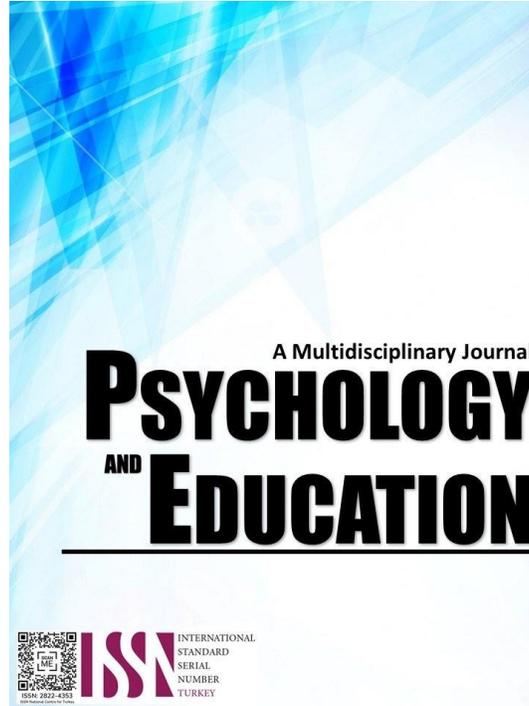


# PHYSICOCHEMICAL ANALYSIS, ACCEPTABILITY, AND MARKETABILITY OF CORNADO AS ALTERNATIVE INGREDIENTS FOR DRIP COFFEE



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## Physicochemical Analysis, Acceptability, and Marketability of Cornado as Alternative Ingredients for Drip Coffee

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### Abstract

This study focused on the physicochemical analysis, acceptability, and marketability of CORNADO Drip Coffee with three serving proportions of 10 grams, 15 grams, and 20 grams to the group of Barista, Coffee Shop Owners, and Consumers of Marikina City during the school year 2023-2024. Experimental method was used in this study to determine the acceptability of corn cob and avocado seed drip coffee and evaluated in terms of appearance, aroma, color, and taste and likewise, on its marketability. As regards the results of the physicochemical analysis of the product, the findings revealed that the CORNADO Drip Coffee, in terms of low carbohydrate count, low moisture content, low acidity, and low titratable acidity is a healthy alternative coffee drink. In addition, the three groups of respondents evaluated the acceptability level of CORNADO Drip Coffee with 10 grams, 15 grams, and 20 grams proportion in terms of appearance, aroma, color, and taste as Very Acceptable. Meanwhile, there were no significant differences on the evaluation of the three groups of respondents on the acceptability level of CORNADO Drip Coffee in three proportions in terms of the said criteria. On the other hand, the level of marketability as evaluated by consumers, barista, and coffee shop owners generally received a rating of Very High Potential utilizing the 10 grams, 15 grams, and 20 grams in terms of supply availability, production cost, and consumer demand resulting to no significant difference on their evaluations. Furthermore, the respondents provided comments and suggestion for further improvement of the product.

**Keywords:** *acceptability, marketability, physicochemical analysis, coffee, corn avocado*

### Introduction

Coffee is the most popular beverage in the world, behind water (Merritt, 2020). Most people drink coffee anytime they want whether it's in the morning or late in the evening, making it an all-time favorite drink. Coffee has a lot of effects to our body and come in a wide variety nowadays giving consumers the option on how they want to have their coffee either hot or cold, or prepared in a certain way. Coffee drinks are also accessible to everyone.

According to an article by Yeager (2021), too much intake of caffeine can increase blood pressure and may also lead to different effects in our body such as headache, shakiness, or abnormal heartbeat. People must check their limitations in consuming coffees to fewer than six cups a day because once exceed, it may serve as the tipping point where caffeine will have negatively impact to cardiovascular risk.

Drinking coffee that contains large amounts of caffeine can easily increase the acid in our body that cause heart burn and acid reflux. According to the people interviewed by Still (2020), people quit drinking coffee because of medical reasons and the side effects of consuming coffee with a high caffeine content.

Drip coffee is a kind of coffee with a simple and convenient process of brewing for anyone who wants to drink coffee anywhere. It contains coffee grounds that are placed in a coffee filter pad and hot water is poured over it to extract the coffee from the coffee grounds.

It is common knowledge that coffee beans contain caffeine that is bad for one's health when consumed beyond the allowable limit. Because of this, the researcher proposed to use alternative ingredient in making coffee: corncob and avocado seed instead of the usual coffee beans. The Philippines is the second largest consumer of coffee in Asia (MacDonnell, 2023) and the country also experienced shortage of coffee supply because of its high demand (The Philippine Star, 2022), that prompted the country to import coffee beans from other countries instead of using different resources that are already available.

The researcher thought of considering other ingredients for coffee that are naturally free from caffeine but can boost energy and immunity, less acidic unlike the common coffee beans for people who avoid drinking coffee because of their acid reflux and complications, can provide hydration and antioxidants, have digestive benefit that can treat ulcers, constipation and diarrhea, and contains several vitamins and minerals. CORNADO is the name of the product that was used in this study: CORN from the corn cob and ADO from the avocado seed. This study aimed to produce other healthy resources in making coffee by using corn cob and avocado seed that can still satisfy consumer demands and other aspects that the ordinary coffee has.

The introduction of cheaper and healthier coffee in the community can be a great contribution to the country. This kind of food innovation can also lessen food waste since the corn cob and avocado seeds, which are commonly thrown away after eating the kernel and flesh, respectively, are used for other purposes. The researcher was also resourceful in gathering these ingredients without paying for them. Like the researcher, environmentalist and other food enthusiasts can also be resourceful by asking the food waste of corn seller, for corncob and stores that serve any product containing avocado such as Avocadoria Ph., for avocado seed.

