texture of the seafood bases burger patties. By seeking suggestions for improvement, this study aims to generate valuable insights for refining the seafood burger patties and increasing their market potential. The multi-sectional survey questionnaire will serve as a valuable tool in gathering data necessary for a comprehensive evaluation of the pen shell and mussel-based burger patties

Validation of the Research Instrument

The validation process for the research instrument, a survey

questionnaire, will involve a comprehensive multi-stage review and testing. Initially, the questionnaire will be developed based on an extensive review of existing research, ensuring its alignment with established knowledge. The survey questionnaire will be administered to (10) professional trial respondents in Tabaco City, Province of Albay. The objective is to identify or look for potential solutions and issue may have occurred during the pre-tasting from unclear instruction on the sample survey questionnaire. Using the validated respondents will save significantly time and money on transportation costs. Additionally, the location is easily accessible to the researchers. This validation process ensures that the data collection process will be no biases and inaccuracies. Feedback from research advisors, instructors, and subject matter experts will be solicited to refine the questionnaire and confirm the representation of key constructs. Additionally, by undergoing this rigorous validation process, the survey questionnaire will be strengthened, ensuring the reliability and validity of the collected data.

Data Gathering Procedure

The study's methodical approach to gathering information was observed by the researchers. In order to enable the target professional industry experts to assess and validate the acceptability of the variation of burger patty utilizing pen shell and mussels, the researchers personally distributed the sample and took recorded documentation. Additionally, the researchers offer a plan with the places, dates, and times of the data collection. With each response, the

Professional Experts question the researchers on the product sample, its contents, and the processes involved in its development. Experts in the field provide their opinions and suggestions for improving the variation of burger patty utilizing pen shell and mussels, both verbally and through a survey. In addition, the moment the questionnaires were finished in their entirety and the respondents were conducted informal interviews, the researchers began tabulating, calculating, and evaluating the data enabling prompt identification of any gaps to be addressed during the remaining data collection phase. This approach ensures an efficient and uninterrupted process until all requisite information is obtained from the respondents.

Statistical Treatment

The collected data is subjected to a range of analytical tools by the researcher. The responses provided by the participants are systematically arranged and quantified based on the variables under investigation in the study. Descriptive statistical methods, such as determining frequencies, percentages, and weighted averages, are employed to explore the relationships between the variables. These analytical techniques facilitate a comprehensive understanding of the data and help uncover connections among different variables. By organizing and quantifying the responses, the researcher gains insights into trends and patterns that warrant further examination. Descriptive statistics offer a means to deconstruct the data in a manner that elucidates the associations between variables. This systematic analysis of both quantitative and qualitative

information plays a crucial role in addressing the research questions at hand.

Formula employed is:

$$WM = \frac{F}{N}$$

Whereas:

WM - Weighted Mean

F - Frequency

N - Number of the Respondents

Four-point Likert Scale is employed, with respondents required to check the corresponding option and indicate the numerical rating for their most preferred answer. The interpretation of the scale is used to assess the level of acceptability of the product.

The scale ranges from 1 to 4, with 4 indicating the highest level of acceptability and 1 indicating the lowest. Verbal interpretations are provided to clarify the meaning of each rating for the level of acceptability and recommendation. For the problem 3 a rating of 4 is interpreted as "Highly Acceptable," 3 as "Acceptable," 2 as "Moderately Acceptable," and the lowest rating of 1 is interpreted as "Not Acceptable". For the problem 4 a rating of 4 is interpreted as "Highly Recommended," 3 as "Recommended," 2 as "Moderately Recommended," and the lowest rating of 1 is interpreted as "Not Recommended". This scale and interpretation facilitate the determination of the product's acceptability level based on the respondents' ratings. The Likert scale

provides an effective measurement tool to evaluate respondents' attitudes and opinions regarding different attributes of the product in a standardized manner.

The numerical ratings under problems 3 and 4 were transformed into adjectival ratings

Which as follows

Table B

Four-point Likert Scale

Scale	Numerical Rating	Adjectival rating	
		Problem 3	Problem 4
4	3.26 - 4.00	Highly Acceptable	Highly Recommended
3	2.51 - 3.25	Acceptable	Recommended
2	1.76 - 2.50	Moderately Acceptable	Moderately Recommended
1	1.00 - 1.75	Not Acceptable	Not recommended