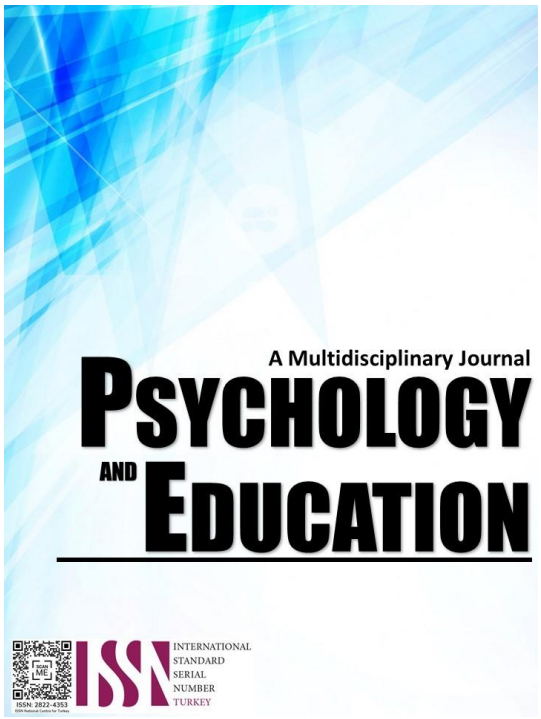
ACCEPTABILITY, MARKETABILITY AND PHYSICOCHEMICAL ANALYSIS OF CHILIYAMIS DINNER ROLL



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Research Article

Acceptability, Marketability and Physicochemical Analysis of Chiliyamis Dinner Roll

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Abstract

This study aimed to determine the level of acceptability, marketability and physicochemical analysis of chiliyamis dinner roll in three proportions in Marikina City during the school year 2020 to 2021. This study employed the descriptive experimental method of research in order to determine the acceptability, marketability and physicochemical analysis of the produced dinner rolls with paragis, chili leaves and purple yam powder. There were thirty (30) teenagers, thirty (30) young adults, and thirty (30) adults who served as respondents of the study. Based on the results, the three groups of respondents evaluated the level of acceptability of the chiliyamis dinner roll as Very Acceptable (VA) in terms of appearance, aroma, color, taste, and texture, while on its level of marketability in terms of supply availability, consumer demand, and production cost was Very High Potential (VHP) for teenagers and High Potential (HP) for young adults and adults.The physicochemical analysis of the prepared chiliyamis dinner rolls in different proportions shows the presence of carbohydrates and fats, a pH level of 5.87, 5.83, and 5.80 consecutively, and a moisture content of 16.51%, 18.52%, and 20.49% consecutively. Comments and suggestions were given by the respondents for further improvement of the product.

Keywords: *acceptability, marketability, physicochemical analysis*

Introduction

Foods are typically consumed in a context, such as a meal, and consumers typically bring a variety of expectations to the dining situation that are based on prior experience, product and nutrition information, and packaging, all of which can affect liking for the food. This complicates food acceptability and the measurement of its sensory and affective dimensions. Unless suitable study methodologies are created to comprehend and manage these effects, such factors can reduce the predictive validity of laboratory-based assessments of food acceptance.

Acceptability is a hedonic (pleasure)-based subjective measure that is influenced by a variety of factors, including the food's sensory qualities, previous exposure to it and expectations that followed, contextual considerations, a person's culture, physiological status (such as hunger, thirst, and the presence or absence of illness), among many others. The evaluation of food acceptability is quite complex and depends on behavioral models (food-choice models) or psychometrics (scales). Consumer attitudes are therefore the primary factors of food acceptability. Attitudes toward efficient foods are influenced by aspects relating to consumers and products. As significant elements of consumer characteristics, it has been found that knowledge of practical components, perceived health benefits, perceived health dangers, health consciousness, demographic considerations, and the presence of a family member with a health issue all play a role.

Cayaban and Alvarez (2022) stressed that the least concern of the respondents for its acceptability was the price. Likewise, those with lower income tend to have a higher level of acceptance of the product's appearance compared with those with higher income. The economic and accessibility factors had significant relationships with the acceptability of the products.

On the other hand, whether the products have what it takes to succeed depends on how marketable they are. Without the proper balance of features and originality, new items may struggle to pique the interest and generate the necessary demand among the target market. Those that are not priced to appeal to the target market can once more fall short of attracting the buyer.

Consumers are willing to pay a premium for innovative goods. It is evident in the study that consumers' receptivity to product innovation is strong, or innovative products are far higher than the traditional one. With the never-ending demands and expectations, consumers are seeking new products to meet and keep nutrition intake well. To ensure nutrient intake, consumers set aside additives that are manufactured commercially.

Innovation is a vital part in the food industry to ensure profitability of markets. And with the rise of diversification of food era's, food companies implement innovation to maintain a more sustainable,

plant-based and environmentally friendly bread products that is significantly important.

Meanwhile, organics.ph (2022) stressed that chili leaves are rich in nutrients and vitamins like vitamin A and C. They also have high antioxidant levels that can prevent damage to nerves, cells, and blood vessels in the body." With that said, Filipinos most usually include this as an ingredient to chicken tinola. A type of soup popular in asian culture. "Leaves add a subtle flavor to the dish - a mild leafy flavor mixed with a bit of sweet." Aside from being a spice to dishes, chillies have been found to contain nutritional values from key food groups.

Capsicum frutescens or Chili leaves are locally grown in asian countries. They are green and leafy vegetables prepared in chicken soups as greens, and the fruits are used as seasoning. They are unpopular with childrens and adults because it is mildly bitter and has a stringy texture. However, Chili leaves are loaded with antioxidants and nutrients that revitalizes the skin and body. Chili leaves might increase insulin production and strengthen the immune system.

It can treat arthritis symptoms and heal wounds in its crushed form. The levels of harmful cholesterol in a body are reduced by the low fat and calorie content of Chili leaves. They are great for metabolism, which helps burn excess fat and turn it into energy.

Consequently, Dioscorea alata also known as Purple yam or ube are starchy root vegetables originally from southeast asia which are important in maintaining good health. It is a violet-purple-lavender in color that is a great source of carbohydrates, potassium, and vitamin C.

It is an indigenous staple of the Philippines but is now grown and consumed everywhere world widely. Purple yams are processed into flour in the Philippines, which is used in a variety of sweets. Can be turned into a powder that is used to color meals like rice, candies, cakes, sweets, and jams. Purple yams are one of the most adaptable vegetables in the world, they can be transformed into many other forms.

Eleusine indica also known as Paragis or Palagtiki in the Philippines most usually in the area of Mindanao is typically referred to as goosegrass or wire grass. The plant also goes by a variety of other names, depending on the regional languages or nations where it grows. Because of its therapeutic properties, this plant has gained popularity in the Philippines. The plant is used to treat hypertension and other conditions as well as kidney issues. Paragis plant has a role it plays. As a product of nature with exemplary health benefits, even the Philippine Department of Agriculture former Secretary Manny Piñol (2017) recognized the potential of Paragis as an effective herbal medicine to major diseases in his article about boiled Paragis with honey and calamansi, "who would have thought that Paragis or Palagtiki would prove to be an effective cure to many common diseases". In addition, Paragis is declared to have protein and its leaves have calcium oxide, chlorine compounds, and silicon monoxide.

With the aforementioned initial points of view on the health, nutritional, and medicinal values of chili leaves, yam purple ube, and paragis, it is in this study to ascertain their effectiveness if blended into products. The study determined its acceptability in the aspects of appearance, aroma, color, taste and texture to consumers.

More so, this study would also involve determining the physicochemical analysis by dealing with the interrelationship between the composition and properties of the matter of the product produced.

Thus, the study would also determine how the product with chili leaves, purple yam ube, and paragis, if incorporated into a food product, would be marketable to young adults and teenagers, regardless of whether they purchased and consumed the newly innovated product. Finally, this research may aid in the making of unique food products that provide consumers additional health advantages.

Research Questions

This study aimed to determine the level of acceptability, marketability, and physicochemical analysis of chiliyamis dinner roll in three proportions in Marikina City during the School Year 2020 to 2021. More specifically, it sought answers to the following questions:

1. What is the evaluation of the three groups of respondents, namely:teenagers, young adults, and adults on the level of acceptability of chilyamis dinner rolls in three proportions in terms of the following criteria?
   1.1. Appearance
   1.2. Aroma
   1.3. Color
   1.4. Taste;
   1.5. Texture
2. Are there significant differences among the evaluations of the three groups of respondents on the level of acceptability of chiliyamis dinner rolls in three proportions in terms of a forecited criteria?

