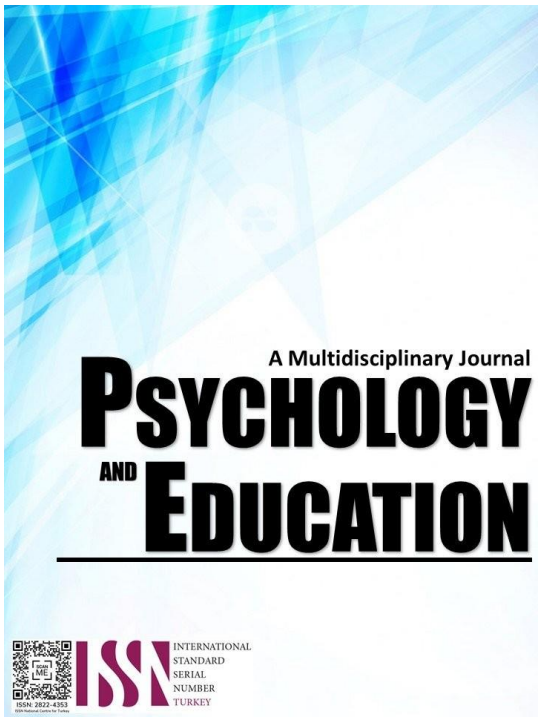
ACCEPTABILITY, MARKETABILITY, AND PHYSICOCHEMICAL ANALYSIS OF JACKPAO CHIPS



PSYCHOLOGY AND EDUCATION: A MULTIDISCIPLINARY JOURNAL

2023
Volume: 13
Pages: 916-929
Document ID: 2023PEMJ1220
DOI: 10.5281/zenodo.8375392
Manuscript Accepted: 2023-22-9

Psych Educ, 2023, **13**: 916-929, Document ID:2023 PEMJ1220, doi:10.5281/zenodo.8375392, ISSN 2822-4353

Research Article

Acceptability, Marketability, and Physicochemical Analysis of JackPaO Chips

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Abstract

This study aimed to determine the level of acceptability, marketability, and physicochemical analysis of JackPaO Chips in the groups of teenagers, young adults, and adult respondents of Barangay Malanday, Marikina City in the year 2022-2023. The study applied experimental method of research which involved 90 respondents that is divided into three, the teenager, young adult, and adult respondents who were determined through purposive sampling. The three groups of respondents evaluated the acceptability of the JackPaO chips with 10 grams, 20 grams, and 30 grams proportion in terms of appearance, aroma, color, taste, and texture as Very Acceptable (VA). In addition, there were no significant differences in the evaluation of the three groups of respondents on 10 grams and 20 grams proportions but not on the 30 grams proportion. Meanwhile, the teenagers and young adult respondents rated the level of marketability of the JackPaO Chis as High Potential, while the adult respondents rated the chips as Very High Potential. Furthermore, In a hundred-gram chips of JackPaO chips with 20 grams of jackfruit seeds, pandan leaves, and oregano leaves contain 5.12 milligrams of total iron is low, 51.4 grams of total carbohydrates may produce higher energy, a pH level of 6.01 is considered as low acid, and a moisture content of 2.44 grams which implies that the rate of microbial/fungal growth on the Chips decreases and thus microbial/fungal occurrence on the Chips is not fast. Comments and suggestions were provided by the respondents to further improve the product.

Keywords: *acceptability, marketability, physiochemical analysis, chips*

Introduction

Most of the consumers love eating crispy and flavorful chips. Where chips are considered as one of the fastest growing consumer snack food items in the Philippines. Locally, chips are available in the grocery stores, sari-sari stores, and school canteen. Those kinds of chips are can easily afforded by the public, where different flavors of chips have become popular snack food in the market. The attractiveness of chips to the eye of consumers depends on its crispy nature, size and shape of the chips, its flavor, and its air tightness. With the fast-growing potential of chips in the market, food manufacturers produce different varieties of chips which considers the consumers' perceptions regarding those differences from each consumer, where still one of the leading chips locally and globally is potato chips which added different flavors in order to meet public demand. However, the potato chips industry is considered large and is dominated specifically by multiple manufacturers.

Despite the popularity and demand of public to potato chips locally and globally, food manufacturing companies also foreseen the increased consumer tendency for healthy food where the awareness of consumers leads on transitioning into a healthier kind of option for their chips. Whereas according to Global Healthy Snack Chips 2021 the market size is rising at a CAGR of 6.6% during the forecast period 2021-2030. The growing consumer awareness which leads on healthier alternatives coupled with the tendency for more indulgent lifestyles which resulted in an increased potential for those healthier chips option locally and globally.

This study aimed to produce healthier versions of chips by using jackfruit seeds, pandan leaves, and oregano leaves as some of the ingredients. These three ingredients are very economical because it can be easily found in the Philippines which has a tropical climate that is very suitable to grow such fruit and herbs. Jackfruit seeds are considered as one of the nutritious seeds that can be found in a fruit due to its high protein content and the starch form has a potential building structure of chips. Since the food manufacturer industry is encouraged by the government to produce healthy and yet tastier alternative chips.With this reason, both tender and ripe kind of fruits that contains seeds are considered rich in minerals and vitamins. Whereas ripe fruits are rich in vitamin A, which leads to good vision and iron that is present in blood involves the oxygen movement to our body.According to the article from food.ndtv.com 2019 , Jackfruit Seed contains compounds that have an antimicrobial effect, which could help prevent contamination with bacteria that cause foodborne illnesses. These seeds have also been used in traditional medicine to help with digestive tract problems.

An article entitled "Health Benefits of Pandan" reviewed by Dan Brennan, MD of WebMD Editorial Contributors 2020, discussed that based on preliminary research in pandan leaves has identified several important vitamins, minerals, and antioxidants known to support health. For instance, it's a rich source of vitamin A, which is an essential compound for eye health that may help to prevent cancer. Pandan leaves are also used for arthritis, joint pain reliever, and heart disease prevention. Studies support the claim that pandan leaf is good for the heart and is a particularly excellent source of carotenoids, a class of antioxidants. These are known to reduce the risk of developing atherosclerosis, the narrowing of arteries of the heart due to plaque buildup.

An article entitled "6 Science-Based Health Benefits of Oregano" written by Rachel Link, MS. RD explained that Oregano has a strong flavor and brings warmth to dishes along with a hint of subtle sweetness and its small amount packs some important nutrients such as vitamin K which needs for our bone, cognitive, and heart health. Jackfruit Seeds, Pandan Leaves, Oregano Leaves "JackPaO Chips" help to prevent contamination with bacteria that cause foodborne illnesses and help with digestive tract problems. It includes several medicinal properties that work well on the body. It contains iron, magnesium, vitamins, potassium, and vitamin C in great amounts. It helps teenagers, young adults, and adults to realize the importance of Jackfruit Seeds, Pandan Leaves, and Oregano Leaves in making "JackPaO Chips" for their health, and for them to start a healthy lifestyle by eating these chips moderately as part of their snack time.