## Research Questions

This study aimed to determine the physicochemical properties, acceptability, and marketability of CORNADO as alternative ingredients for drip coffee during the first semester of the school year 2023-2024 in Marikina City. More specifically, this study sought answers to the following questions:

1. What is the physicochemical analysis of CORNADO as alternative ingredients for drip coffee in terms of the following:
  - 1.1. carbohydrates;
  - 1.2. moisture;
  - 1.3. Potential for Hydrogen (pH); and
  - 1.4. acidity level?
2. What is the acceptability level of CORNADO as alternative ingredients for drip coffee with serving proportions of 10 grams, 15 grams, and 20 grams as evaluated by the Barista, Coffee shop owner, and consumer respondents as regards the following criteria:
  - 2.1. appearance;
  - 2.2. aroma;
  - 2.3. color; and
  - 2.4. taste?
3. Are there significant differences among the evaluations of the three groups of respondents on the acceptability level of CORNADO as alternative ingredients for drip coffee with serving proportion of 10 grams, 15 grams, and 20 grams in terms of the above criteria?
4. What is the marketability level of CORNADO as alternative ingredients for drip coffee in terms of the following aspects as perceived by the three groups of respondents:
  - 4.1. supply availability;
  - 4.2. production cost; and
  - 4.3. consumers demand?
5. Are there significant differences among the evaluations of the three groups of respondents on the marketability level of CORNADO as alternative ingredients for drip coffee with serving proportion of 10grams, 15grams, and 20grams in terms of the above criteria?
6. What are the comments and suggestions of the three groups of respondents to further improve the product?

## Literature Review

Feller (2023) believes that coffee is one of the beloved drinks of people due to its ability to help them focus, boost their immune system, aid in lowering risk of type 2 diabetes when consumed regularly, change fat storage and support weight management and significantly lower risk of depression when four cups of coffee each day is taken. Coffee could also protect against liver and heart condition so it's okay to consume it each day. Another benefit of drinking coffee is that it could help extend longevity and lower risk of death from cancer because of its multitude potential health benefits.

Methodical Coffee (2022) purports that the quantity of coffee and water is a weight-based formula that may be used to brew any volume. They called it the "golden ratio" for coffee that usually resulted in best-balanced cup, which is 1:17 (i.e., 1 gram coffee to 17ml water). This ratio is used to characterize the strength of the coffee that can satisfy the taste of the consumer.

Meanwhile, Jumakir (2022) writes that an avocado seed has a lot of benefits that can treat and prevent several worrisome health conditions. To properly consume avocado seeds, they must first be dried in the oven at high temperature (121 degrees Celsius) for about two hours, then chopped and placed in blender or food processor to powdered. It can then be added to smoothies or used in teas or sauces.

In addition, Bangar et al. (2022) mentioned that avocado seeds are a good source of many different nutrients and bioactive substances, particularly proteins, carbohydrates, lipids, crude fiber, vitamins, and minerals, as well as a variety of phytochemicals. On the other note, Mahammad (2022) states that corn is a staple food which is one of the most eaten and grown in the world. It is rich in fiber which is necessary to have a healthy lifestyle and regulates bowel movements, and blood sugar levels, a great source of potassium that helps regulate our circular system and maintains adequate blood flow and strong heartbeat. Even the cob has the same nutrients as that of the kernel but is not used in a different and healthier way.

Hunt (2022) writes that corn cobs are full of flavor, so it should not be wasted. Instead, it may be used as stock that is rich and nutritious. Whether boiled, barbequed, or roasted, corn cobs burst with flavor and can be used for all sorts of other dishes. Hunt shares that to maintain the flavor and nutritional value of corn cob, it should be cooked using a slow cooker or pressure cooker to extract the juice properly from the corn cob together with the water to create the broth. In a similar vein, Mercado (2023) made an alternative natural tea from dehydrated oregano, tamarind, ginger, and lemon in her study entitled "Acceptability and Marketability of OTAGI Immune-Boosting Tea.". All the ingredients used are beneficial to the body in the same way—they strengthen the immune system and give the body more protection from pathogens, infections, and illnesses that could harm us. She produced tea because it is the cheapest beverage

next to water that humans consume, and drinking tea has been considered a health-promoting habit since ancient times. Because natural components provide positive health effects without added sugar or chemicals, using them in the production of natural health products has been studied.

Moreso, Wang et al. (2022) conducted a study on the “structural characterization of a non-starch polysaccharide from sweet corn cobs.” The researcher isolated a novel non-starch polysaccharide from sweet corn cobs to increase their value for use. Further investigation showed that it was a glucose-based, neutral, homogeneous polysaccharide that provides evidence that sweet corn cob polysaccharides can be created into a functional food because of its anti-oxidation and hypoglycemic structure. The results of the study provided some references for the study of sweet corn cob.

## Methodology

### Research Design

This study used the experimental method. As defined by Sirisilla (2023), experimental research design is a framework of protocols and procedure created to conduct experimental research with a scientific approach using two sets of variables. Herein, the first set of variables acts as a constant, used to measure the differences of the second set. The experimental method is appropriate since this study determined the acceptability of corn cob and avocado seed drip coffee and evaluated in terms of appearance, aroma, color, and taste and likewise, on its marketability.

### Respondents

This study was conducted in Marikina city during the first semester of the school year 2023-2024. The data were obtained from 90 randomly selected respondents for the acceptability of the developed CORNADO drip coffee. In particular, 30 Barista, 30 Coffee shop owners, and 30 Consumers were tapped as respondents.

### Instruments

The data gathering instrument used in this study was the survey questionnaire. This was used to determine the evaluation of the three groups of respondents on the finished product in terms of its acceptability and marketability level. The Nine-point Hedonic Rating Scale and Five-point Likert Scale were utilized in evaluating the acceptability level in terms of its sensory attributes such appearance, aroma, color, and taste, and marketability level of CORNADO Drip Coffee in three serving proportions in terms of production cost, supply availability, and consumer demand.