3. What is the evaluation of the three groups of respondents on the level of marketability of chiliyamis dinner roll in three proportions in terms of the following aspects?
   3.1. Supply availability;
   3.2. Consumers demand;
   3.3. Production cost?
4. Are there significant differences among the evaluations of the three groups of respondents on the level of marketability of chiliyamis dinner rolls in three proportions in terms of the above-mentioned criteria?
5. What is the physicochemical analysis of the prepared chiloyamis in terms of the following:
   5.1. Carbohydrates
   5.2. PH level
   5.3. Moisture content
   5.4. Fats
6. What comments and suggestions are offered by the three groups of respondents to further enhance the produced product?

Literature Review

Eleusine indica is a valuable medicinal plant that contains a variety of chemical substances including essential oils, flavonoids, steroids, and fatty acids, according to Ettebong et al. (2020). The pharmacological characteristics of Eleusine indica, including analgesic, anti-inflammatory, antioxidant, anticonvulsant, and antibacterial capabilities, have also been discovered. The entire plant can be separated into several parts for various therapeutic purposes, including fresh, dried, and plant extract leaves, seeds, grass decoction, and roots. It has been determined that the whole plant extract is used to treat hypertension, diabetes, stomach diseases, infections, and disorders of the liver and bladder. Thus, it is important to learn more about the plant's and study's remarkable medical potential.

Also, Yu et al. (2018) noted that glyphosate is a highly significant and often used herbicide in the world of agriculture and challenges the sustainability of this once-in-a-century pesticide. This information was mentioned by Polido and Gapang (2018). Additionally, they discovered that glyphosateresistant Eleusine endica have a twofold amino acid substitution. The biotechnology-engineered commercial first-generation glyphosate resistance in corn and other crops is replicated in this tip.

Zelman (2022) also emphasized the ease of growing and widespread availability of chillies over the world. Every stage, from the seed to the fully grown chili pepper, is edible. Chilis can be used to flavor and spice virtually any dish, but Mexican and Asian cuisines like them the most. Chili peppers can speed your metabolism and aid in the burning off the calories that you do consume. By adding them to other foods, such as sliced chili peppers on a burger, chili pepper rings in a salad, raw chili peppers on a sub, and cooked chili peppers in smoky chile con carne.

According to Saleh et al. (2018), capsaicin, chili leaves, or chili peppers provide therapeutic and preventative benefits for conditions like rheumatism, chest colds with cough and headache, stiff joints, cardiac arrhythmias, and various cancers. Additionally, chili leaves create dietary antioxidants that can help prevent diabetes, heart disease, and anemia.

Regarding purple yams, Sachdev et al. (2021) noted that they are frequently mistaken for sweet potatoes. Despite the fact that they both have flowers, they are not botanically related. Yams can be white, red, or purple; when they are boiled and ground into powder, they are a good source of vitamins and antioxidants.

According to a recent Health Line article (2020), yams can be used as an alternate treatment for premenstrual syndrome or estrogen replacement therapy. For around 30 days, replacing at least two-thirds of staple foods with yam at two meals a day boosts antioxidant levels and lowers the risk of breast cancer and cardiovascular disease.

Similarly, Zakri (2021) noted that the herb Paragis, also known as Eleusine indica, is native to tropical areas including Malaysia, India, and the Philippines. You can consume the plant's roots and seeds uncooked or cooked. This perennial herb is used by the locals to heal a variety of illnesses. Apart from the roots and seeds, the herb's composition revealed that the plant is safe to consume because it contains a wealth of nutrients that can be used as a natural source of therapeutic phytochemicals. These nutrients include proteins, lipids, vitamins, minerals, fibers, and carbohydrates that can be used as food and medicine to improve public health. To further assess the possibility of studies on the creation of Paragis dinner rolls with organic ingredients, it is required to include previous reviews.

In a study titled "Utilization of Unwanted Weed, Paragis Leaves" by Makinano et al. (2020), the use of Eleusine indica in cookie manufacture was covered. A sensory panel was used to assess the product's acceptability in terms of color, taste, fragrance, texture, and flavor. The results showed that the levels

of the powdered plant had an impact on the aroma, taste, color, and texture.

Additionally, a recent investigation by Inacay et al. (2019) at Urdaneta City University with the working title "Sweetened Paragis: A Developmental Research in Promoting Herbal Preserves to a Wider Market" sought to evaluate the performance of Paragis jam at the market of Lucao, Dagupan City, Pangasinan. primarily to serve jam that is quick, healthful, and medicinal, and to publicize the plant's many health advantages. The results showed that half of the populace is ignorant of the Paragis medicinal herb. However, a significant portion of the respondents from Lucao, Dagupan City, and Pangasinan—74.86% with a frequency of 277—are debating ingesting a jam composed of paragis.

Meanwhile, Abilgos et al. (2022) found in their study "Quality Characteristics and Consumer Acceptability of Salt Bread Supplemented with Chili Pepper (Capsicum sp.) Leaves" that adding chili pepper leaves to salt bread can significantly increase the number of micronutrients it contains, which can help people with iron deficiency and anemia support their vitamin A and folate deficiencies. The addition of chili pepper to salt bread is a crucial component and innovation for enhancing diets by boosting intake of the iron, folate, and vitamin A present in chili leaves.

Another related study by Olatunji (2018), titled "The suitability of chili pepper (Capsicum annuum L.) for alleviating human micronutrient dietary deficiencies: A review," revealed that people must take advantage of the micro- and macronutrients, phytochemicals, and antioxidants in pepper that can be traditionally and easily grown and harvested to combat human dietary inadequacy in developing countries where poor households are the most vulnerable, e. So, incorporating a pepper-rich diet into our regular meals can be beneficial in our ongoing effort to address micronutrient deficiencies.

Makiyah et al.'s (2018) study, "Potency of Purple Yam (Dioscorea alata L.) as an Immunomodulatory Agent," sought to determine the saponin's potential as an immunomodulatory agent in purple yam. Saponin, a steroid, is one of the nutrients present in Dioscorea species. Bioactive substances like hypoglycemic, immunostimulatory, and anti-mutagenic activities of saponin steroid depend on its structural makeup. Dioscorea alata, sometimes known as purple yam, has significant potency, according to research. Because it is flavorless, includes natural colour, and benefits people with gluten allergies, it is beneficial for people with diabetes.

The goal of Tamaroh et al.'s study from the year 2021, "Antioxidative Characteristics and Sensory Acceptability of Bread Substituted with Purple Yam (Dioscorea alata L.)," was to make bread using purple yam flour instead of wheat flour. As a source of natural antioxidants, anthocyanin and phenol levels in purple yam flour boosted the functional value of plain bread by 0, 10, 15, and 30%, respectively. The bread's color, volume, phenol, anthocyanin, or antioxidant levels were unaffected by even temperatures between 170°C and 180°C.

Methodology

The present study employed the descriptive experimental method of research in order to determine the acceptability and marketability of the produced dinner rolls with paragis, chili leaves and purple yam powder.

As defined by Sirisilla (2022), experimental research is a study that strictly adheres to a scientific research design. It includes a hypothesis, a variable that can be manipulated by the researcher, and variables that can be measured, calculated and compared. Most importantly, experimental research is completed in a controlled environment. The researcher collects data and results will either support or reject the hypothesis.

With the above cited definition of experimental method of research, it became clear that it will be the most appropriate method to use for this study since it attempts to determine the acceptability and marketability of dinner rolls in terms of the given criteria and as the researcher manipulated the variables such as the Chili leaves and purple yam and Paragis extract.

Participants of the Study

The main source of data in the conduct of the study was gathered from thirty (30) teenagers, thirty (30) young adults, and thirty (30) adults from Marikina Polytechnic College at Marikina City as evaluators of the product presented, during the school year 2020 – 2021. The responses of the respondents to each item in the survey questionnaire represented the data needed in the study.

Instruments of the Study

The data gathering instrument which was used to

gather pertinent data was the survey-questionnaire. This was used in order to determine the evaluation of the three group of respondents in the product with regard to the level of acceptability of dinner rolls with blended chilli leaves, purple yam and paragis extract using nine-point Hedonic scale in terms of appearance, aroma., color, taste and texture. A five-point Likert's Scale was used to evaluate the marketability of the finished product. More so, to determine the interrelationship between the composition and properties of the prepared chiliyamis, the physicochemical analysis of the prepared food was also indicated, specifically on carbohydrates, pH level, moisture content, and fats.