Research Questions

This study sought to determine the level of acceptability, marketability, and physicochemical analysis of JackPaO Chips in the groups of teenagers, young adults, and adult respondents of Barangay Malanday, Marikina City during the school year 2022-2023. More specifically, the study sought answers to the following questions:

1. How can chips be produced using jackfruit seeds, pandan leaves, and oregano leaves as ingredients?
2. What is the evaluation of the three groups of respondents namely teenagers, young adults, and adults on the level of acceptability of JackPaO chips with 10 grams, 20 grams, and 30 grams proportions of jackfruit seeds, pandan leaves, and oregano leaves in terms of the following criteria?
   2.1 Appearance;
   2.2 Aroma;
   2.3 Color;
   2.4 Taste; and
   2.5 Texture?
3. Are there significant differences among the evaluations of the three groups of respondents on the level of acceptability of JackPaO chips with 10 grams, 20 grams, and 30 grams of jackfruit seeds, pandan leaves, and oregano leaves, in terms of aforecited criteria?
4. What was the evaluation of the three groups of respondents on the level of marketability of JackPaO chips with 10 grams, 20 grams, and 30 grams proportions of jackfruit seeds, pandan leaves, and oregano leaves in terms of the following criteria?
   4.1 Supply Availability;
   4.2 Production Cost; and
   4.3 Consumer Demand?
5. Are there significant differences among the evaluations of the three groups of respondents on the level of marketability of the prepared JackPaO chips with 10 grams, 20 grams, and 30 grams of jackfruit seeds, pandan leaves, and oregano leaves, in terms of the above-mentioned criteria?
6. What is the physicochemical analysis of the JackPaO chips with jackfruit seeds, pandan leaves, and oregano leaves in terms of the following?
   6.1 Iron;
   6.2 Carbohydrates;
   6.3 pH level; and
   6.4 Moisture content?
7. What are the comments and suggestions of the three groups of respondents to further enhance the produced product?

Literature Review

An online medical offers detailed and current pharmaceutical information and states in an online article that the oregano plant is taken by mouth respiratory tract disorders such as coughs, asthma, allergies, croup, and bronchitis. It is also taken by mouth for stomach disorders such as heartburn, bloating, and parasites.Relatively, Hando, S., (2019) in her article "How Is Oregano is Used? What Are Its Health Benefits?". The oregano leaves have some health benefits, such as it helps to alleviate pain, and sickness, and curing bacterial and skin infections. It also protects a person from being overweight, developing hardened arteries, diabetes, and Alzheimer's disease. And of course, it lessens the

harshness of cough, sore throat, and fever.

Lama, MS, Ph.D., CNC, CPT, (2019) published an online article that states that the starch in jackfruit seeds has more than 90 percent, which is a type of carbohydrate. While starch has a reputation for being fattening or similar to sugar, not all starches are the same. Consuming foods with resistant starches like the ones found in jackfruit seeds, the bacteria that live in the gastrointestinal tract can ferment these starches in the large intestine which produces short-chain fatty acids that helps to stimulate blood flow in the colon and reduce the risk of colon cancer.

In addition, Jackfruit seeds are underutilized and less acknowledged by people, but they have considerable nutritional benefits and can be considered a functional food ingredient as stated in the article entitled "Jackfruit seed: an accompaniment to functional foods", (2019) where products with incorporated jackfruit seed flour possess better nutraceutical appeal, leading to improved consumer acceptability. It also reveals the valorization of jackfruit seeds in various value-added products along with their effects on the different properties of products. Meanwhile, the Modest Pie Life Magazine published an article entitled "20 Health Benefits of Pandan Leaves" by Franck S. Walker, (2019) stating that one of the tropical plants that is widely used in the countries of Thailand, Indonesia, Malaysia, and the Philippines is the pandan leaves a naturally fragrant and flavoring in many regions' cuisines. Aside from this distinct characteristic, pandan leaves have their most potent health benefits in their efficacy at lowering blood pressure which has a natural way to alleviate the symptoms of dizziness and can help to prevent stroke. It also contains alkaloid compounds that have a calming effect on the human body which helps us to sleep better.

Moreover, a newsletter on the website, medicalnewstoday.com, (2020) states that it has dietary antioxidants which help the body eliminate free radicals, which are toxic substances that result from natural processes and environmental stresses. A buildup of free radicals can trigger oxidative stress. Oxidative stress can lead to cell damage that may result in various diseases, including cancer and diabetes.On the other hand, the study by Masutti M., et.al (2020) conducted a study on "Development and Characterization of Crackers Fillings with Natural Antioxidants" with the addition of oregano and basil herbs in the fillings of crackers due to their high phenolic and antioxidant content. The addition of these herbs was found that lessens the luster but improved the tackiness of the filling. A great improvement in the ability of the antioxidant content was found in the oregano fillings when absorbed by the body.

More so, the study by Casipit, (2017) entitled "Utilization, Acceptability, and Marketability of Jackfruit Seeds as Extenders in Making Burger Patty (Jackpatty)" aimed to evaluate the utilization, acceptability, and marketability of jackfruit seed as an extender in making burger patty with the proportion of 25%, 50%, and 75% to the group of teenagers, young adults, and adult in terms of appearance, aroma, color, texture, and taste as highly acceptable as seen in the overall weighted mean.Likewise, the next reviewed study is by Ada et al., (2017) entitled "Analysis and Acceptability of Lemon Grass, Pandan Leaves, and Guyabano Leaves in making Tea" which aimed to analyze and determined the analysis with the two groups of respondents namely eighty-three (83) FSM major students and ten (10) Instructors from Marikina Polytechnic College. The two groups of respondents evaluated the tea as very agreeable in regard to appearance, aroma/smell, color, taste, and textures as evidenced by with average weighted mean. Lastly, a study by Amores et al., (2017) entitled "Acceptability of Alugbati Leaves, Pandan, and Turmeric as Ingredients in Making Gumdrop Candy" with two groups of respondents namely Grade 5 and 6 students in terms of appearance, aroma, texture, and taste are very highly acceptable. There are no significant differences in the analysis of the two groups of respondents on the developed Gumdrop candy based on the aforementioned criteria.

Methodology

The present study used the experimental method of research in order to attain its objectives. The experimental method of research used in the production of chips using powdered jackfruit seeds, pandan leaves, and oregano leaves as ingredients. It also determines the acceptability and marketability of the chips with 10 grams, 20 grams, and 30 grams of jackfruit seed, pandan leaves, and oregano leaves.According to Cash, et al., in their book Experimental Design Research; Approaches, Applications, (2016:4). The Experimental method of research is the investigation of data based on the acquisition of reliable knowledge and documented observations under well-defined situations, using the proper statistical treatment and mathematical guidelines for the determination of possible relatives.

Participants of the Study

The data gathered in this research were from thirty (30) teenagers, thirty (30) young adults, and thirty (30) adults who live in Barangay Malanday, Marikina City as evaluators of the product presented, during the year 2022 to 2023.

Instruments of the Study

A survey questionnaire/checklist was administered to determine the acceptability and marketability of the JackPaO chips with 10 grams, 20 grams, and 30 grams of jackfruit seeds, pandan leaves, and oregano leaves powder.It was employed in figuring out the marketability of the prepared jackfruit seed, pandan leaves, and oregano leaves "JackPaO" chips in three different proportions. Marketability is determined through supply availability, consumers' demand, and production cost.