### Procedure

The researcher followed several procedures to achieve the objectives of this study. First, the researcher gathered corn cob from the Marikina market and avocado seeds given by the Marikina Avocadoria.ph and produced enough yields of CORNADO Drip Coffee for the testing analyses. While waiting for the result, the researcher looked for appropriate questionnaires/checklist to be adapted. This was modified and presented to her adviser for approval. The questionnaires have five indicators for each criterion which describe the CORNADO Drip Coffee. The researcher asked ten validators, six of whom were experts in the field of coffee and four of whom were grammarians, to validate the survey questionnaires in order to assure the validity of the research instrument used. Based on the feedback and recommendations from the validators, the researcher revised the survey questionnaire with the assistance of her research adviser.

After the validation of the survey questionnaire and given the results of the physicochemical analysis of the product, the researcher prepared ninety (90) copies of the questionnaires and enough packs of the developed product to be administered to ninety (90) respondents who were selected randomly in Marikina City. The researcher then retrieved the questionnaires that were answered by the three groups of respondents. The data gathered from the respondents were kept with utmost confidentiality. The collected data were tabulated, analyzed, and interpreted with the use of appropriate statistical tools that were needed in the research study.

### 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

### Physicochemical Analysis of CORNADO Drip Coffee

The report of Physicochemical analysis showed four parameters particularly carbohydrates, moisture, potential for hydrogen (pH) and acidity level, showing 1.05g/100g, 5.54g/100g, 5.25@23.5°C, and 0.0569%, respectively.

The table presents the Summary of Results of the Physicochemical Analysis of CORNADO Drip Coffee with 15 grams serving proportion. In 100 grams of CORNADO Drip Coffee, the carbohydrate content is 1.05 grams indicating that it is low in carbohydrates beneficial for carb conscious consumers. The moisture content is 5.54 grams suggesting that it has a low potential to produce mold and yeast with a moderate rate of microbial growth. The pH is 5.25 at 23.5°C making it a low acid concentration drink, and a Titratable



Acidity of 0.0569% is considered as a low acid coffee drink.

Table 1. Summary of Result of the Physicochemical Analysis of CORNADO Drip Coffee

Parameters	Unit	Test Method	Result	Remarks
Carbohydrates	g/100g	By Computation	1.05	Low Carbs
Moisture	g/100g	Vacuum Oven Drying	5.54	Low
pH (10% Dispersion)	---	Electrometry	5.25@23.5°C	Low Acidity
Titrateable Acidity as Citric Acid	%	Titrimetry	0.0569	Low

Note: The Report Analysis is from "The Fast Analytical Services and Technical Cooperative (F.A.S.T) Laboratories: Valdez, E.B, RCh

These findings imply that the CORNADO Drip Coffee, in terms of low carbohydrate count, low moisture content, low acidity, and low titrateable acidity is a healthy alternative coffee drink.

**Level of Acceptability of CORNADO Drip Coffee with 10 grams, 15 grams, and 20 grams Serving Proportions For 10 Grams Serving Proportion**

Table 2. Respondents' Evaluations on the Acceptability Level of CORNADO as Alternative Ingredients for Drip Coffee with 10 grams Serving Proportion regarding Appearance

Indicators	Respondents					
	Barista		Coffee Shop Owner		Consumer	
	WM	VI	WM	VI	WM	VI
1. The CORNADO drip coffee is appetizing to drink.	7.57	VA	7.27	MA	7.23	MA
2. It has no sign of residue.	8.13	VA	8.03	VA	8.20	VA
3. It has a desirable appearance.	7.77	VA	7.73	VA	7.90	VA
4. It has a well-blended appearance.	8.20	VA	7.87	VA	8.10	VA
5. It has a coffee-like feature.	7.63	VA	7.57	VA	7.77	VA
Overall Weighted Mean	7.86	VA	7.69	VA	7.84	VA

It can be gleaned from the table that the three groups of respondents agree that the CORNADO Drip Coffee with 10 grams serving proportion is Very Acceptable (VA) in terms of appearance because it has no sign of residue, has a desirable appearance, well-blended and has a coffee-like feature. This implies that the product has a desirable appearance and is a very recommendable drink for those who are looking for an appetizing and coffee-like alternative.

Table 3. Respondents' Evaluations on the Acceptability Level of CORNADO as Alternative Ingredients for Drip Coffee with 10 grams Serving Proportion regarding Aroma

Indicators	Respondents					
	Barista		Coffee Shop Owner		Consumer	
	WM	VI	WM	VI	WM	VI
1. The aroma of CORNADO drip coffee is enticing.	7.43	MA	7.53	VA	7.60	VA
2. It has an inviting smell.	7.13	MA	7.30	MA	7.43	MA
3. It has a distinctive smell.	6.90	MA	6.97	MA	7.50	VA
4. It has a pleasant aroma.	7.57	VA	7.73	VA	7.97	VA
5. It has a coffee-like aroma.	7.43	MA	7.30	MA	7.73	VA
Overall Weighted Mean	7.29	MA	7.37	MA	7.65	VA

Overall, the group of Consumer evaluated it in terms of aroma as Very Acceptable (VA) with an overall weighted mean of 7.65 while the groups of Barista and Coffee Shop Owners evaluated it as Moderately Acceptable (MA) with overall weighted means of 7.29 and 7.37, respectively. This means that in terms of aroma the developed product may be enhanced to fit the preferences of the groups of Barista and Coffee shop owners.

Table 4. Respondents' Evaluations on the Acceptability Level of CORNADO as Alternative Ingredients for Drip Coffee with 10 grams Serving Proportion regarding Color

Indicators	Respondents					
	Barista		Coffee Shop Owner		Consumer	
	WM	VI	WM	VI	WM	VI
1. The CORNADO drip coffee has a good pigmentation.	7.50	VA	7.50	VA	7.67	VA
2. It has an appropriate color.	7.33	MA	7.23	MA	7.57	VA
3. It has a dark color.	6.87	MA	6.80	MA	7.37	MA
4. It has a well-balanced color.	7.40	MA	7.40	MA	7.57	VA
5. It has a coffee-like color.	7.63	VA	7.87	VA	7.93	VA
Overall Weighted Mean	7.35	MA	7.36	MA	7.62	VA



Overall, in terms of color, Consumer group found the CORNADO Drip Coffee with 10 grams serving proportion to be Very Acceptable (VA) as evidenced by the overall weighted mean of 7.62 while the groups of Barista and Coffee Shop Owner found it to be Moderately Acceptable (MA) as evidenced by the overall weighted mean of 7.35 and 7.36. This means that the developed product may be improved in terms of color to achieve the liking of the respondents.