Procedure

The preparation of the survey questionnaire, which was adopted from the study initiated by Unzan (2015) and Casipit (2017), was the first step that the researcher has taken. In order to ensure the validity of the questionnaire, the researcher asked for the help of experts to re-validate it, and afterwards she also sought the aid of her research adviser in the revision and refinement of the questionnaire based on the comments given by the experts.

The re-validated questionnaire was administered by the researcher to the respondents, who were selected randomly using quota sampling in selecting community respondents. Quota sampling is a non-probability sampling procedure where tasters are taken from the respondents to meet a quota. After the administration and collection of the survey questionnaires, the researcher collected, tabulated, analyzed, and interpreted the results with the utilization of appropriate statistical tools.

Ethical Considerations

The researcher herself explained and gave the informed consent to each participant before the conduct of the study. She ensured them that the information would be used with utmost confidentiality and within the purpose of the study only.

Results and Discussion

Evaluation of the Level of Acceptability of Chiliyamis Dinner Rolls in 100g, 200g and 300g Proportions by Adults, Young Adults and Teenagers

As noted in Table 1, the three groups of respondents' evaluations on the acceptability level of Chiliyamis dinner rolls in 100g proportion as to appearance were verbally interpreted as "Very Acceptable" (VA), as indicated by the overall weighted mean of 7.91 for teenagers, 7.88 for young adults, and 7.86 for adults, respectively.

Table 1. *Respondents' Evaluations on the Acceptability Level of Chiliyamis Dinner Rolls in 100g Proportion as to Appearance*

Indicators	*Respondents*					
	Teenagers		*Young Adults*		*Adults*	
	WM	*VI*	*WM*	*VI*	*WM*	*VI*
1. The dinner roll has a smooth and well-rounded shape	7.40	MA	7.77	VA	7.70	VA
2. The sizes are cut evenly	8.27	VA	8.13	VA	7.97	VA
3. It has a uniform shape	8.10	VA	8.00	VA	8.00	VA
4. The top is free from peaks	8.00	VA	7.67	VA	7.83	VA
5. It has few to no air pockets	7.80	VA	7.83	VA	7.80	VA
Overall Weighted Mean	7.91	VA	7.88	VA	7.86	VA

This implies that, in terms of appearance, the blended chili leaves, purple yam, and paragis extract as ingredients of dinner rolls in 100-gram proportion are worthy of being accepted and have a pleasing characteristic as evaluated by the respondents. Hence, the smoothness, sizes of cuts, uniform shape, free from peaks, and lack of air pockets of the product were very attractive to the respondents themselves.

Table 2 . *Respondents' Evaluations on the Acceptability Level of Chiliyamis Dinner Rolls in 100g Proportion as to Aroma*

Indicators	*Respondents*					
	Teenagers		*Young Adults*		*Adults*	
	WM	*VI*	*WM*	*VI*	*WM*	*VI*
1. The dinner roll has consistent color	8.20	VA	7.53	VA	7.83	VA
2. The surface is golden brown	8.20	VA	7.63	VA	7.80	VA
3. It has an even rich golden-brown color from top to bottom	8.43	VA	8.07	VA	7.87	VA
4. It is greenish/purple inside	7.93	VA	7.83	VA	7.67	VA
5. It has an appealing color	8.10	VA	7.60	VA	7.67	VA
Overall Weighted Mean	8.17	VA	7.73	VA	7.77	VA

As shown in Table 2, the three groups of respondents have the same evaluation on the level of acceptability of Chiliyamis dinner rolls in 100-gram proportions as regards aroma, as indicated by the overall weighted mean of 7.71 for teenagers, 7.65 for young adults, and 7.54 for adults, which were verbally interpreted as "Very Acceptable" (VA).

This means that the product influences how respondents evaluate flavors and textures since it is a key sensory signal and a key element of flavor evaluation. Prior to the respondent even noticing the food, the aroma serves as a notification of its presence.

Table 3. Respondents' Evaluations on the Acceptability Level of Chiliyamis Dinner Rolls in 100g Proportion as to Color

Indicators	*Respondents*					
	Teenagers		*Young Adults*		*Adults*	
	WM	*VI*	*WM*	*VI*	*WM*	*VI*
1. The dinner roll has consistent color	8.20	VA	7.53	VA	7.83	VA
2. The surface is golden brown	8.20	VA	7.63	VA	7.80	VA
3. It has an even rich golden-brown color from top to bottom	8.43	VA	8.07	VA	7.87	VA
4. It is greenish/purple inside	7.93	VA	7.83	VA	7.67	VA
5. It has an appealing color	8.10	VA	7.60	VA	7.67	VA
Overall Weighted Mean	8.17	VA	7.73	VA	7.77	VA

It can be gleaned from Table 3 that the three groups of respondents' evaluations on the level of acceptability of Chiliyamis dinner rolls in 100g proportions as to color were verbally interpreted as "Very Acceptable" (VA), as indicated by the overall weighted mean of 8.17 for teenagers, 7.73 for young adults, and 7.77 for adults.

This implies that, as far as color is concerned, the acceptability level of the product plays a critical role in the taste and evaluation of food. Alongside flavor and texture, color is considered by food scientists to be a major quality factor in food.

Table 4. *Respondents' Evaluations on the Acceptability Level of Chiliyamis Dinner Rolls in 100g Proportion as to Taste*

Indicators	*Respondents*					
	Teenagers		*Young Adults*		*Adults*	
	WM	*VI*	*WM*	*VI*	*WM*	*VI*
1. The dinner roll melts in the mouth	8.00	VA	7.53	VA	7.87	VA
2. It has a pleasing, well-blended flavor	8.13	VA	7.97	VA	7.77	VA
3. It has no bitter taste or no off flavors	8.37	VA	7.93	VA	7.70	VA
4. It is enjoyable to eat and has no after taste	7.80	VA	7.90	VA	7.90	VA
5. It has a creamy taste	7.93	VA	7.50	VA	7.77	VA
Overall Weighted Mean	8.05	VA	7.77	VA	7.80	VA

As shown in Table 4, the three groups of respondents' evaluations on the acceptability level of Chiliyamis dinner rolls in 100g proportion as to taste were the same, which was verbally interpreted as "Very Acceptable" (VA), as indicated by the overall weighted mean of 8.05 for teenagers, 7.77 for young adults, and 7.80 for adults, respectively.

This means that the taste of the product is interesting to the respondents because it creates a strong product experience that will encourage consumers to buy the product again and again.

Table 5. *Respondents' Evaluations on the Acceptability Level of Chiliyamis Dinner Rolls in 100g Proportion as Texture*

Indicators	*Respondents*					
	Teenagers		*Young Adults*		*Adults*	
	WM	*VI*	*WM*	*VI*	*WM*	*VI*
1. The dinner roll has a smooth finish on the inside	7.87	VA	7.53	VA	7.40	MA
2. It is fluffy with a bit of a crusty bite	7.83	VA	7.50	VA	7.17	MA
3. The crumb is tender and elastic	8.07	VA	7.60	VA	7.43	MA
4. It springs back when touched	8.10	VA	7.57	VA	7.27	MA
5. It is slightly moist	8.00	VA	7.47	MA	7.37	MA
Overall Weighted Mean	7.97	VA	7.53	VA	7.33	MA

It can be seen in Table 5 that the teenagers and young adults' evaluations of the acceptability level of Chiliyamis dinner rolls in 100g proportion as to taste were the same as indicated by the overall weighted means of 7.97 and 7.53 with their verbal interpretation of "Very Acceptable" (VA).

However, the adults' evaluation of the acceptability level of blended chili leaves, purple yam, and paragis extract as ingredients in dinner rolls in 100g proportion as to texture was different from that of teenagers and young adults, as indicated by the overall weighted mean of 7.33 and its verbal interpretation of "moderately acceptable" (MA).

This implies that, as far as the texture of the product is concerned, teenagers and young adults believe that it is a prominent feature in foods and, consequently, can be the reason a food is very acceptable to them. Likewise, adults have seen more texture progress before the product seemed to be very highly accepted. Thus, smoothness, fluffiness, tenderness, and elasticity have to be considered.