Procedure

The experiment started with the data-gathering procedure. The researcher provided request letters addressed to the School President Dr. Rene M. Colocar, LPT, Ph.D, to the Director of Research and Development Office (RDO), Ms. Ma. Arra B. Santos, and of course to the Vice President for Academic Affairs, Dr. Vilma J. Sugay, concerning the research services agreement. The above-mentioned signatories are necessary in pursuing to conduct the study.The produced JackPaO Chips go through a physicochemical analysis done by F.A.S.T Laboratories. The researcher coordinated with the office by a request letter and details sent through email. Upon the approval of the F.A.S.T Laboratories in conducting the analysis, the researcher dropped off the produced chips in their office. While the result of the analysis was in the process, the researcher prepared the survey questionnaire to determine the acceptability and marketability of JackPaO Chips. The validity of the survey questionnaire was assured by the ten specialists which are composed of food technologist, grammarian, and statistician to check, evaluate, and validate the survey questionnaire. The researcher's adviser assisted the reexamination of the survey questionnaire.The researcher conducted a taste test of the prepared JackPaO Chips with 10 grams, 20 grams, and 30 grams of the ingredients at Barangay Malanday, Marikina City with the approval of the Barangay Captain, Hon. Mak Alfonso. The researcher personally organized and collected the questionnaires/ checklist to ensure higher returns. After gathering the responses, the data is tallied, tabulated, and statistically treated for analysis and interpretation.

Ethical Considerations

Ethical considerations are necessary for research projects because all those involved have moral and legal rights. The researcher ensured that respondents' privacy was not violated without appropriate authorization and consent. The researcher did not cause any physical or emotional harm to those who took part in the study, and all information received from the reviewers was acknowledged and presented accurately.

Results and Discussion

Evaluation of Teenagers, Young Adults, and Adult Respondents on the Level of Acceptability of JackPaO Chips with 10 Grams, 20 Grams, and 30 Grams Proportions of Jackfruit Seeds, Pandan Leaves, and Oregano Leaves

Table 1. *Respondents' Evaluations on the Acceptability Level of JackPaO Chips with 10 Grams Proportion of Jackfruit Seeds, Pandan Leaves, and Oregano Leaves in terms of Appearance*

Indicators	*Respondents*					
	Teenagers		*Young Adults*		*Adults*	
	WM	*VI*	*WM*	*VI*	*WM*	*VI*
1. The "JackPaO" chips that contain jackfruit seeds, pandan leaves, and oregano leaves have a distinct appearance.	7.63	VA	7.93	VA	7.60	VA
2. It is free from cracks and other shape defects.	7.87	VA	7.90	VA	7.67	VA
3. The chips are bite sized.	8.17	VA	8.17	VA	7.73	VA
Overall Weighted Mean	7.89	VA	8.00	VA	7.67	VA

It can be gleaned from the table that the groups of respondents evaluated the Chips with 10 grams of jackfruit seeds, pandan leaves, and oregano leaves in terms of appearance as Very Acceptable (VA) with overall weighted mean of 7.89 for teenager, 8.00 for young adult, and 7.67 for adult respondents. The data also showed that the teenager, young adult, and adult respondents rated all indicators as Very Acceptable (VA) which implies that the product has a distinct appearance for chips, free from cracks and other shape defects, and the chips has a bite-sized appearance.

The result shows that the three groups of respondents appreciated the appearance of the product.

Psych Educ, 2023, **13**: 916-929, Document ID:2023 PEMJ1220, doi:10.5281/zenodo.8375392, ISSN 2822-4353

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Table 2. *Respondents' Evaluations on the Acceptability Level of JackPaO Chips with 10 Grams Proportion of Jackfruit Seeds, Pandan Leaves, and Oregano Leaves in terms of Aroma*

Indicators	*Respondents*					
	Teenagers		*Young Adults*		*Adults*	
	WM	*VI*	*WM*	*VI*	*WM*	*VI*
1. The "JackPaO" chips have an acceptable smell combination of jackfruit seeds, pandan leaves, and oregano leaves.	7.57	VA	7.90	VA	7.47	MA
2. It has an oregano-like smell.	7.53	VA	6.93	MA	7.30	MA
3. It has a unique aroma for chips.	7.60	VA	7.67	VA	7.57	VA
Overall Weighted Mean	7.57	VA	7.50	VA	7.44	MA

It can be construed from the table that the teenager, young adult, and adult respondents have the same evaluation regarding the acceptability of chips with jackfruit seeds, pandan leaves, and oregano leaves in terms of its aroma as it was evident in the overall weighted mean of 7.57 for teenager and 7.50 for young adult, described as Very Acceptable (VA), while the adult respondent rated it as Moderately Acceptable (MA) with an overall weighted mean of 7.44. The data also showed that the adult respondents rated the indicator 1 "The "JackPaO" chips have an acceptable smell combination of jackfruit seeds, pandan leaves, and oregano leaves" as Moderately Acceptable (MA). On the other hand, the teenager showed a rating of Very Acceptable (VA) aroma for indicator 2. Overall, the three groups of respondents have a positive result on the aroma of the product which leads on having its unique aroma which is preferred by all the respondents.

Table 3. *Respondents' Evaluations on the Acceptability Level of JackPaO Chips with 10 Grams Proportion of Jackfruit Seeds, Pandan Leaves, and Oregano Leaves in terms of Color*

Indicators	*Respondents*					
	Teenagers		*Young Adults*		*Adults*	
	WM	*VI*	*WM*	*VI*	*WM*	*VI*
1. The "JackpaO" chips have an acceptable combination of colors.	7.73	VA	8.20	VA	8.13	VA
2. It has homogeneous color.	7.77	VA	8.13	VA	8.03	VA
3. It has a brown color.	8.07	VA	8.27	VA	8.13	VA
Overall Weighted Mean	7.86	VA	8.20	VA	8.10	VA

As shown in the table, the groups of respondents evaluated the Chips with 10 grams of jackfruit seeds, pandan leaves, and oregano leaves in terms of color as Very Acceptable (VA) with overall weighted mean of 7.86 for Teenager, 8.20 for Young Adult, and 8.10 for adult respondents. The data also showed that the teenager, young adult, and adult respondents rated all indicators as Very Acceptable (VA) which implies that the product has an acceptable color for chips. This finding implies that the respondents agreed that the chips have an acceptable combination of colors.

Table 4. *Respondents' Evaluations on the Acceptability Level of JackPaO Chips with 10 Grams Proportion of Jackfruit Seeds, Pandan Leaves, and Oregano Leaves in terms of Taste*

Indicators	*Respondents*					
	Teenagers		*Young Adults*		*Adults*	
	WM	*VI*	*WM*	*VI*	*WM*	*VI*
1. It has a distinct taste of chips containing jackfruit seeds, pandan leaves, and oregano leaves powder.	7.50	VA	7.83	VA	7.07	MA
2. It provides a unique aftertaste.	7.33	MA	7.60	VA	6.83	MA
3. It has a well-blended flavor.	7.63	VA	8.00	VA	7.23	MA
Overall Weighted Mean	7.49	MA	7.81	VA	7.04	MA

The table shows that the young adult respondents evaluated the acceptability of chips with 10 grams proportion in terms of taste as evidenced by the weighted mean rating of 7.81 as verbally interpreted as Very Acceptable (VA). On the other hand, both teenager and adult respondents evaluated the taste of the chips as Moderately Acceptable (MA) with an overall weighted mean of 7.49 for the teenager and 7.04 adult respondents. It can be inferred that the chips' taste needs improvement or that a recipe could be developed that will suit the teenagers and adults' taste, especially its aftertaste.