Table 5. Respondents' Evaluations on the Acceptability Level of CORNADO as Alternative Ingredients for Drip Coffee with 10 grams Serving Proportion regarding Taste

Indicators	Respondents					
	Barista		Coffee Shop Owner		Consumer	
	WM	VI	WM	VI	WM	VI
1. The taste of CORNADO drip coffee suits its color.	7.30	MA	7.40	MA	7.60	VA
2. It has a strong taste of coffee.	6.93	MA	7.13	MA	7.43	MA
3. It has a balanced flavor of coffee.	7.17	MA	7.37	MA	7.50	VA
4. It has no after taste.	7.77	VA	7.77	VA	7.77	VA
5. It has a fresh taste of coffee.	7.57	VA	7.87	VA	7.97	VA
Overall Weighted Mean	7.35	MA	7.51	VA	7.65	VA

Overall, in terms of taste the CORNADO Drip Coffee with 10 grams serving proportion was found to be Very Acceptable (VA) by the groups of Coffee Shop Owner and Consumer with overall weighted means of 7.51 and 7.65, respectively, while the group of Barista found it to be Moderately Acceptable (MA) with an overall weighted mean of 7.35.

**For 15 Grams Serving Proportion**

Table 6. Respondents' Evaluations on the Acceptability Level of CORNADO as Alternative Ingredients for Drip Coffee with 15 grams Serving Proportion regarding Appearance

Indicators	Respondents					
	Barista		Coffee Shop Owner		Consumer	
	WM	VI	WM	VI	WM	VI
1. The CORNADO drip coffee is appetizing to drink.	7.83	VA	7.67	VA	7.90	VA
2. It has no sign of residue.	8.47	VA	8.37	VA	8.50	EA
3. It has a desirable appearance.	8.00	VA	7.97	VA	8.07	VA
4. It has a well-blended	8.23	VA	8.00	VA	8.10	VA
5. It has a coffee-like feature.	8.27	VA	8.40	VA	8.20	VA
Overall Weighted Mean	8.16	VA	8.08	VA	8.15	VA

Overall, the developed CORNADO Drip Coffee with 15 grams serving proportion was found to be Very Acceptable (VA) by the three groups of respondents in terms of appearance as evidenced by the overall weighted means of 8.16, 1.08 and 8.15, respectively. It implies that the appearance of the product is greatly appreciated by the three groups of respondents.

Table 7. Respondents' Evaluations on the Acceptability Level of CORNADO as Alternative Ingredients for Drip Coffee with 15 grams Serving Proportion regarding Aroma

Indicators	Respondents					
	Barista		Coffee Shop Owner		Consumer	
	WM	VI	WM	VI	WM	VI
1. The aroma of CORNADO drip coffee is enticing.	7.73	VA	7.80	VA	7.90	VA
2. It has an inviting smell.	7.87	VA	7.80	VA	8.10	VA
3. It has a distinctive smell.	7.20	MA	7.03	MA	7.63	VA
4. It has a pleasant aroma.	7.77	VA	7.93	VA	8.17	VA
5. It has a coffee-like aroma.	7.83	VA	7.80	VA	8.20	VA
Overall Weighted Mean	7.68	VA	7.67	VA	8.00	VA

Overall, in terms of aroma, the CORNADO Drip Coffee with 15 grams serving proportion was found to be Very Acceptable (VA) by the three groups of respondents as evidenced by the overall weighted means of 7.68, 7.67 and 8.00, respectively. This means that the aroma of the developed product is highly recommendable.

The data implies that overall, the three groups of respondents found the color of CORNADO Drip Coffee with 15 grams serving proportion to be Very Acceptable (VA) as evidenced by the overall weighted means of 8.15, 8.13 and 8.29, respectively.

Table 8. Respondents' Evaluations on the Acceptability Level of CORNADO as Alternative Ingredients for Drip Coffee with 15 grams Serving Proportion regarding Color

Indicators	Respondents					
	Barista		Coffee Shop Owner		Consumer	
	WM	VI	WM	VI	WM	VI
1. The CORNADO drip coffee has a good pigmentation.	8.13	VA	8.00	VA	8.23	VA
2. It has an appropriate color.	8.23	VA	8.13	VA	8.30	VA
3. It has a dark color.	7.93	VA	7.83	VA	8.17	VA
4. It has a well-balanced color.	8.03	VA	8.07	VA	8.13	VA
5. It has a coffee-like color.	8.43	VA	8.60	EA	8.60	EA
Overall Weighted Mean	8.15	VA	8.13	VA	8.29	VA

Table 9. Respondents' Evaluations on the Acceptability Level of CORNADO as Alternative Ingredients for Drip Coffee with 15 grams Serving Proportion regarding Taste

Indicators	Respondents					
	Barista		Coffee Shop Owner		Consumer	
	WM	VI	WM	VI	WM	VI
1. The taste of CORNADO drip coffee suits its color.	7.63	VA	8.17	VA	8.03	VA
2. It has a strong taste of coffee.	7.70	VA	8.20	VA	8.37	VA
3. It has a balanced flavor of coffee.	7.47	MA	7.80	VA	7.97	VA
4. It has no after taste.	8.10	VA	8.07	VA	8.23	VA
5. It has a fresh taste of coffee.	7.90	VA	8.27	VA	8.37	VA
Overall Weighted Mean	7.76	VA	8.10	VA	8.19	VA

Overall, the CORNADO Drip Coffee with 15 grams serving proportion was found to be Very Acceptable (VA) by the Barista, Coffee Shop Owner, and Consumer groups as evidenced by the overall weighted mean of 7.76, 8.10 and 8.19, respectively. This implies that the product has a very desirable taste.