Table 6. *Respondents' Evaluations on the Acceptability Level of Chiliyamis Dinner Rolls in 200g Proportion as to Appearance*

Indicators	*Respondents*					
	Teenagers		*Young Adults*		*Adults*	
	WM	*VI*	*WM*	*VI*	*WM*	*VI*
1. The dinner roll has a smooth and well-rounded shape	7.73	VA	8.00	VA	8.00	VA
2. The sizes are cut evenly	8.40	VA	8.33	VA	8.03	VA
3. It has a uniform shape	8.33	VA	8.03	VA	8.03	VA
4. The top is free from peaks	8.27	VA	7.80	VA	7.93	VA
5. It has few to no air pockets	7.70	VA	7.77	VA	7.90	VA
Overall Weighted Mean	8.09	VA	7.99	VA	7.98	VA

As shown in Table 6, the evaluation of the three groups of respondents as regards the acceptability level of Chiliyamis dinner rolls in 200g proportion as to appearance was the same, as shown by the overall weighted mean of 8.09 for teenagers, 7.99 for young adults, and 7.98 for adults, which were verbally interpreted as Very Acceptable (VA).

This indicates that the appearance of the said product is appealing to the standard of the respondents in evaluating blended chili leaves, purple yam, and paragis extract as the main ingredients of dinner rolls in a 200- gram proportion.

As shown in Table 7, the evaluation of the three groups of respondents on the acceptability level of Chiliyamis dinner rolls in 200g proportion as to aroma was the same, as indicated by the overall weighted mean of 7.95 for teenagers, 7.75 for young adults, and 7.67 for adults, which was verbally interpreted as "Very Acceptable" (VA).

Table 7 . *Respondents' Evaluations on the Acceptability Level of Chiliyamis Dinner Rolls in 200g Proportion as to Aroma*

Indicators	*Respondents*					
	Teenagers		*Young Adults*		*Adults*	
	WM	*VI*	*WM*	*VI*	*WM*	*VI*
1. The dinner roll has a mouthwatering aroma	7.77	VA	7.80	VA	7.63	VA
2. It has a sweet-smelling savor	7.90	VA	7.63	VA	7.47	MA
3. It has no unpleasant odor	8.17	VA	7.93	VA	7.63	VA
4. It has a freshly baked smell	8.17	VA	7.57	VA	8.00	VA
5. The aroma of chili leaves, purple yam and paragis is evident	7.77	VA	7.80	VA	7.60	VA
Overall Weighted Mean	7.95	VA	7.75	VA	7.67	VA

This finding indicates that the majority of the respondents have the belief that, as far as aroma is concerned, Chiliyamis dinner rolls in their 200-gram proportion seemed to be very admissible, as noted in their level of evaluation of the above-cited product.

Table 8. *Respondents' Evaluations on the Acceptability Level of Chiliyamis Dinner Rolls in 200g Proportion as to Color*

Indicators	*Respondents*					
	Teenagers		*Young Adults*		*Adults*	
	WM	*VI*	*WM*	*VI*	*WM*	*VI*
1. The dinner roll has consistent color	8.40	VA	7.83	VA	8.07	VA
2. The surface is golden brown	8.07	VA	7.90	VA	7.90	VA
3. It has an even rich golden-brown color from top to bottom	8.00	VA	8.13	VA	8.10	VA
4. It is greenish/purple inside	7.93	VA	7.87	VA	7.87	VA
5. It has an appealing color	8.27	VA	7.63	VA	7.87	VA
Overall Weighted Mean	8.13	VA	7.87	VA	7.96	VA

As shown in Table 8, the evaluation of the three groups of respondents on the acceptability level of Chiliyamis dinner rolls in 200g proportion as to color was the same, as indicated by the overall weighted mean of 8.13 for teenagers, 7.87 for young adults, and 7.96 for adults, which was verbally interpreted as Very Acceptable (VA).

This finding suggests that the majority of respondents believe that the combination of chili leaves, purple yam, and paragis extract as ingredients in dinner rolls in a 200-gram proportion seemed to be very tolerable as far as color is concerned, as indicated by their level of evaluation of the said product.

Table 9. *Respondents' Evaluations on the Acceptability Level of Chiliyamis Dinner Rolls in 200g Proportion as to Taste*

Indicators	*Respondents*					
	Teenagers		*Young Adults*		*Adults*	
	WM	*VI*	*WM*	*VI*	*WM*	*VI*
1. The dinner roll melts in the mouth	7.77	VA	7.60	VA	7.80	VA
2. It has a pleasing, well-blended flavor	8.23	VA	8.00	VA	7.97	VA
3. It has no bitter taste or no offflavors	7.90	VA	7.83	VA	7.90	VA
4. It is enjoyable to eat and has no after taste	7.97	VA	7.80	VA	8.07	VA
5. It has a creamy taste	7.67	VA	7.50	VA	7.83	VA
Overall Weighted Mean	7.91	VA	7.75	VA	7.91	VA

As shown in Table 9, the evaluation of the three groups of respondents on the acceptability level of Chiliyamis dinner rolls in 200g proportion as to taste was the same, as indicated by the overall weighted mean of 7.91 for teenagers, 7.75 for young adults, and 7.91 for adults, which was verbally interpreted as Very Acceptable (VA).

This finding suggests that the majority of respondents believe that the combination of chili leaves, purple yam, and paragis extract as ingredients in dinner rolls in a 200-gram proportion seemed to be very unobjectionable in the aspect of taste. More so, as shown by their level of evaluation of the said product, it is agreeable or pleasant, especially to them in the sense of taste and palatability.

Table 10. *Respondents' Evaluations on the Acceptability Level of Chiliyamis Dinner Rolls in 200g Proportion as to Texture*

Indicators	*Respondents*					
	Teenagers		*Young Adults*		*Adults*	
	WM	*VI*	*WM*	*VI*	*WM*	*VI*
1. The dinner roll has a smooth finish on the inside	8.00	VA	7.67	VA	7.37	MA
2. It is fluffy with a bit of a crusty bite	8.03	VA	7.83	VA	7.33	MA
3. The crumb is tender and elastic	7.93	VA	7.77	VA	7.53	VA
4. It springs back when touched	8.17	VA	7.83	VA	7.67	VA
5. It is slightly moist	7.90	VA	7.57	VA	7.57	VA
Overall Weighted Mean	8.01	VA	7.73	VA	7.49	MA

As shown in Table 10, the evaluations of the three groups of respondents on the acceptability level of Chiliyamis dinner rolls in 200g proportion as to texture was the same, as indicated by the overall weighted mean of 8.01 for teenagers, 7.73 for young adults, and 7.49 for adults, which was verbally interpreted as Very Acceptable (VA).

This finding indicates that teenagers and young adults believed that a food's texture was a key feature and, as a result, may be the reason a dish is so highly acceptable to them. Adults have also been seen to have higher texture development prior to the product's apparent high level of acceptance. As a result, consideration must be given to the smoothness, fluffyness, tenderness, and elasticity of the product.

Table 11. *Respondents' Evaluations on the Acceptability Level of Chiyamis Dinner Rolls in 300g Proportion as to Appearance*

Indicators	*Respondents*					
	Teenagers		*Young Adults*		*Adults*	
	WM	*VI*	*WM*	*VI*	*WM*	*VI*
1. The dinner roll has a smooth and well-rounded shape	8.07	VA	8.27	VA	8.00	VA
2. The sizes are cut evenly	8.30	VA	8.30	VA	8.03	VA
3. It has a uniform shape	8.23	VA	7.90	VA	7.93	VA
4. The top is free from peaks	8.47	VA	7.70	VA	8.10	VA
5. It has few to no air pockets	7.93	VA	7.80	VA	8.00	VA
Overall Weighted Mean	8.20	VA	7.99	VA	8.01	VA

As seen in Table 11, the three groups of respondents' evaluations on the acceptability level of Chiliyamis dinner rolls in 300g proportion as to appearance were verbally interpreted as "very acceptable" (VA), as indicated by the overall weighted mean of 8.20 for teenagers, 7.99 for young adults, and 8.01 for adults, respectively.

These findings indicate that the blended chili leaves, purple yam, and paragis extract as ingredients in dinner rolls in a proportion of 300g are deserving of being accepted and have a satisfying quality as assessed by the responders. Thus, the respondents themselves found the product's smoothness, size of cuts, regular shape, lack of peaks, and absence of air pockets to be quite alluring.

As shown in Table 12, the three groups of respondents have the same evaluation on the level of acceptability of Chiliyamis dinner rolls in 300g proportions as regards aroma, as indicated by the overall weighted mean of 8.05 for teenagers, 7.95 for young adults, and 7.79 for adults, which were verbally interpreted as "Very Acceptable" (VA).