Table 5. *Respondents' Evaluations on the Acceptability Level of JackPaO Chips with 10 Grams Proportion of Jackfruit Seeds, Pandan Leaves, and Oregano Leaves in terms of Texture*

Indicators	*Respondents*					
	Teenagers		*Young Adults*		*Adults*	
	WM	*VI*	*WM*	*VI*	*WM*	*VI*
1. The "JackPaO" chips can be easily chewed.	8.03	VA	8.63	EA	8.37	VA
2. It has a crispy texture.	8.20	VA	8.73	EA	8.50	EA
3. It has a consistent texture from inner to outer.	7.90	VA	8.57	EA	8.33	VA
Overall Weighted Mean	8.04	VA	8.64	EA	8.40	VA

The table revealed that the overall weighted mean rating of the teenager and adult respondents are 8.04 and 8.40 verbally interpreted as Very Acceptable (VA), while the young adult respondents rated the chips with overall weighted mean rating of 8.64 verbally interpreted as Extremely Acceptable (EA). These data show that the three groups of respondents are satisfied with the texture of the chips. This implies the pleasurable and consistent texture of the chips which the respondents liked in the produced product.

Table 6. *Respondents' Evaluations on the Acceptability Level of JackPaO Chips with 20 Grams Proportion of Jackfruit Seeds, Pandan Leaves, and Oregano Leaves in terms of Appearance*

Indicators	*Respondents*					
	Teenagers		*Young Adults*		*Adults*	
	WM	*VI*	*WM*	*VI*	*WM*	*VI*
1. The "JackPaO" chips that contain jackfruit seeds, pandan leaves, and oregano leaves have a distinct appearance leaves, and oregano leaves have a distinct appearance.	7.87	VA	8.00	VA	7.73	VA
2. It is free from cracks and other shape defects.	7.87	VA	7.80	VA	7.67	VA
3. The chips are bite-sized.	8.10	VA	8.23	VA	7.70	VA
Overall Weighted Mean	7.94	VA	8.01	VA	7.70	VA

As shown in the table, the groups of respondents evaluated the Chips with 20 grams of jackfruit seeds, pandan leaves, and oregano leaves in terms of appearance as Very Acceptable (VA) with overall weighted mean of 7.94 for teenager, 8.01 for young adult, and 7.70 for adult respondents. This implies that the respondents agreed and satisfied that the chips have an acceptable appearance.

As presented in the table 7, all the respondents evaluated the produced product as Very Acceptable (VA) with weighted mean of 7.62 for teenager, 7.61 for young adult, and 7.62 for the adult respondents. These data show that the three groups of respondents agreed that the Chips with 20 grams proportion of jackfruit seeds, pandan leaves, and oregano leaves have an acceptable and unique aroma of chips.

Table 7. *Respondents' Evaluations on the Acceptability Level of JackPaO Chips with 20 Grams Proportion of Jackfruit Seeds, Pandan Leaves, and Oregano Leaves in terms of Aroma*

Indicators	*Respondents*					
	Teenagers		*Young Adults*		*Adults*	
	WM	*VI*	*WM*	*VI*	*WM*	*VI*
1. The "JackPaO" chips have an acceptable smell combination of jackfruit seeds, pandan leaves, and oregano leaves.	7.57	VA	7.90	VA	7.63	VA
2. It has an oregano-like smell.	7.57	VA	7.27	MA	7.53	VA
3. It has a unique aroma for chips.	7.73	VA	7.67	VA	7.70	VA
Overall Weighted Mean	7.62	VA	7.61	VA	7.62	VA

Table 8. *Respondents' Evaluations on the Acceptability Level of JackPaO Chips with 20 Grams Proportion of Jackfruit Seeds, Pandan Leaves, and Oregano Leaves in terms of Color*

Indicators	*Respondents*					
	Teenagers		*Young Adults*		*Adults*	
	WM	*VI*	*WM*	*VI*	*WM*	*VI*
1. The "JackPaO" chips have an acceptable combination of colors.	7.60	VA	8.13	VA	8.07	VA
2. It has homogeneous color.	7.77	VA	8.13	VA	8.07	VA
3. It has a brown color.	7.97	VA	8.10	VA	8.20	VA
Overall Weighted Mean	7.78	VA	8.12	VA	8.11	VA

As gleaned in the table, the groups of respondents evaluated the Chips with 20 grams of jackfruit seeds, pandan leaves, and oregano leaves in terms of color as Very Acceptable (VA) with overall weighted mean of 7.78 for teenager, 8.12 for young Adult, and 8.11 for adult respondents. These findings could mean that the chips with 20 grams proportion of jackfruit seeds, pandan leaves, and oregano leaves have an acceptable color.

The data show that the respondents have the same level of evaluation on the acceptability of the chips with the proportion of 20 grams of jackfruit seeds, pandan leaves, and oregano leaves in terms of taste as evidenced by the overall weighted mean rating of 7.66, 7.87, and 7.70, respectively and verbally interpreted as Very Acceptable (VA). These findings imply that the respondents are one in saying that the product has a distinct taste, unique aftertaste, and well-blended flavor of chips with 20 grams proportion of jackfruit seeds, pandan leaves, and oregano leaves.

Table 9. *Respondents' Evaluations on the Acceptability Level of JackPaO Chips with 20 Grams Proportion of Jackfruit Seeds, Pandan Leaves, and Oregano Leaves in terms of Taste*

Indicators	*Respondents*					
	Teenagers		*Young Adults*		*Adults*	
	WM	*VI*	*WM*	*VI*	*WM*	*VI*
1. It has a distinct taste of chips containing jackfruit seeds, pandan leaves, and oregano leaves powder.	7.53	VA	7.93	VA	7.67	VA
2. It provides a unique aftertaste.	7.77	VA	7.77	VA	7.73	VA
3. It has a well-blended flavor.	7.67	VA	7.90	VA	7.70	VA
Overall Weighted Mean	7.66	VA	7.87	VA	7.70	VA

Table 10. *Respondents' Evaluations on the Acceptability Level of JackPaO Chips with 20 Grams Proportion of Jackfruit Seeds, Pandan Leaves, and Oregano Leaves in terms of Texture*

Indicators	*Respondents*					
	Teenagers		*Young Adults*		*Adults*	
	WM	*VI*	*WM*	*VI*	*WM*	*VI*
1. The "JackPaO" chips can be easily chewed.	8.00	VA	8.50	EA	8.33	VA
2. It has a crispy texture.	8.10	VA	8.70	EA	8.53	EA
3. It has a consistent texture from inner to outer.	8.17	VA	8.57	EA	8.40	VA
Overall Weighted Mean	8.09	VA	8.59	EA	8.42	VA

As presented in the table, the teenager and adult respondents have the similar evaluation regarding the acceptability of the produced product in terms of texture as evidently shown on the overall weighted mean rating of 8.09 for teenager and 8.42 for young adult verbally interpreted as Very Acceptable (VA) while the young adult respondents rated it as Extremely Acceptable (EA) with weighted mean of 8.59. The data show that respondents' evaluation on the acceptability of chips with 20 grams proportion of jackfruit seeds, pandan leaves, and oregano leaves has a positive result and is liked by the respondents because it can be easily chewed, has a crispy texture, and has a consistent texture from inner to outer.