### For 20 grams Serving Proportion

Table 10. Respondents' Evaluations on the Acceptability Level of CORNADO as Alternative Ingredients for Drip Coffee with 20 grams Serving Proportion regarding Appearance

Indicators	Respondents					
	Barista		Coffee Shop Owner		Consumer	
	WM	VI	WM	VI	WM	VI
1. The CORNADO drip coffee is appetizing to drink.	8.00	VA	7.83	VA	7.93	VA
2. It has no sign of residue.	8.47	VA	8.43	VA	8.50	EA
3. It has a desirable appearance.	8.17	VA	8.33	VA	8.30	VA
4. It has a well-blended	8.23	VA	8.17	VA	8.20	VA
5. It has a coffee-like feature.	8.17	VA	8.30	VA	8.13	VA
Overall Weighted Mean	8.21	VA	8.21	VA	8.21	VA

Overall, the CORNADO Drip Coffee with 20 grams serving proportion in terms of its appearance was found to be Very Acceptable (VA) by the three groups of respondents as evidenced by the overall weighted mean of 8.21. This signifies that the product satisfied the respondents.

Table 11. Respondents' Evaluations on the Acceptability Level of CORNADO as Alternative Ingredients for Drip Coffee with 20 grams Serving Proportion regarding Aroma

Indicators	Respondents					
	Barista		Coffee Shop Owner		Consumer	
	WM	VI	WM	VI	WM	VI
1. The aroma of CORNADO drip coffee is enticing.	7.93	VA	8.00	VA	8.20	VA
2. It has an inviting smell.	7.87	VA	8.20	VA	8.23	VA
3. It has a distinctive smell.	7.37	MA	7.50	VA	8.00	VA
4. It has a pleasant aroma.	8.10	VA	8.23	VA	8.40	VA
5. It has a coffee-like aroma.	8.07	VA	8.30	VA	8.40	VA
Overall Weighted Mean	7.87	VA	8.05	VA	8.25	VA

Overall, the CORNADO Drip Coffee with 20 grams serving proportion is Very Acceptable (VA) in terms of its aroma as perceived by Barista, Coffee Shop Owners, and Consumers as evidenced by the overall weighted means of 7.87, 8.05 and 8.25, respectively.

Table 12. Respondents' Evaluations on the Acceptability Level of CORNADO as Alternative Ingredients for Drip Coffee with 20 grams Serving Proportion regarding Color

Indicators	Respondents					
	Barista		Coffee Shop Owner		Consumer	
	WM	VI	WM	VI	WM	VI
1. The CORNADO drip coffee has a good pigmentation.	8.47	VA	8.37	VA	8.50	EA
2. It has an appropriate color.	8.40	VA	8.37	VA	8.40	VA
3. It has a dark color.	8.30	VA	8.43	VA	8.40	VA
4. It has a well-balanced color.	8.13	VA	8.10	VA	8.30	VA
5. It has a coffee-like color.	8.67	EA	8.70	EA	8.73	EA
Overall Weighted Mean	8.39	VA	8.39	VA	8.47	VA

Overall, the CORNADO Drip Coffee with 20 grams serving proportion was found to be Very Acceptable (VA) in terms of color by Barista, Coffee Shop Owners, and Consumers as evidenced by the overall weighted means of 8.39, 8.39, and 8.47, respectively.

Table 13. Respondents' Evaluations on the Acceptability Level of CORNADO as Alternative Ingredients for Drip Coffee with 20 grams Serving Proportion regarding Taste

Indicators	Respondents					
	Barista		Coffee Shop Owner		Consumer	
	WM	VI	WM	VI	WM	VI
1. The taste of CORNADO drip coffee suits its color.	8.03	VA	8.27	VA	8.30	VA
2. It has a strong taste of coffee.	8.10	VA	8.57	EA	8.57	EA
3. It has a balanced flavor of coffee.	8.00	VA	8.17	VA	8.13	VA
4. It has no after taste.	7.97	VA	7.97	VA	8.10	VA
5. It has a fresh taste of coffee.	8.30	VA	8.50	EA	8.53	EA
Overall Weighted Mean	8.08	VA	8.29	VA	8.33	VA

Overall, the taste of the CORNADO Drip Coffee with 20 grams serving proportion found it to be Very Acceptable (VA) by the Barista, Coffee Shop Owners, and Consumers as evidenced by the overall weighted means of 8.08, 8.29 and 8.33, respectively.

### Significant Differences Among the Evaluations of the Three Groups of Respondents on the Level of Acceptability of CORNADO as Alternative Ingredients for Drip Coffee with a Serving Proportions of 10 grams, 15 grams, and 20 grams

Table 14. Summary of Analysis of Variance of Respondents' Evaluations on the Acceptability Level of CORNADO as Alternative Ingredients for Drip Coffee with 10 grams Serving Proportion

Criteria	Computed F Value	Critical F Value	Decision	Interpretation
Appearance	0.24	3.10	Fail to Reject the H0	Not Significant
Aroma	1.15	3.10	Fail to Reject the H0	Not Significant
Color	0.54	3.10	Fail to Reject the H0	Not Significant
Taste	0.67	3.10	Fail to Reject the H0	Not Significant

It can be viewed in the table that the evaluation of the barista, coffee shop owner and consumer respondents on the acceptability level of CORNADO as alternative ingredients for drip coffee with 10 grams proportion with respect to appearance, aroma, color, and taste do not indicate significant differences with the particular computed F values which are smaller than the critical F value. This implies that the respondents' evaluations are the same.