Table 12. *Respondents' Evaluations on the Acceptability Level of Chiyamis Dinner Rolls in 300g Proportion as to Aroma*

Indicators	*Respondents*					
	Teenagers		*Young Adults*		*Adults*	
	WM	*VI*	*WM*	*VI*	*WM*	*VI*
1. The dinner roll has a mouthwatering aroma	7.53	VA	8.10	VA	7.93	VA
2. It has a sweet-smelling savor	8.03	VA	7.83	VA	7.50	VA
3. It has no unpleasant odor	8.27	VA	7.83	VA	7.63	VA
4. It has a freshly baked smell	8.17	VA	7.93	VA	7.93	VA
5. The aroma of chili leaves, purple yam and paragis is evident	8.27	VA	8.03	VA	7.93	VA
Overall Weighted Mean	8.05	VA	7.95	VA	7.79	VA

This indicates that since the product is a key sensory signal and a fundamental component of flavor evaluation, it affects how responders rate flavors and

qualities. The aroma alerts the respondent to the food's presence before they even notice it.

Table 13. *Respondents' Evaluations on the Acceptability Level of Chiyamis Dinner Rolls in 300g Proportion as to Color*

Indicators	*Respondents*					
	Teenagers		*Young Adults*		*Adults*	
	WM	*VI*	*WM*	*VI*	*WM*	*VI*
1. The dinner roll has consistent color	8.40	VA	8.13	VA	8.13	VA
2. The surface is golden brown	8.13	VA	8.13	VA	8.07	VA
3. It has an even rich golden-brown color from top to bottom	8.23	VA	8.43	VA	8.17	VA
4. It is greenish/purple inside	8.20	VA	8.10	VA	8.03	VA
5. It has an appealing color	8.13	VA	7.87	VA	8.07	VA
Overall Weighted Mean	8.22	VA	8.13	VA	8.09	VA

As shown in Table 14, the three groups of respondents' evaluation of the level of acceptability of Chiliyamis Dinner Rolls in 300g Proportions as to color were verbally interpreted as "Very Acceptable" (VA), as indicated by the overall weighted mean of 8.22 for teenagers, 8.13 for young adults, and 8.09 for adults.

This indicates that, in terms of color's impact on a product's level of acceptability, color is crucial to taste and food judgment. The three groups of respondents believe that color is one of the three main components of food quality, along with flavor and product quality.

Table 14. *Respondents' Evaluations on the Acceptability Level of Chiyamis Dinner Rolls in 300g Proportion as to Taste*

Indicators	*Respondents*					
	Teenagers		*Young Adults*		*Adults*	
	WM	*VI*	*WM*	*VI*	*WM*	*VI*
1. The dinner roll melts in the mouth	8.20	VA	7.93	VA	7.93	VA
2. It has a pleasing, well-blended flavor	8.33	VA	7.87	VA	8.03	VA
3. It has no bitter taste or no offflavors	8.13	VA	8.03	VA	7.60	VA
4. It is enjoyable to eat and has no after taste	8.03	VA	7.93	VA	7.73	VA
5. It has a creamy taste	7.93	VA	7.70	VA	7.87	VA
Overall Weighted Mean	8.13	VA	7.89	VA	7.83	VA

As shown in Table 14, the evaluation of the three groups of respondents on the acceptability level of Chiliyamis dinner rolls in 300g proportion as to taste was the same, as indicated by the overall weighted mean of 8.13 for teenagers, 7.89 for young adults, and 7.83 for adults, which were verbally interpreted as "very acceptable" (VA).

This result implies that the respondents thought the 300-gram proportion of chili leaves, purple yam, and paragis extract in dinner rolls seemed to be highly agreeable in terms of taste. Furthermore, as seen by their degree of evaluation of the aforementioned product, it is highly pleasing or pleasant to them in terms of taste and tastiness.

Table 15. *Respondents' Evaluations on the Acceptability Level of Chiyamis Dinner Rolls in 300g Proportion as to Taste*

Indicators	*Respondents*					
	Teenagers		*Young Adults*		*Adults*	
	WM	*VI*	*WM*	*VI*	*WM*	*VI*
1. The dinner roll has a smooth finish on the inside	8.03	VA	7.73	VA	7.37	MA
2. It is fluffy with a bit of a crusty bite	8.17	VA	8.03	VA	7.73	VA
3. The crumb is tender and elastic	8.03	VA	7.77	VA	8.00	VA
4. It springs back when touched	8.10	VA	7.77	VA	7.83	VA
5. It is slightly moist	7.97	VA	7.70	VA	7.87	VA
Overall Weighted Mean	8.06	VA	7.80	VA	7.76	VA

It can be seen in Table 15 that the teenagers and young adults' evaluations of the acceptability level of Chiliyamis dinner rolls in 300g proportion as to taste were the same, as indicated by the overall weighted means of 8.06 for teenagers, 7.80 for young adults, and 7.76 for adults with their verbal interpretation of "very acceptable" (VA).

This finding indicates that young adults and teenagers thought that a food's texture was an important product element and that this may be why they found a dinner roll to be so appetizing. Prior to the product's apparent high degree of acceptability, adults were also shown to have higher texture development. As a result, the product's pliability, fluffy texture, and softness must all be taken into consideration in the product development mentioned above.

Table 16. *Summary of Respondents' Evaluations on the Acceptability Level of Chiliyamis Dinner Rolls in Different Proportions*

Proportions	*Teenagers*		*Young Adults*		*Adults*	
	OWM	*VI*	*OWM*	*VI*	*OWM*	*VI*
100g	7.96	VA	7.71	VA	7.66	VA
200g	8.02	VA	7.82	VA	7.80	VA
300g	8.13	VA	7.95	VA	7.90	VA
Grand Weighted Mean	8.04	VA	7.83	VA	7.79	VA

As shown in Table 16, the respondents' evaluation of the level of acceptability of Chiliyamis dinner rolls in different proportions was noted to be very acceptable (VA), as indicated by the grand weighted means of 8.04, 7.83, and 7.79, respectively.

This means that the respondents believe that the blended chili leaves, purple yam, and paragis extract as ingredients in dinner rolls in different proportions will be pleasant to the customers and would be highly satisfactory to them regardless of their grams added.

Test of Significant Differences Among the Evaluations of the Three Groups of Respondents on the Acceptability Level of Chiliyamis Dinner Rolls in 100g, 200g and 300g Proportions At 5% level of significance with 2 and 87 degrees of freedom, the critical F value is 3.10, and the computed F values are 0.02, 0.11, and 0.43 as revealed in table 17.

Table 17. *Analysis of Variance of Respondents' Evaluations on the Acceptability Level of Chiliyamis Dinner Rolls in Different Proportions as to Appearance*

P	*Source of Variation*	*df*	*SS*	*MS*	*Fcomputed Value*	*Fcritical Value (□=5%)*	*Decision*	*Interpretation*
100g	Between Groups	2	0.044	0.022	0.02	3.10	Fail to Reject the H_0	Not Significant
	Within Groups	87	95.635	1.099				
200g	Between Groups	2	0.214	0.107	0.11	3.10	Fail to Reject the H_0	Not Significant
	Within Groups	87	87.357	1.004				
300g	Between Groups	2	0.780	0.390	0.43	3.10	Fail to Reject the H_0	Not Significant
	Within Groups	87	79.553	0.914				

Since the computed F values are less than the critical F value, the statistical decision is not to reject the null hypothesis. As a result, there are no significant differences in the evaluation of the three groups of respondents on the acceptability level of blended chili leaves, purple yam and paragis extract as ingredients of dinner rolls in different proportions with respect to appearance.

This means that the three groups of respondents have similar evaluations on acceptability level of chiliyamis dinner rolls in different proportions with respect to appearance. Hence, they have in the same stand on the property of the product in the aspect of appearance.

Table 18. *Analysis of Variance of Respondents' Evaluations on the Acceptability Level of Chiliyamis Dinner Rolls in Different Proportions as to Aroma*

P	*Source of Variation*	*df*	*SS*	*MS*	*Fcomputed Value*	*Fcritical Value (□=5%)*	*Decision*	*Interpretation*
100g	Between Groups	2	0.459	0.229	0.17	3.10	Fail to Reject the H_0	Not Significant
	Within Groups	87	120.201	1.382				
200g	Between Groups	2	1.313	0.656	0.56	3.10	Fail to Reject the H_0	Not Significant
	Within Groups	87	102.636	1.180				
300g	Between Groups	2	1.081	0.540	0.49	3.10	Fail to Reject the H_0	Not Significant
	Within Groups	87	95.824	1.101				

The computed F values of 0.17, 0.56, and 0.49 are below the critical F value of 3.10 as exposed in the table. At 5% level of significance, the statistical decision is not to reject the null hypothesis. This shows that there are no significant differences in the evaluation of the three groups of respondents on the acceptability level of blended chili leaves, purple yam and paragis extract as ingredients of dinner rolls in different proportions with respect to aroma.