It can be gleaned in the table that the teenager, young adult, and adult respondents have the same evaluation regarding the acceptability of the JackPaO chips in terms of appearance as Very Acceptable (VA) with an overall weighted mean rating of 7.91, 8.30, and 7.96 respectively and relatively. It implies that the three groups of respondents accept the product which has a distinct appearance, free from cracks and other shape defects, and the chips are bite-sized with 30 grams proportion of jackfruit seeds, pandan leaves, and oregano leaves.

Table 11. *Respondents' Evaluations on the Acceptability Level of JackPaO Chips with 30 Grams Proportion of Jackfruit Seeds, Pandan Leaves, and Oregano Leaves in terms of Appearance*

Indicators	*Respondents*					
	Teenagers		*Young Adults*		*Adults*	
	WM	*VI*	*WM*	*VI*	*WM*	*VI*
1. The "JackPaO" chips that contain jackfruit seeds, pandan leaves, and oregano leaves have a distinct appearance.	7.83	VA	8.27	VA	8.00	VA
2. It is free from cracks and other shape defects.	7.83	VA	8.17	VA	7.93	VA
3. The chips are bite-sized.	8.07	VA	8.47	VA	7.93	VA
Overall Weighted Mean	7.91	VA	8.30	VA	7.96	VA

Table 12. *Respondents' Evaluations on the Acceptability Level of JackPaO Chips with 30 Grams Proportion of Jackfruit Seeds, Pandan Leaves, and Oregano Leaves in terms of Aroma*

Indicators	*Respondents*					
	Teenagers		*Young Adults*		*Adults*	
	WM	*VI*	*WM*	*VI*	*WM*	*VI*
1. The "JackPaO" chips have an acceptable smell combination of jackfruit seeds, pandan leaves, and oregano leaves.	7.53	VA	8.37	VA	8.03	VA
2. It has an oregano-like smell.	7.57	VA	7.93	VA	8.30	VA
3. It has a unique aroma for chips.	7.80	VA	8.07	VA	8.07	VA
Overall Weighted Mean	7.63	VA	8.12	VA	8.13	VA

It can be observed in the table that the teenager, young adult, and adult have equal evaluations on the acceptability of chips with the proportion of 30 grams of jackfruit seeds, pandan leaves, and oregano leaves in terms of aroma with an overall weighted mean rating of 7.63, 8.12, and 8.13 respectively and verbally interpreted as Very Acceptable (VA). These findings could mean that the chips evaluated with 30 grams proportion of jackfruit seeds, pandan leaves, and oregano leaves have an acceptable smell combination, has oregano-like smell, and has a unique aroma for chips.

Table 13. *Respondents' Evaluations on the Acceptability Level of JackPaO Chips with 30 Grams Proportion of Jackfruit Seeds, Pandan Leaves, and Oregano Leaves in terms of Color*

Indicators	*Respondents*					
	Teenagers		*Young Adults*		*Adults*	
	WM	*VI*	*WM*	*VI*	*WM*	*VI*
1. The "JackpaO" chips have an acceptable combination of colors.	7.80	VA	8.37	VA	8.43	VA
2. It has homogeneous color.	7.73	VA	8.33	VA	8.33	VA
3. It has a brown color.	8.03	VA	8.23	VA	8.30	VA
Overall Weighted Mean	7.86	VA	8.31	VA	8.36	VA

It can be gleaned in the table that the chips with jackfruit seeds, pandan leaves, and oregano leaves is rated as Very Acceptable (VA) by the teenagers, young adult, and adult with an overall weighted mean rating of 7.86, 8.31, and 8.36, respectively and verbally interpreted. It implies that the respondents accept the combination of colors of the JackPaO Chips with 30 grams proportion.

Table 14. *Respondents' Evaluations on the Acceptability Level of JackPaO Chips with 30 Grams Proportion of Jackfruit Seeds, Pandan Leaves, and Oregano Leaves in terms of Taste*

Indicators	*Respondents*					
	Teenagers		*Young Adults*		*Adults*	
	WM	*VI*	*WM*	*VI*	*WM*	*VI*
1. It has a distinct taste of chips containing jackfruit seeds, pandan leaves, and oregano leaves powder.	8.07	VA	8.07	VA	8.60	EA
2. It provides a unique aftertaste.	7.97	VA	8.10	VA	8.73	EA
3. It has a well-blended flavor.	8.00	VA	7.83	VA	8.63	EA
Overall Weighted Mean	8.01	VA	8.00	VA	8.66	EA

In a more detailed observation in the table, both the teenager and young adult respondents rated the chips with jackfruit seeds, pandan leaves, and oregano leaves as Very Acceptable (VA) with an overall weighted mean rating of 8.01 and 8.00 respectively. On the other hand, the adult respondents rated the produced product as Extremely Acceptable (EA) with an overall weighted mean rating of 8.66 as verbally interpreted. It can be concluded that the produced product meets the distinct taste, unique aftertaste, and well-blended flavor of the JackPaO Chips.

Table 15. *Respondents' Evaluations on the Acceptability Level of JackPaO Chips with 30 Grams Proportion of Jackfruit Seeds, Pandan Leaves, and Oregano Leaves in terms of Texture*

Indicators	*Respondents*					
	Teenagers		*Young Adults*		*Adults*	
	WM	*VI*	*WM*	*VI*	*WM*	*VI*
1. The "JackPaO" chips can be easily chewed.	8.00	VA	8.77	EA	8.37	VA
2. It has a crispy texture.	8.23	VA	8.67	EA	8.50	EA
3. It has a consistent texture from inner to outer.	8.07	VA	8.73	EA	8.60	EA
Overall Weighted Mean	8.10	VA	8.72	EA	8.49	VA

The table shows that both the teenager and adult respondents have the same level of evaluation of the acceptability of jackfruit seeds, pandan leaves, and oregano leaves powder as ingredients in making chips with 30 grams proportion in terms of texture as evidenced by the weighted mean rating of 8.10 and 8.49, both verbally interpreted as Very Acceptable (VA). It actually shows from the results that all the three groups of respondents positively appreciated the product has a consistent texture from inner to outer.

Significant Differences among the Evaluations of the Three Groups of Respondents on the Acceptability Level of JackPaO Chips with 10 Grams, 20 Grams, and 30 Grams Proportions of Jackfruit Seeds, Pandan Leaves, and Oregano Leaves

Table 16. *Summary of Analysis of Variance of Respondents' Evaluations on the Acceptability Level of JackPaO Chips with 10 Grams Proportion of Jackfruit Seeds, Pandan Leaves, and Oregano Leaves*

	Criteria	$F_{computed}$ *Value*	$F_{Critical}$ *Value*	*Decision*	*Interpretation*
a.	Appearance	0.72	3.10	Fail to Reject the H_0	Not Significant
b.	Aroma	0.09	3.10	Fail to Reject the H_0	Not Significant
c.	Color	1.13	3.10	Fail to Reject the H_0	Not Significant
d.	Taste	2.50	3.10	Fail to Reject the H_0	Not Significant
e.	Texture	3.16	3.10	Reject the H_0	Significant

The table depicted that the evaluations of the teenagers, young adults, and adult respondents on the acceptability level of JackPaO Chips with 10 grams proportion of jackfruit seeds, pandan leaves, and oregano leaves in terms of appearance, aroma, color, and taste do not show significant differences with the respective computed F values which are lower than the critical F value. This means that the respondents' evaluations are the same except for texture.