Table 15. Summary of Analysis of Variance of Respondents' Evaluations on the Acceptability Level of CORNADO as Alternative Ingredients for Drip Coffee with 15 grams Serving Proportion

Criteria	Computed F Value	Critical F Value	Decision	Interpretation
Appearance	0.09	3.10	Fail to Reject the H0	Not Significant
Aroma	1.25	3.10	Fail to Reject the H0	Not Significant
Color	0.58	3.10	Fail to Reject the H0	Not Significant
Taste	2.14	3.10	Fail to Reject the H0	Not Significant

It can be gleaned in the table that the evaluation of the barista, coffee shop owner and consumer respondents on the acceptability level of CORNADO as alternative ingredients for drip coffee with 15 grams proportion with respect to appearance, aroma, color, and taste do not show significant differences with the corresponding computed F values which are less than the critical F value. Hence, the respondents' evaluations are similar.

As depicted in the table 16, the evaluations of the Barista, Coffee Shop Owner and Consumer respondents on the acceptability level of CORNADO as alternative ingredients for drip coffee with 20 grams proportion with respect to appearance, aroma, color, and taste do not reveal significant differences with the respective computed F values which are below the critical F value. This suggests that the respondents' evaluations are identical.



Table 16. Summary of Analysis of Variance of Respondents' Evaluations on the Acceptability Level of CORNADO as Alternative Ingredients for Drip Coffee with 20 grams Serving Proportion

Criteria	Computed F Value	Critical F Value	Decision	Interpretation
Appearance	0.00	3.10	Fail to Reject the H0	Not Significant
Aroma	1.65	3.10	Fail to Reject the H0	Not Significant
Color	0.13	3.10	Fail to Reject the H0	Not Significant
Taste	0.88	3.10	Fail to Reject the H0	Not Significant

**Evaluation of the Three Groups of Respondents on the Level of Marketability of CORNADO as Alternative Ingredients for Drip Coffee with a Serving Proportion of 10 grams, 15 grams, and 20 grams**

**For 10 grams Serving Proportion**

Table 17. Respondents' Evaluations on the Marketability Level of CORNADO as Alternative Ingredients for Drip Coffee with 10 grams Serving Proportion as to Supply Availability

Indicators	Respondents					
	Barista		Coffee Shop Owner		Consumer	
	WM	VI	WM	VI	WM	VI
1. The CORNADO drip coffee ingredients are locally available.	4.47	HP	4.60	VHP	4.63	VHP
2. It is available in the market.	4.23	HP	4.50	VHP	4.43	HP
3. It can be produced easily.	4.37	HP	4.47	HP	4.67	VHP
4. It can be procured easily.	4.37	HP	4.37	HP	4.57	VHP
5. It can be guaranteed to have long shelf-life.	4.07	HP	4.23	HP	4.23	HP
Overall Weighted Mean	4.30	HP	4.43	HP	4.51	VHP

Overall, as to Supply Availability, both the Barista and Coffee Shop Owner groups found the developed product to be of High Potential (HP) while the Consumer respondents found it to be of Very High Potential (VHP). It implies that the respondents agree that there is enough supply and sustainable production of the ingredients used in making CORNADO Drip Coffee.

Table 18. Respondents' Evaluations on the Marketability Level of CORNADO as Alternative Ingredients for Drip Coffee with 10 grams Serving Proportion as to Production Cost

Indicators	Respondents					
	Barista		Coffee Shop Owner		Consumer	
	WM	VI	WM	VI	WM	VI
1. The CORNADO drip coffee are affordable.	4.40	HP	4.63	VHP	4.67	VHP
2. It can be sold easily.	4.00	HP	4.30	HP	4.17	HP
3. It is suitable for its price.	4.40	HP	4.57	VHP	4.67	VHP
4. It can be produced with less manpower.	4.17	HP	4.27	HP	4.43	HP
5. It has a competitive price compared to commercially available drip coffee.	4.43	HP	4.63	VHP	4.63	VHP
Overall Weighted Mean	4.28	HP	4.48	HP	4.51	VHP

Overall, the CORNADO Drip Coffee with 10 grams serving proportion was found by the group of Consumer to be Very High Potential (VHP) as evidenced by the overall weighted mean of 4.51 while the groups of Barista and Coffee Shop Owner found it to be of High Potential (HP) as evidenced by the overall weighted means of 4.28 and 4.48, respectively. These results indicate that the respondents appreciated the product and can positively compete with commercially available drip coffee in the market.

Table 19. Respondents' Evaluations on the Marketability Level of CORNADO as Alternative Ingredients for Drip Coffee with 10 grams Serving Proportion as to Consumers Demand

Indicators	Respondents					
	Barista		Coffee Shop Owner		Consumer	
	WM	VI	WM	VI	WM	VI
1. The CORNADO drip coffee meet consumer demands.	4.17	HP	4.23	HP	4.40	HP
2. It can satisfy the taste buds of coffee-lovers.	4.13	HP	4.47	HP	4.37	HP
3. It can be a better option for an organic coffee for consumers.	4.30	HP	4.57	VHP	4.57	VHP
4. It can be easily prepared by consumer for their consumption.	4.27	HP	4.47	HP	4.53	VHP
5. The ingredients can give consumer health benefits.	4.57	VHP	4.70	VHP	4.73	VHP
Overall Weighted Mean	4.29	HP	4.49	HP	4.52	VHP



Overall, the Consumer group found the CORNADO Drip Coffee with 10 grams serving proportion to be of Very High Potential (VHP) as evidenced by the overall weighted mean of 4.52 while both groups of Barista and Coffee Shop Owner found it to be High Potential (HP) as evidenced by the overall weighted means of 4.29 and 4.49, respectively. This means that there is a high potential for consumer demand of the developed product.