This shows that, when it comes to how they assess the level of acceptance of blended chili leaves, purple yam, and paragis extract as ingredients of dinner rolls in various amounts, the three groups of respondents have similar opinions.

Table 19. *Analysis of Variance of Respondents' Evaluations on the Acceptability Level of Chiliyamis Dinner Rolls in Different Proportions as to Color*

P	*Source of Variation*	*df*	*SS*	*MS*	*Fcomputed Value*	*Fcritical Value (□=5%)*	*Decision*	*Interpretation*
100g	Between Groups	2	3.601	1.800	1.79	3.10	Fail to Reject the H_0	Not Significant
	Within Groups	87	87.292	1.003				
200g	Between Groups	2	1.052	0.526	0.48	3.10	Fail to Reject the H_0	Not Significant
	Within Groups	87	95.697	1.100				
300g	Between Groups	2	0.252	0.126	0.13	3.10	Fail to Reject the H_0	Not Significant
	Within Groups	87	82.993	0.954				

The computed F values of 1.79, 0.48, and 0.13 are

smaller than the critical F value of 3.10. This means that the null hypothesis cannot be rejected. Consequently, there are no significant differences in the evaluation of the three groups of respondents on the acceptability level of blended chili leaves, purple yam and paragis extract as ingredients of dinner rolls in different proportions with respect to color.

The results indicates that the three groups of respondents' evaluations on the said product were the same. They have in common response that the acceptability level of blended chili leaves, purple yam and paragis extract as ingredients of dinner rolls in different proportions with respect to color is highly acceptable among them.

Table 20. *Analysis of Variance of Respondents' Evaluations on the Acceptability Level of Chiliyamis Dinner Rolls in Different Proportions as to Taste*

P	*Source of Variation*	*df*	*SS*	*MS*	*Fcomputed Value*	*Fcritical Value (□=5%)*	*Decision*	*Interpretation*
100g	Between Groups	2	1.404	0.702	0.67	3.10	Fail to Reject the H_0	Not Significant
	Within Groups	87	91.101	1.047				
200g	Between Groups	2	0.534	0.267	0.23	3.10	Fail to Reject the H_0	Not Significant
	Within Groups	87	98.908	1.137				
300g	Between Groups	2	1.441	0.720	0.58	3.10	Fail to Reject the H_0	Not Significant
	Within Groups	87	107.864	1.240				

It can be seen from the table that the computed F values of 0.67, 0.23, and 0.58 are lower than the critical F value of 3.10. So, the statistical decision is to fail to reject the null hypothesis at 5% level of significance.

This indicates that there are no significant differences in the evaluation of the three groups of respondents on the acceptability level of blended chili leaves, purple yam and paragis extract as ingredients of dinner rolls in different proportions with respect to taste.

It is noticeable in the table 21 that the computed F values of 2.27, 1.28 and 0.61 are lesser than the critical F value of 3.10. Therefore, at 5% level of significance, the statistical decision is to not reject the null hypothesis. This concludes that there are no significant differences in the evaluation of the three groups of respondents on the acceptability level of blended chili leaves, purple yam and paragis extract as ingredients of dinner rolls in different proportions with respect to texture.

Table 21. *Analysis of Variance of Respondents' Evaluations on the Acceptability Level of Chiliyamis Dinner Rolls in Different Proportions as to Texture*

P	*Source of Variation*	*df*	*SS*	*MS*	*Fcomputed Value*	*Fcritical Value (□=5%)*	*Decision*	*Interpretation*
100g	Between Groups	2	6.545	3.272	2.27	3.10	Fail to Reject the H_0	Not Significant
	Within Groups	87	125.404	1.441				
200g	Between Groups	2	3.958	1.979	1.28	3.10	Fail to Reject the H_0	Not Significant
	Within Groups	87	134.284	1.543				
300g	Between Groups	2	1.592	0.796	0.61	3.10	Fail to Reject the H_0	Not Significant
	Within Groups	87	113.164	1.301				

This further means that the three groups of respondents have similar evaluations on the acceptability level of Chiliyamis dinner rolls in different proportions in the aspect of texture.

Evaluation of the Level of Marketability of Chiliyamis Dinner Rolls in 100g, 200g and 300g Proportions by Adults, Young Adults and Teenagers

Table 22 *Respondents' Evaluations on the Marketability Level of Chiliyamis Dinner Rolls in 100g Proportion as Regards Supply Availability*

Indicators	*Respondents*					
	Teenagers		*Young Adults*		*Adults*	
	WM	*VI*	*WM*	*VI*	*WM*	*VI*
1. Paragis, chilly leaves and purple yam are available all year long.	4.47	HP	4.20	HP	4.30	HP
2. Raw materials could be easily produced.	4.40	HP	4.33	HP	4.43	HP
3. Ingredients are abundant everywhere	4.47	HP	4.43	HP	4.27	HP
4. Bread like dinner roll need less effort to produce.	4.30	HP	4.40	HP	4.37	HP
5. Ingredients are locally available	4.43	HP	4.47	HP	4.53	VHP
Overall Weighted Mean	4.41	HP	4.37	HP	4.38	HP

As shown in the table, the respondents' evaluations of the marketability level of Chiliyamis dinner rolls in 100g proportion as regards consumer demand were Very High Potential (VHP), as indicated by the overall weighted mean of 4.27 for teenagers and 4.52 for adults.

However, the evaluation of the young adults on the marketability level of Chiliyamis dinner rolls in 100g proportion as regards consumer demand was different from both teenagers and adults, as indicated by the overall weighted mean of 4.45, which was verbally

interpreted as High Potential (HP), respectively. These findings indicate that both teenagers and adults think the product is more reasonably priced, may be healthy due to its nutritional value, and can satisfy consumers' tastes in terms of its flavor, which lead them to view consumer requests as reasonable. However, compared to what the young people claimed, the product's need to be valued by consumer demand was less than that, and its marketability on the basis of consumer demand was more likely to be favorable to the market.

As shown in the next table, the respondents' evaluations of the marketability level of Chiliyamis dinner rolls in 100g proportion as regards production cost were verbally interpreted as high potential (HP), as indicated by the overall weighted mean of 4.49 for teenagers, 4.45 for young adults, and 4.45 for adults.

Table 24. *Respondents' Evaluations on the Marketability Level of Chiliyamis Dinner Rolls in 100g Proportion as regards Production Cost*

Indicators	*Respondents*					
	Teenagers		*Young Adults*		*Adults*	
	WM	*VI*	*WM*	*VI*	*WM*	*VI*
1. The ingredients cost less	4.63	VHP	4.43	HP	4.37	HP
2. It requires less effort to make the product.	4.27	HP	4.50	VHP	4.43	HP
3. Product preparation can be done in your own kitchen.	4.50	VHP	4.43	HP	4.53	VHP
4. Little manpower is required to make the product	4.50	VHP	4.40	HP	4.43	HP
5. A small capital is needed to produce the product.	4.53	VHP	4.50	VHP	4.47	HP
Overall Weighted Mean	4.49	HP	4.45	HP	4.45	HP

This implies that lower production costs (e.g., ingredients, manpower, and capital) would increase the marketability of the product. Hence, a lower cost of production typically causes suppliers to supply a large quantity at any given price, which makes the product's potential cost high.

As shown in the table 25, the respondents' evaluations of the marketability level of Chiliyamis dinner rolls in 200g proportion as regards supply availability were High Potential (HP), as indicated by the overall weighted mean of 4.47 for teenagers, 4.47 for young adults, and 4.37 for adults.

This suggests that a greater quantity of paragis, chilly leaves, and purple yam, as well as raw materials and supplies, available in a retail store improves the likelihood that the production and consumer would discover and buy them.