Table 17. *Summary of Analysis of Variance of Respondents' Evaluations on the Acceptability Level of JackPaO Chips with 20 Grams Proportion of Jackfruit Seeds, Pandan Leaves, and Oregano Leaves*

	Criteria	$F_{computed}$ *Value*	$F_{Critical}$ *Value*	*Decision*	*Interpretation*
a.	Appearance	1.00	3.10	Fail to Reject the H_0	Not Significant
b.	Aroma	0.001	3.10	Fail to Reject the H_0	Not Significant
c.	Color	1.61	3.10	Fail to Reject the H_0	Not Significant
d.	Taste	0.44	3.10	Fail to Reject the H_0	Not Significant
e.	Texture	2.39	3.10	Fail to Reject the H_0	Not Significant

As described in the table, the evaluations of the teenagers, young adults, and adult respondents on the acceptability level of JackPaO Chips with 20 grams proportion of jackfruit seeds, pandan leaves, and oregano leaves in terms of appearance, aroma, color, taste, and texture do not indicate significant differences with the corresponding computed F values which are less than the critical F value. Therefore, the respondents' evaluations are similar.

The table 18 presented that the evaluations of the teenagers, young adults, and adult respondents on the acceptability level of JackPaO Chips with 30 grams proportion of jackfruit seeds, pandan leaves, and oregano leaves in terms of appearance, aroma and color do not imply significant differences with the respective computed F values which are smaller than the critical F value. Hence, the respondents' evaluations are the same excluding taste and texture.

Table 18. *Summary of Analysis of Variance of Respondents' Evaluations on the Acceptability Level of JackPaO Chips with 30 Grams Proportion of Jackfruit Seeds, Pandan Leaves, and Oregano Leaves*

	Criteria	$F_{computed}$ *Value*	$F_{Critical}$ *Value*	*Decision*	*Interpretation*
a.	Appearance	1.42	3.10	Fail to Reject the H_0	Not Significant
b.	Aroma	2.30	3.10	Fail to Reject the H_0	Not Significant
c.	Color	2.30	3.10	Fail to Reject the H_0	Not Significant
d.	Taste	4.62	3.10	Reject the H_0	Significant
e.	Texture	4.59	3.10	Reject the H_0	Significant

Evaluation of the Three Groups of Respondents on the Level of Marketability of the Prepared JackPaO Chips with 10 grams, 20 grams, and 30 grams of Jackfruit Seeds, Pandan Leaves, and Oregano Leaves

Table 19. *Respondents' Evaluations on the Marketability Level of JackPaO Chips with 10 Grams Proportion of Jackfruit Seeds, Pandan Leaves, and Oregano Leaves in terms of Supply Availability*

Indicators	*Respondents*					
	Teenagers		*Young Adults*		*Adults*	
	WM	*VI*	*WM*	*VI*	*WM*	*VI*
1. The jackfruit seeds, pandan leaves, oregano leaves, and other raw materials to be used in the "JackPaO" chips are available locally and all year round. of market supply and consumers	4.47	HP	4.70	VHP	4.40	HP
2. The powdered ingredients used in making "JackPaO" chips have a longer shelf life.	4.47	HP	4.40	HP	4.50	VHP
3. The "JackPaO" chips can be produced easily. commercially prepared biscuits	4.43	HP	4.43	HP	4.60	VHP
Overall Weighted Mean	4.46	HP	4.51	VHP	4.50	VHP

The table presents that the teenager respondents obtained overall weighted mean rating of 4.46 verbally interpreted as High Potential (HP) while, the young adult and adult respondents obtained 4.51 and 4.50, respectively, with the verbal interpretation of Very High Potential (VHP). In a different manner, young adult respondents rated High Potential (HP). It can be inferred that the ingredients used were available and can meet the economic demand of supply availability.

It can be observed in the table 20 that the teenager, young adult, and adult respondents obtained the

overall weighted mean ratings of 4.50, 4.47, and 4.41, respectively. The teenager respondents rated the JackPaO chip's supply availability as Very High Potential (VHP) while the young adult and adult respondents rated it as High Potential (HP). This could mean that the product can easily be sold once it is offered in the market because of its convenient production cost.

Table 20. *Respondents' Evaluations on the Marketability Level of JackPaO Chips with 10 Grams Proportion of Jackfruit Seeds, Pandan Leaves, and Oregano Leaves in terms of Production Cost*

Indicators	*Respondents*					
	Teenagers		*Young Adults*		*Adults*	
	WM	*VI*	*WM*	*VI*	*WM*	*VI*
1. The "JackPaO" chips are affordable.	4.40	HP	4.57	VHP	4.47	HP
2. It is cost-effective and cost-efficient.	4.53	VHP	4.37	HP	4.40	HP
3. It has a competitive price.	4.57	VHP	4.47	HP	4.37	HP
Overall Weighted Mean	4.50	VHP	4.47	HP	4.41	HP

Table 21. *Respondents' Evaluations on the Marketability Level of JackPaO Chips with 10 Grams Proportion of Jackfruit Seeds, Pandan Leaves, and Oregano Leaves in terms of Consumer Demand*

Indicators	*Respondents*					
	Teenagers		*Young Adults*		*Adults*	
	WM	*VI*	*WM*	*VI*	*WM*	*VI*
1. The product can meet the demands of the consumers.	4.43	HP	4.53	VHP	4.50	VHP
2. The ingredients (jackfruit seed, pandan leaves, and oregano leaves) can give consumers health benefits.	4.43	HP	4.73	VHP	4.53	VHP
3. It can compete with other chips with vegetables that are available in the market.	4.67	VHP	4.63	VHP	4.47	HP
Overall Weighted Mean	4.51	VHP	4.63	VHP	4.50	VHP

It can be observed in the table that the three groups of respondents evaluated the product in terms of its consumer demand as Very High Potential (VHP) with an overall weighted mean rating of 4.51, 4.63, and 4.50 respectively. From the data gathered it can be observed that the 10 grams proportion can meet the demand of the consumers and can be beneficial for the consumers.

Table 22. *Respondents' Evaluations on the Marketability Level of JackPaO Chips with 20 Grams Proportion of Jackfruit Seeds, Pandan Leaves, and Oregano Leaves in terms of Supply Availability*

Indicators	*Respondents*					
	Teenagers		*Young Adults*		*Adults*	
	WM	*VI*	*WM*	*VI*	*WM*	*VI*
1. The jackfruit seeds, pandan leaves, oregano leaves, and other raw materials to be used in the "JackPaO" chips are available locally and all year round. of market supply and consumers.	4.23	HP	4.63	VHP	4.57	VHP
2. The powdered ingredients used in making "JackPaO" chips have a longer shelf life.	4.27	HP	4.47	HP	4.53	VHP
3. The "JackPaO" chips can be produced easily. commercially prepared biscuits	4.40	HP	4.47	HP	4.63	VHP
Overall Weighted Mean	4.30	HP	4.52	VHP	4.58	VHP

It can be gleaned in the table that the teenager, young adult, and adult respondents obtained the overall weighted mean ratings of 4.30, 4.52, and 4.58, respectively. The teenager respondents rated the JackPaO chip's supply availability as High Potential (HP) while the young adult and adult respondents rated it as Very High Potential (VHP). This could mean that the product can easily be sold once it is offered in the market.