**For 15 grams Serving Proportion**

Table 20. Respondents' Evaluations on the Marketability Level of CORNADO as Alternative Ingredients for Drip Coffee with 15 grams Serving Proportion as to Supply Availability

Indicators	Respondents					
	Barista		Coffee Shop Owner		Consumer	
	WM	VI	WM	VI	WM	VI
1. The CORNADO drip coffee ingredients are locally available.	4.60	VHP	4.67	VHP	4.73	VHP
2. It is available in the market.	4.47	HP	4.57	VHP	4.57	VHP
3. It can be produced easily.	4.50	VHP	4.50	VHP	4.73	VHP
4. It can be procured easily.	4.40	HP	4.43	HP	4.63	VHP
5. It can be guaranteed to have long shelf-life.	4.27	HP	4.50	VHP	4.53	VHP
Overall Weighted Mean	4.45	HP	4.53	VHP	4.64	VHP

Overall, the Coffee Shop Owner and Consumer groups agreed that the product has a Very High Potential (VHP) in terms of supply availability as evidenced by the overall weighted means of 4.53 and 4.64, respectively, while the Barista group found it to be of High Potential (HP) as evidenced by the overall weighted mean of 4.45.

Table 21. Respondents' Evaluations on the Marketability Level of CORNADO as Alternative Ingredients for Drip Coffee with 15 grams Serving Proportion as to Production Cost

Indicators	Respondents					
	Barista		Coffee Shop Owner		Consumer	
	WM	VI	WM	VI	WM	VI
1. The CORNADO drip coffee are affordable.	4.63	VHP	4.67	VHP	4.73	VHP
2. It can be sold easily.	4.07	HP	4.37	HP	4.30	HP
3. It is suitable for its price.	4.50	VHP	4.60	VHP	4.63	VHP
4. It can be produced with less manpower.	4.33	HP	4.50	VHP	4.53	VHP
5. It has a competitive price compared to commercially available drip coffee.	4.43	HP	4.63	VHP	4.60	VHP
Overall Weighted Mean	4.39	HP	4.55	VHP	4.56	VHP

Overall, the groups of Coffee Shop Owner and Consumer found the developed product to be of Very High Potential (VHP) as evidenced by the overall weighted means of 4.55 and 4.56 while the Barista respondents found it to be High Potential (HP) as evidenced by the overall weighted mean of 4.39. These findings indicate that the three groups of respondents were satisfied with the CORNADO Drip Coffee with 15 grams serving proportion with regard to production cost of the product.

Table 22. Respondents' Evaluations on the Marketability Level of CORNADO as Alternative Ingredients for Drip Coffee with 15 grams Serving Proportion as to Consumers Demand

Indicators	Respondents					
	Barista		Coffee Shop Owner		Consumer	
	WM	VI	WM	VI	WM	VI
1. The CORNADO drip coffee can meet the consumer demands.	4.23	HP	4.37	HP	4.40	HP
2. It can satisfy the taste buds of coffee-lovers.	4.23	HP	4.57	VHP	4.40	HP
3. It can be a better option for an organic coffee for consumers.	4.33	HP	4.67	VHP	4.67	VHP
4. It can be easily prepared by the consumer for their consumption.	4.27	HP	4.50	VHP	4.57	VHP
5. The ingredients can give consumer health benefits. (e.g., antioxidant, digestive benefits etc.)	4.63	VHP	4.70	VHP	4.77	VHP
Overall Weighted Mean	4.34	HP	4.56	VHP	4.56	VHP

Overall, as for the consumer demand of CORNADO Drip Coffee with 15 grams serving proportion, the groups of Coffee Shop Owner and Consumer found it to be of Very High Potential (VHP) as evidenced by the overall weighted mean of 4.56 while the Barista respondents found it to be of High Potential (HP) as evidenced by the overall weighted mean of 4.24. These findings imply that the 15

grams serving proportion of CORNADO Drip Coffee can positively meet the demands of the consumers, can provide health benefits, and can be easily prepared for consumption.

### For 20 Grams Proportion

Table 23. Respondents' Evaluations on the Marketability Level of CORNADO as Alternative Ingredients for Drip Coffee with 20 grams Serving Proportion as to Supply Availability

Indicators	Respondents					
	Barista		Coffee Shop Owner		Consumer	
	WM	VI	WM	VI	WM	VI
1. The CORNADO drip coffee ingredients are locally available.	4.57	VHP	4.80	VHP	4.70	VHP
2. It is available in the market.	4.53	VHP	4.63	VHP	4.70	VHP
3. It can be produced easily.	4.33	HP	4.50	VHP	4.67	VHP
4. It can be procured easily.	4.37	HP	4.47	HP	4.70	VHP
5. It can be guaranteed to have long shelf-life.	4.23	HP	4.43	HP	4.47	HP
Overall Weighted Mean	4.41	HP	4.57	VHP	4.65	VHP

Overall, the groups of Coffee Shop Owner and Consumer found the CORNADO Drip Coffee with 20 grams serving proportion to be of Very High Potential (VHP) in terms of supply availability as evidenced by the overall weighted means of 4.57 and 4.65, respectively, while the Barista respondents found it to be of High Potential (HP) as evidenced by the overall weighted mean of 4.41. It implies that the respondents all agree that there is enough supply and sustainable production of the ingredients to be used in making CORNADO Drip Coffee.

Table 24. Respondents' Evaluations on the Marketability Level of CORNADO as Alternative Ingredients for Drip Coffee with 20 grams Serving Proportion as to Production Cost

Indicators	Respondents					
	Barista		Coffee Shop Owner		Consumer	
	WM	VI	WM	VI	WM	VI
1. The CORNADO drip coffee are affordable.	4.43	HP	4.67	VHP	4.63	VHP
2. It can be sold easily.	4.17	HP	4.37	HP	4.40	HP
3. It is suitable for its price.	4.40	HP	4.47	HP	4.63	VHP
4. It can be produced with less manpower.	4.20	HP	4.40	HP	4.50	VHP
5. It has a competitive price compared to commercially available drip coffee.	4.40	HP	4.63	VHP	4.53	VHP
Overall Weighted Mean	4.32	HP	4.51	VHP	4.54	VHP

Overall, the groups of Coffee Shop Owner and Consumer found the CORNADO Drip Coffee with 20 grams serving proportion to be of Very High Potential (VHP) as regards production cost with overall weighted means of 4.51 and 4.54, respectively, while Barista respondents found it to be of High Potential (HP) as evidenced by the overall weighted mean of 4.32. These findings signify that the produced CORNADO Drip Coffee meets the satisfaction of the three groups of respondents with regard to its production cost and competitive price compared to commercially available drip coffee in the market.