Table 25. *Respondents' Evaluations on the Marketability Level of Chiliyamis Dinner Rolls in 200g Proportion as regards Supply Availability*

Indicators	*Respondents*					
	Teenagers		*Young Adults*		*Adults*	
	WM	*VI*	*WM*	*VI*	*WM*	*VI*
1. Paragis, chilly leaves and purple yam are available all year long.	4.50	VHP	4.47	HP	4.23	HP
2. Raw materials could be easily produced.	4.37	HP	4.40	HP	4.43	HP
3. Ingredients are abundant everywhere	4.50	VHP	4.50	VHP	4.27	HP
4. Bread like dinner roll need less effort to produce.	4.47	HP	4.37	HP	4.33	HP
5. Ingredients are locally available	4.53	VHP	4.60	VHP	4.57	VHP
Overall Weighted Mean	4.47	HP	4.47	HP	4.37	HP

Table 26. *Respondents' Evaluations on the Marketability Level of Chiliyamis Dinner Rolls in 200g Proportion as regards Consumer Demand*

Indicators	*Respondents*					
	Teenagers		*Young Adults*		*Adults*	
	WM	*VI*	*WM*	*VI*	*WM*	*VI*
1. The production can meet consumers' demand and market supply	4.40	HP	4.47	HP	4.50	VHP
2.The product is more affordable compared to other commercially prepared dinner rolls	4.57	VHP	4.50	VHP	4.33	HP
3. People of all ages will like the product.	4.57	VHP	4.23	HP	4.50	VHP
4. The product may provide consumers with health benefits due to the nutritional and medicinal value of the ingredients	4.53	VHP	4.63	VHP	4.37	HP
5. The product can meet consumers' taste and preference.	4.63	VHP	4.53	VHP	4.60	VHP
Overall Weighted Mean	4.54	VHP	4.47	HP	4.46	HP

As shown in the table, the respondents' evaluations of the marketability level of Chiliyamis dinner rolls in 200g proportion as regards consumer demand were very high potential (VHP), as indicated by the overall weighted mean of 4.54.

However, the evaluation of the young adults and adolescents on the marketability level of blended chili leaves, purple yam, and paragis extract as ingredients of dinner rolls in 200g proportion as regards consumer demand was the same, as indicated by the overall weighted mean of 4.47 for young adults and 4.46 for adults, which were verbally interpreted as High Potential (HP).

According to these results, both young adults and adults perceive consumer requests as reasonable since they believe the product is more reasonably priced,

may be healthy due to its nutritional content, and can satisfy consumers' taste buds in terms of its flavor.

Contrary to what the teenagers stated, the product required less of a valuation based on consumer demand, and its marketability on that basis was more likely to be advantageous to the market.

Table 27. *Respondents' Evaluations on the Marketability Level of Chiliyamis Dinner Rolls in 200g Proportion as regards Production Cost*

Indicators	*Respondents*					
	Teenagers		*Young Adults*		*Adults*	
	WM	*VI*	*WM*	*VI*	*WM*	*VI*
1. The ingredients cost less	4.57	VHP	4.53	VHP	4.37	HP
2. It requires less effort to make the product.	4.50	VHP	4.57	VHP	4.47	HP
3. Product preparation can be done in your own kitchen.	4.57	VHP	4.43	HP	4.47	HP
4. Little manpower is required to make the product	4.53	VHP	4.40	HP	4.60	VHP
5. A small capital is needed to produce the product.	4.50	VHP	4.53	VHP	4.47	HP
Overall Weighted Mean	4.53	VHP	4.49	HP	4.47	HP

As shown in Table 34, the respondents' evaluations of the marketability level of Chiliyamis dinner rolls in 200g proportion as regards production cost were verbally interpreted as having Very High Potential (VHP) for teenagers, as indicated by the overall weighted mean of 4.53. However, the evaluation of both the young adults and adults on the marketability level of Chiliyamis dinner rolls in 200g proportion as regards production cost was verbally interpreted as High Potential (HP), as indicated by the overall weighted means of 4.49 and 4.47, respectively.

This means that a product's marketability would increase if production costs were lower (e.g., for materials, labor, and capital). Because suppliers are more likely to deliver a lot of products at a given price when their cost of production is lower, the product's potential cost is higher.

As shown in the table 28, the teenagers, and young adults' evaluations of the marketability level of Chiliyamis dinner rolls in 300g proportion as regards supply availability were Very High Potential (VHP), as indicated by the overall weighted mean of 4.61 and 4.55, respectively.

However, the evaluations of the adults on the marketability level of Chiliyamis dinner rolls in 300g proportion as regards supply availability were High Potential (HP), as indicated by the overall weighted mean of 4.47.

Table 28. *Respondents' Evaluations on the Marketability Level of Chiliyamis Dinner Rolls in 300g Proportion as regards Supply Availability*

Indicators	*Respondents*					
	Teenagers		*Young Adults*		*Adults*	
	WM	*VI*	*WM*	*VI*	*WM*	*VI*
1. Paragis, chilly leaves and purple yam are available all year long.	4.70	VHP	4.53	VHP	4.30	HP
2. Raw materials could be easily produced.	4.57	VHP	4.57	VHP	4.47	HP
3. Ingredients are abundant everywhere	4.67	VHP	4.57	VHP	4.40	HP
4. Bread like dinner roll need less effort to produce.	4.47	HP	4.43	HP	4.57	VHP
5. Ingredients are locally available	4.67	VHP	4.63	VHP	4.60	VHP
Overall Weighted Mean	4.61	VHP	4.55	VHP	4.47	HP

Thus, having more paragis, chilly leaves, and purple yam, as well as other raw materials and supplies, available in a retail setting increases the possibility that production and consumers will find and purchase the product.

Table 29. *Respondents' Evaluations on the Marketability Level of Chiliyamis Dinner Rolls in 300g Proportion as regards Consumer Demand*

Indicators	*Respondents*					
	Teenagers		*Young Adults*		*Adults*	
	WM	*VI*	*WM*	*VI*	*WM*	*VI*
1. The production can meet consumers' demand and market supply	4.53	VHP	4.50	VHP	4.47	HP
2.The product is more affordable compared to other commercially prepared dinner rolls	4.63	VHP	4.63	VHP	4.37	HP
3. People of all ages will like the product.	4.60	VHP	4.27	HP	4.67	VHP
4. The product may provide consumers with health benefits due to the nutritional and medicinal value of the ingredients	4.60	VHP	4.70	VHP	4.57	VHP
5. The product can meet consumers' taste and preference.	4.63	VHP	4.57	VHP	4.70	VHP
Overall Weighted Mean	4.60	VHP	4.53	VHP	4.55	VHP

As shown in the table, the respondents' evaluations of the marketability level of Chiliyamis dinner rolls in 300g proportion as regards consumer demand were Very High Potential (VHP), as indicated by the overall weighted mean of 4.60 for teenagers, 4.53 for young adults, and 4.55 for adults.

These findings show that the three groups of respondents have seen consumer requests as acceptable since they think the product is more affordably priced, potentially healthful due to its nutritional composition, and able to satiate consumers'

taste senses. Contrary to what the adolescents said, the product needed less of a consumer demand appraisal, and its marketability on that basis was more likely to be advantageous to the market.

Table 30. *Respondents' Evaluations on the Marketability Level of Chiliyamis Dinner Rolls in 300g Proportion as regards Production Cost*

Indicators	*Respondents*					
	Teenagers		*Young Adults*		*Adults*	
	WM	*VI*	*WM*	*VI*	*WM*	*VI*
1. The ingredients cost less	4.57	VHP	4.47	HP	4.37	HP
2. It requires less effort to make the product.	4.40	HP	4.60	VHP	4.50	VHP
3. Product preparation can be done in your own kitchen.	4.57	VHP	4.43	HP	4.47	HP
4. Little manpower is required to make the product	4.60	VHP	4.53	VHP	4.60	VHP
5. A small capital is needed to produce the product.	4.57	VHP	4.60	VHP	4.47	HP
Overall Weighted Mean	4.54	VHP	4.53	VHP	4.48	HP

As shown in the table, the teenagers and young adults' evaluations of the marketability level of Chiliyamis dinner rolls in 300g proportion as regards production cost were verbally interpreted as having very high potential (VHP), as shown by the overall weighted mean of 4.54 and 4.53, respectively. However, the evaluation of the adults on the marketability level of Chiliyamis dinner rolls in 300g proportion as regards production cost was verbally interpreted as high potential (HP), as indicated by the overall weighted mean of 4.48.

This implies that if production costs were reduced, a product would be more marketable (e.g., for materials, labor, and capital). The potential cost of the product is higher because suppliers are more likely to produce numerous units at a given price when their cost of manufacturing is lower.