Table 23. *Respondents' Evaluations on the Marketability Level of JackPaO Chips with 20 Grams Proportion of Jackfruit Seeds, Pandan Leaves, and Oregano Leaves in terms of Production Cost*

Indicators	*Respondents*					
	Teenagers		*Young Adults*		*Adults*	
	WM	*VI*	*WM*	*VI*	*WM*	*VI*
1. The "JackPaO" chips are affordable.	4.60	VHP	4.37	HP	4.47	HP
2. It is cost-effective and cost-efficient.	4.40	HP	4.13	HP	4.47	HP
3. It has a competitive price.	4.43	HP	4.47	HP	4.40	HP
Overall Weighted Mean	4.48	HP	4.32	HP	4.44	HP

The table shows that in terms of production cost, the teenager, young adult, and adult respondents rated the JackPaO chips with grand weighted mean ratings of 4.48, 4.32, and 4.44, respectively verbally interpreted as High Potential (HP). It can also be observed that the produced chips under indicator 1, "The "JackPaO" chips are affordable" teenager respondents rated as Very High Potential (VHP) which indicates that this group really likes JackPaO chips and openly accepts it as an alternative chip that they can buy in the market for its affordability.

Table 24. *Respondents' Evaluations on the Marketability Level of JackPaO Chips with 20 Grams Proportion of Jackfruit Seeds, Pandan Leaves, and Oregano Leaves in terms of Consumer Demand*

	Respondents					
	Teenagers		Young Adults		Adults	
	WM	VI	WM	VI	WM	VI
1. The product can meet the demands of the consumers.	4.43	HP	4.43	HP	4.50	VHP
2. The ingredients (jackfruit seed, pandan leaves, and oregano leaves) can give consumers health benefits.	4.67	VHP	4.67	VHP	4.53	VHP
3. It can compete with other chips with vegetables that are available in the market.	4.50	VHP	4.53	VHP	4.53	VHP
Overall Weighted Mean	4.53	VHP	4.54	VHP	4.52	VHP

The data show that the three groups of respondents rated the produced chips as Very High Potential (VHP) as regards to consumer demand with an overall weighted mean rating of 4.53 for teenagers, 4.54 for young adult, and 4.52 for adult respondents. This could indicate that the product can meet the consumers' demand and can possibly provide health benefits to the consumers.

The table 25 shows that in terms of supply availability, the teenager and young respondents obtained overall weighted mean rating of 4.38, and 4.49, respectively, with the verbally interpreted as High Potential (HP) while, the adult respondents obtained 4.53, with the verbal interpretation of Very High Potential (HP). It can be inferred that the ingredients used were available and can meet the economic demand of supply availability.

Table 25. *Respondents' Evaluations on the Marketability Level of JackPaO Chips with 30 Grams Proportion of Jackfruit Seeds, Pandan Leaves, and Oregano Leaves in terms of Supply Availability*

Indicators	Respondents					
	Teenagers		Young Adults		Adults	
	WM	VI	WM	VI	WM	VI
1. The jackfruit seeds, pandan leaves, oregano leaves, and other raw materials to be used in the "JackPaO" chips are available locally and all year round. of market supply and consumers	4.40	HP	4.57	VHP	4.57	VHP
2. The powdered ingredients used in making "JackPaO" chips have a longer shelf life.	4.30	HP	4.43	HP	4.47	HP
3. The "JackPaO" chips can be produced easily. commercially prepared biscuits	4.43	HP	4.47	HP	4.57	VHP
Overall Weighted Mean	4.38	HP	4.49	HP	4.53	VHP

Table 26. *Respondents' Evaluations on the Marketability Level of JackPaO Chips with 30 Grams Proportion of Jackfruit Seeds, Pandan Leaves, and Oregano Leaves in terms of Production Cost*

Indicators	Respondents					
	Teenagers		Young Adults		Adults	
	WM	VI	WM	VI	WM	VI
1. The "JackPaO" chips are affordable.	4.43	HP	4.47	HP	4.60	VHP
2. It is cost-effective and cost-efficient.	4.43	HP	4.20	HP	4.47	HP
3. It has a competitive price.	4.53	VHP	4.33	HP	4.47	HP
Overall Weighted Mean	4.47	HP	4.33	HP	4.51	VHP

Based on the given data, the teenager and young adult respondents obtained an overall weighted mean rating of 4.47 and 4.33 which means that the produced chips are High Potential (HP) while the adult respondents have an overall weighted mean rating of 4.51 which indicates as Very High Potential (VHP). Based on the data gathered it can be observed that the 30 grams proportion has a market potential in terms of its production cost. It can be inferred that the produced chips have an acceptable competitive price.

The data revealed in Table 40, that all the three groups of respondents rated the produced chips as Very High Potential (VHP) as regards to consumers demand with an overall weighted mean rating of 4.60 for teenagers, 4.51 for young adult, and 4.56 for adult respondents. From the data gathered it can be observed that the 30 grams proportion has a positive market potential in terms of consumers' demand.

Table 27. *Respondents' Evaluations on the Marketability Level of JackPaO Chips with 30 Grams Proportion of Jackfruit Seeds, Pandan Leaves, and Oregano Leaves in terms of Consumer Demand*

	Respondents					
	Teenagers		Young Adults		Adults	
	WM	VI	WM	VI	WM	VI
1. The product can meet the demands of the consumers.	4.50	VHP	4.47	HP	4.60	VHP
2. The ingredients (jackfruit seed, pandan leaves, and oregano leaves) can give consumers health benefits.	4.63	VHP	4.60	VHP	4.53	VHP
3. It can compete with other chips with vegetables that are available in the market.	4.67	VHP	4.47	HP	4.53	VHP
Overall Weighted Mean	4.60	VHP	4.51	VHP	4.56	VHP

Significant Differences in the Evaluation of the Three Groups of Respondents on the Level of Marketability of JackPaO Chips with 10 Grams, 20 Grams, and 30 Grams Proportions of Jackfruit Seeds, Pandan Leaves, And Oregano Leaves

Table 28. *Analysis of Variance of Respondents' Evaluations on the Marketability Level of JackPaO Chips with 10 Grams Proportion of Jackfruit Seeds, Pandan Leaves, and Oregano Leaves*

Criteria	$F_{computed}$ *Value*	$F_{Critical}$ *Value*	*Decision*	*Interpretation*
a. Supply Availability	0.09	3.10	Fail to Reject the H_0	Not Significant
b. Production Cost	0.18	3.10	Fail to Reject the H_0	Not Significant
c. Consumer Demand	0.54	3.10	Fail to Reject the H_0	Not Significant

As reflected in the table, the evaluations of the teenagers, young adults, and adult respondents on the marketability level of JackPaO Chips with 10 grams proportion of jackfruit seeds, pandan leaves, and oregano leaves in terms of supply availability, production cost, and consumer demand do not indicate significant differences with the respective computed F values which are lower than the critical F value. This supports that the respondents' evaluations are the same.