Table 25. Respondents' Evaluations on the Marketability Level of CORNADO as Alternative Ingredients for Drip Coffee with 20 grams Serving Proportion as to Consumers Demand

Indicators	Respondents					
	Barista		Coffee Shop Owner		Consumer	
	WM	VI	WM	VI	WM	VI
1. The CORNADO drip coffee can meet the consumer demands.	4.43	HP	4.27	HP	4.47	HP
2. It can satisfy the taste buds of coffee-lovers.	4.33	HP	4.47	HP	4.47	HP
3. It can be a better option for an organic coffee for consumers.	4.47	HP	4.63	VHP	4.73	VHP
4. It can be easily prepared by the consumer for their consumption.	4.30	HP	4.50	VHP	4.57	VHP
5. The ingredients can give consumer health benefits. (e.g., antioxidant, digestive benefits etc.)	4.63	VHP	4.73	VHP	4.70	VHP
Overall Weighted Mean	4.43	HP	4.52	VHP	4.59	VHP

Overall, the groups of Coffee Shop owner and Consumers found the product to be of Very High Potential (VHP) as evidenced by the overall weighted means of 4.52 and 4.59, respectively, while the Barista group found it to be of High Potential (HP) with overall

weighted mean of 4.43. These data imply that the three groups of respondents are satisfied with the level of marketability of CORNADO Drip Coffee with 20 grams serving proportion in terms of its consumer demand.

### Significant Differences Among the Evaluations of the Three Groups of Respondents on the Level of Marketability of CORNADO as Alternative Ingredients for Drip Coffee with a Serving Proportion of 10 grams, 15 grams, and 20 grams

Table 26. *Summary of Analysis of Variance of Respondents' Evaluations on the Marketability Level of CORNADO as Alternative Ingredients for Drip Coffee with 10 grams Serving Proportion*

Criteria	F computed Value	F Critical Value	Decision	Interpretation
Supply Availability	1.01	3.10	Fail to Reject the H0	Not Significant
Production Cost	1.68	3.10	Fail to Reject the H0	Not Significant
Consumer Demand	1.53	3.10	Fail to Reject the H0	Not Significant

The evaluations of the Barista, Coffee Shop Owner, and Consumer respondents on the marketability level of CORNADO as alternative ingredients for drip coffee with 10 grams serving proportion with regard to supply availability, production cost and consumer demand do not indicate significant differences as evidenced by the respective computed F values which are less than the critical F value. This shows that the respondents' evaluations are similar.

Table 27. *Summary of Analysis of Variance of Respondents' Evaluations on the Marketability Level of CORNADO as Alternative Ingredients for Drip Coffee with 15 grams Serving Proportion*

Criteria	F computed Value	F Critical Value	Decision	Interpretation
Supply Availability	1.18	3.10	Fail to Reject the H0	Not Significant
Production Cost	0.96	3.10	Fail to Reject the H0	Not Significant
Consumer Demand	1.54	3.10	Fail to Reject the H0	Not Significant

The evaluations of the Barista, Coffee Shop Owner, and Consumer respondents on the marketability level of CORNADO as alternative ingredients for drip coffee with 15 grams proportion with regard to supply availability, production cost and consumer demand do not show significant differences with the corresponding computed F values which are below the critical F value. This implies that the respondents' evaluations are the same.

Table 28. *Summary of Analysis of Variance of Respondents' Evaluations on the Marketability Level of CORNADO as Alternative Ingredients for Drip Coffee with 20 grams Serving Proportion*

Criteria	F computed Value	F Critical Value	Decision	Interpretation
Supply Availability	2.00	3.10	Fail to Reject the H0	Not Significant
Production Cost	1.50	3.10	Fail to Reject the H0	Not Significant
Consumer Demand	0.70	3.10	Fail to Reject the H0	Not Significant

The evaluations of the barista, coffee shop and owner consumer respondents on the marketability level of CORNADO as alternative ingredients for drip coffee with 20 grams proportion with regard to supply availability, production cost and consumer demand do not signify significant differences with the particular computed F values which are lower than the critical F value. Thus, the respondents' evaluations are alike.

#### Comments:

The CORNADO Drip Coffee satisfied the respondents and has a reasonable price that is worth buying.

It has great features of coffee like the usual coffee available in the market when it comes to its pleasant appearance, refreshing aroma because of its organic ingredients, good dark pigmentation, and the organic and fresh taste of coffee.

The CORNADO Drip Coffee did not trigger acid reflux when drunk compared to an ordinary coffee available in the market that contains caffeine and is high in acid. The respondents like the idea of using a healthier ingredient and giving them a better option unlike using coffee beans to produce a coffee that can activate their acid reflux or GERD.

It has good packaging that can make the consumer feel that he is drinking a high-end coffee that can compete in the market considering its low price and can easily be prepared for consumption.

The respondents commended the use of local food waste as ingredients used in producing drip coffee but can be beneficial for the consumers.

#### Suggestions:

The CORNADO Drip Coffee with 10 grams serving proportion needs an improvement in the taste and color.

Improve the roasting procedure to lessen the burnt taste.



## Conclusions

Based on the foregoing findings, the following conclusions were drawn:

The CORNADO Drip Coffee with serving proportions of 10 grams, 15 grams, and 20 grams is acceptable in terms of appearance, aroma, color, and taste.

The CORNADO as alternative ingredients for drip coffee with serving proportions of 10 grams, 15 grams, and 20 grams is marketable.

The CORNADO Drip Coffee is recommended to health-conscious consumers for its low carbohydrate content, a pH level with low acidity and its fresh, organic taste.

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