Test of Significant Differences Among the Evaluations of the Three Groups of Respondents on the Level of Marketability of Chiliyamis Dinner Rolls in 100g, 200g and 300g Proportions

Table 31. *Analysis of Variance of Respondents' Evaluations on the Marketability Level of Chiliyamis Dinner Rolls in Different Proportions as to Supply Availability*

P	*Source of Variation*	*df*	*SS*	*MS*	*Fcomputed Value*	*Fcritical Value (□ =5%)*	*Decision*	*Interpretation*
100g	Between Groups	2	0.035	0.017	0.05	3.10	Fail to Reject the H_0	Not Significant
	Within Groups	87	32.109	0.369				
200g	Between Groups	2	0.214	0.107	0.32	3.10	Fail to Reject the H_0	Not Significant
	Within Groups	87	29.192	0.336				
300g	Between Groups	2	0.324	0.162	0.55	3.10	Fail to Reject the H_0	Not Significant
	Within Groups	87	25.776	0.296				

The table displays that the computed F values of 0.05, 0.32, and 0.55 are lower than the critical F value of 3.10. At the 5% level of significance, this means that the null hypothesis cannot be rejected. Consequently, there are no significant differences in the evaluation of the three groups of respondents on the marketability level of blended chili leaves, purple yam, and paragis extract as ingredients in dinner rolls in different proportions pertaining to supply availability.

Table 32. *Analysis of Variance of Respondents' Evaluations on the Marketability Level of Chiliyamis Dinner Rolls in Different Proportions as to Consumer Demand*

P	*Source of Variation*	*df*	*SS*	*MS*	*Fcomputed Value*	*Fcritical Value (□ =5%)*	*Decision*	*Interpretation*
100g	Between Groups	2	0.217	0.108	0.34	3.10	Fail to Reject the H_0	Not Significant
	Within Groups	87	27.941	0.321				
200g	Between Groups	2	0.110	0.055	0.20	3.10	Fail to Reject the H_0	Not Significant
	Within Groups	87	24.463	0.281				
300g	Between Groups	2	0.070	0.035	0.12	3.10	Fail to Reject the H_0	Not Significant

As described in the table, the computed F values of 0.34, 0.20, and 0.12 are less than the critical F value of 3.10. So, the statistical decision is to fail to reject the null hypothesis at the 5% level of significance.

This means that there are no significant differences in the evaluation of the three groups of respondents on the marketability level of chiliyamis dinner rolls in different proportions pertaining to consumer demand.

Table 33. *Analysis of Variance of Respondents' Evaluations on the Marketability Level of Chiliyamis Dinner Rolls in Different Proportions as to Production Cost*

P	*Source of Variation*	*df*	*SS*	*MS*	*Fcomputed Value*	*Fcritical Value (□ =5%)*	*Decision*	*Interpretation*
100g	Between Groups	2	0.028	0.014	0.05	3.10	Fail to Reject the H_0	Not Significant
	Within Groups	87	26.584	0.306				
200g	Between Groups	2	0.056	0.028	0.11	3.10	Fail to Reject the H_0	Not Significant
	Within Groups	87	23.164	0.266				
300g	Between Groups	2	0.060	0.030	0.10	3.10	Fail to Reject the H_0	Not Significant

It is indicated in the table that the computed F values of 0.05, 0.11, and 0.10 are less than the critical F value of 3.10. Therefore, the statistical decision is to fail to reject the null hypothesis. At a 5% significance level, this indicates that there are no significant differences in the evaluation of the three groups of respondents on the marketability level of blended chili leaves, purple yam, and paragis extract as ingredients of dinner rolls in different proportions pertaining to production cost.

Physicochemical Analysis of the Prepared Chiliyamis Dinner Rolls

Table 34. *Determination of Carbohydrates in Prepared Chiliyamis Dinner Rolls*

Number of Trials	*Prepared Chiliyamis Dinner Rolls in different proportions*		
	100 g	*200 g*	*300 g*
1	+	+	+
2	+	+	+
3	+	+	+

As shown in the table, the 100g, 200g, and 300 g proportions of prepared chiliyamis dinner rolls have a + sign in three trials. After adding 2–3 drops of iodine solution to the samples, it forms a bluish–black color. It implies that prepared dinner rolls with blended chili leaves, purple yam, and paragis extract contain carbohydrates.

Table 35. *Determination of pH Level in Prepared Dinner Rolls with Blended Chili Leaves, Purple Yam, and Paragis Extract*

Number of Trials	*Prepared Dinner Rolls with Blended Chili Leaves, Purple Yam, and Paragis Extract in different proportions*		
	100 g	*200 g*	*300 g*
1	5.90	5.80	5.80
2	5.80	5.80	5.80
3	5.90	5.90	5.80
Average	5.87	5.83	5.80

As displayed in the table, the 100g, 200g, and 300 g proportions of prepared chiliyamis dinner rolls have an average pH level in three trials of 5.87, 5.83, and 5.80 consecutively using a pH meter. It implies that prepared chiliyami dinner rolls are below the neutral level.

Table 36. *Determination of Moisture Content in Prepared Chiliyamis Dinner Rolls*

Number of Trials	*Prepared Dinner Rolls with Blended Chili Leaves, Purple Yam, and Paragis Extract in different proportions*		
	100 g	*200 g*	*300 g*
1	16.51%	18.52%	20.49%

As presented in the table, the 100g, 200g, and 300g proportions of prepared chiliyamis dinner rolls have 16.51%, 18.52%, and 20.49% using moisture analyzer. It implies that the prepared chiliyamis dinner rolls with high proportion have higher percent moisture content.

Table 37. *Determination of Fats in Prepared Chiliyamis Dinner Rolls*

Number of Trials	*Prepared Chiliyamis Dinner Rolls in different proportions*		
	100 g	*200 g*	*300 g*
1	+	+	+
2	+	+	+
3	+	+	+

As shown in the table, the 100g, 200g, and 300 g proportions of prepared dinner rolls with blended chili leaves, purple yam, and paragis extract have a + sign in three trials. After adding 5 ml of ethanol to the sample, shake, filter, and place the ethanoic solution on top of distilled water, a white (milk-like) color appears. It implies that prepared dinner rolls with blended chili leaves, purple yam, and paragis extract contain fat.

Comments and Suggestions Offered by the Three Groups of Respondents to Further Enhance the Produced Product

The following are the comments offered by the three groups of respondents to further enhance the produced product: (1) The bread was good, but it needs more improvement in the texture. (2) The dinner rolls were so delicious, especially the 300 grams. (3) It looks simple, but the taste is good. (4) My preference is to have filling inside the bread because it has potential in the market. (5) Butter-toasting it would probably make the bread better.

The following are the suggestions offered by the three groups of respondents to further enhance the produced product: (1) It is suggested that more sweet ingredients to be added to make the bread taste good. Add some fillings inside or on top of the bread. The dinner rolls taste good. (2) Increase the crispiness of the bread. (3) It has a strange after taste, but in a good way. It is best to serve it as soon as it is cooked and pair it with coffee. (4) This plain bread is tasty already, but I suggest adding a sweet filling inside.

Conclusion

Considering the findings above, the following conclusions are hereby arrived at: (1) The chiliyamis dinner rolls in three proportions as regards appearance, aroma, color, taste, and texture are highly acceptable. (2) The evaluation of adults, young adults, and teenagers on the level of acceptability of chiliyamis dinner rolls in three proportions as to appearance, aroma, color, taste, and texture does not matter. (3) The marketability level of chiliyamis dinner rolls in three proportions as regards supply availability, consumer demand, and production cost could be promising, as potential buyers would patronize them for their future market demand. (4) The evaluations of adults, young adults, and teenagers on the level of marketability of chiliyamis in three proportions as regards supply availability, consumer demand, and production cost are not important. (5) The physicochemical analysis of the prepared chiliyamis dinner rolls can be a good source of energy and nutrition, like carbohydrates and fats. (6) The three groups of respondents, based on their experience with the product, offered suggestions and comments to further improve the said product's output.

Based on the findings and conclusions drawn, the following recommendations are hereby proposed: (1) Since the product produced was very acceptable, it is recommended to produce more of these and try to introduce them to the market. (2) The teenagers, young adults, and adults have a common evaluation of the produced product. It is recommended to produce this product and make it available in 100g, 200 g, and 300g. (3) It is highly recommended to secure this product and make it available to the market. (4) The three groups of respondents have noted a common evaluation of the marketability of the product, so it is recommended to be on the market as long as the product is new to consumers. (5) It is highly recommended to produce more products out of chiliyamis dinner rolls, for they will contribute and can be a source of energy and nutrition for consumers. (6) It is highly recommended to consider the comments and suggestions of the three groups of respondents for further development and enhancement of the product produced. (7) For future researchers, it is recommended to try other variables related to food products with the utilization of chiliyamis to determine its value to consumers. (8) To further strengthen the products' acceptability, it is also recommended develop dinner rolls with higher gram proportions. (9) It is recommended to prepare and produce this product and make it available on the market. (10) Bakers are recommended to take this opportunity as a new product innovation in the aspect of dinner roll types.

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