Table 29. *Analysis of Variance of Respondents' Evaluations on the Marketability Level of JackPaO Chips with 20 Grams Proportion of Jackfruit Seeds, Pandan Leaves, and Oregano Leaves*

Criteria	$F_{computed}$ *Value*	$F_{Critical}$ *Value*	*Decision*	*Interpretation*
a. Supply Availability	2.46	3.10	Fail to Reject the H_0	Not Significant
b. Production Cost	0.52	3.10	Fail to Reject the H_0	Not Significant
c. Consumer Demand	0.01	3.10	Fail to Reject the H_0	Not Significant

It is apparent in the table that the evaluations of the teenagers, young adults, and adult respondents on the marketability level of JackPaO Chips with 20 grams proportion of jackfruit seeds, pandan leaves, and oregano leaves in terms of supply availability, production cost, and consumer demand do not reveal significant differences with the corresponding computed F values which are smaller than the critical F value. Thus, the respondents' evaluations are similar.

Table 30. *Analysis of Variance of Respondents' Evaluations on the Marketability Level of JackPaO Chips with 30 Grams Proportion of Jackfruit Seeds, Pandan Leaves, and Oregano Leaves*

Analyte per 100 grams	Result
Moisture	2.44
Carbohydrates	51.4
pH (10% Dispersion)	6.01@25.2
Iron	5.12

As noticed in the table, the evaluations of the teenagers, young adults, and adult respondents on the marketability level of JackPaO Chips with 30 grams proportion of jackfruit seeds, pandan leaves, and oregano leaves in terms of supply availability, production cost, and consumer demand do not show significant differences with the respective computed F values which are below the critical F value. This implies that the respondents' evaluations are the same.

The Physicochemical Analysis of the JackPaO Chips with Jackfruit Seeds, Pandan Leaves, and Oregano Leaves

Table 31. *Summary of Physicochemical Analysis of JackPaO Chips*

Analyte per 100 grams	Result
Moisture	2.44
Carbohydrates	51.4
pH (10% Dispersion)	6.01@25.2
Iron	5.12

The table shows the that the produced chips with jackfruit seeds, pandan leaves, and oregano leaves. The produced product contains 2.44 moisture, 51.4 carbohydrates, 6.01@25.2 pH level, with a 5.12 iron.

In a hundred-gram chips of JackPaO chips with 20 grams of jackfruit seeds, pandan leaves, and oregano leaves contain 5.12 milligrams of total iron is low, 51.4 grams of total carbohydrates may produce higher energy, a pH level of 6.01 is considered as low acid,

and a moisture content of 2.44 grams which implies that the rate of microbial/fungal growth on the Chips decreases and thus microbial/fungal occurrence on the Chips is not fast.

Comments and Suggestion of the Three Groups of Respondents to Further Enhance the Produced Product

The comments of the three groups respondents on the produced chips with jackfruit seeds, pandan leaves, and oregano leaves included: a) The taste of the oregano empowered the produced chips. On the other hand, pandan and jackfruit taste is not that evident; b) The JackPaO chips are unique and a distinct snack. It is a must have snack specially for those who are health conscious; and c) The produced product can definitely compete with other type of chips that are available in the market.

Suggestions: Meanwhile, their suggestions were: a) Adding some flavorings on the chips such as cheese powder, barbeque flavor, or sour cream flavor can add variant flavors that the consumers can choose from; b) The oregano flavor of the chips has a strong flavor that somewhat overpowers the taste of pandan and jackfruit seeds. It would be better to lessen the added oregano flavor; and c) The slightly blunt taste of the produced chips may affect its potential to the market. Adding a bit salty taste to the chips may actually help to enhance its taste.

Conclusion

Based on the findings of the study, the following conclusions were derived: (1) The JackPaO chips can be produced easily since its ingredients are locally available. (2) The jackfruit seeds, pandan leaves, and oregano leaves chips with 30 grams proportion is the most acceptable proportion in terms of appearance, aroma, color, taste, and texture compared to the 10 grams and 20 grams proportion. (3) The chips with 10 grams and 30 grams proportion exhibit substantial differences among the evaluations of the respondents. Additionally, a 30-gram proportion in terms of taste also shows considerable differences. (4) The jackfruit seeds, pandan leaves, and oregano leaves chips with 30 grams proportion has a higher potential in the market when it comes to adult respondents. Furthermore, the 30 grams proportion is the most acceptable in terms of consumer demand compared to the 10 grams and 20 grams proportion. (5) The potential market for JackPaO chips on respondents' evaluation has shown consistency across all proportions of the product produced. (6) In terms of physicochemical analysis, the JackPaO Chips has a lesser risk of food spoilage and microbial/fungal growth, produces high energy from its carbohydrates, its pH value is low in acid, and has a low iron which implies that the daily intake of iron in which unlikely to cause harmful effects on health. Also, it shelf life can last for more than two months based on observation.

In the light of the findings and conclusions, the following recommendations were hereby presented: (1) The researcher and through the college should craft a project proposal on the production of the chips for possible research grant from the Department of Science and Technology. (2) The JackPaO Chips can be promoted by the government as one of the chips products in the local market if the further development of the product will be conducted. (3) The health advocates can promote the importance of eating healthy chips by means of recommending the production of such healthy chips. (4) The food manufacturers can positively respond to the consumers increasing preference for a healthy lifestyle through producing the product. (5) The future researchers may undertake studies on different healthy ingredients that can possibly promote other unique chips flavor. (6) The potential entrepreneur can conduct further study on JackPaO chips to comply on the standard set by the CODEX ALIMENTARIUS FAO-WHO for the improvement of the product.

References

Ada et al. (2017). Lemon Grass, Pandan Leaves, and Guyabano Leaves in Making Tea. Unpublished Thesis, Marikina Polytechnic College, Marikina.

Amores et al. (2017). Alugbati Leaves, Pandan, and Turmeric as Ingredients in Making Gumdrop Candy. Unpublished Thesis, Marikina Polytechnic College, Marikina.

Casipit (2017). Jackfruit Seed Patty. Published Thesis, Marikina Polytechnic College, Marikina.

Food NTV. (2019). The Jackfruit Seed. Retrieved, March 30, 2019, from www.foodntv.com.

Hando, S., (2019) "How is Oregano Used? What Are Its Health Benefits?", Retrieved on October 18, 2020, from http://www.stylecraze.com/articles/amazing-benefits-of-oregano-for-skin-hair-and-health/.

Lama, MS, Ph.D., CNC, CPT (2019), Nutrition in Boiled Jackfruit Seeds, Retrieved on August 14, 2019, from https://www.livestrong.com/article/546837-nutrition-in-boiled-jackfruit-seeds/.

Masutti, M.F., Patrignani, M. & Conforti, P.A. Development and Characterization of Cracker Fillings with Natural Antioxidants. Food Measure 14, 446-454 (2020), Retrieved on March 25, 2020,

from https://doi.org/10/1007/s11694-019-00306-1.

Medical News Today. (2020). What are the health benefits of oregano? Retrieved, January 17, 2020, from www.medicalneswtoday.com/articles.

RxList (2021). Oregano, Retrieved, June 11, 2021, from https://www.rxlist.com/oregano/supplements.htm.

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