

Acceptability of Locally-Processed Guyabano Tea

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Abstract – This study was conducted to determine the potentials of locally-processed guyabano tea by assessing its quality characteristics and acceptability. Product testing involved randomly selected faculty, staff and students of ESSU-Salcedo. Organolyptic rating scale was used to describe the quality characteristics of the product and Hedonic rating scale to measure its level of acceptability. Data collected were analysed using mean, t-test and F-test. Results of the study revealed the following: Locally-processed guyabano tea was rated “very good” in terms of its color (mean=4.13), aroma (mean=3.89) and taste (mean=3.72). The overall acceptability got a grand mean of 7.72 described as “like very much”.

Female respondents have higher preference with respect to color of the product than male respondents ($t=2.362$; $p\text{-value}=0.023$). However, both groups did not differ significantly in their assessment with regards to aroma ($t=1.514$; $p\text{-value}=0.137$), taste ($t=0.458$; $p\text{-value}=0.649$) and acceptability ($t=1.485$; $p\text{-value}=0.144$).

Age group below 25 years old gave the lowest ratings of guyabano tea in its color, aroma, taste and acceptability which is indicative of their preference over other types of beverages. Such assessment differs significantly with the ratings given by older respondents; which can be implied of a potential market of guyabano tea for consumers who are 25 years old and above.

Keywords – Acceptability, Guyabano Tea, Quality Characteristics.

I. INTRODUCTION

Guyabano tree is a tropical tree found in the warmest tropical areas in North and South America, in the Amazon and in Asia [1].

It was indicated that the bark, leaves, fruit, roots, and fruit seeds of the Guyabano tree were known of many medicinal uses. The fruit and juice is used against worms and parasites, to cool down fever, to increase mother’s milk after childbirth. It can also be used for diarrhea or inflammation in the bowels as a drying agent. The seeds can be crushed and then used against internal or external parasites, head lice, and worms. The leaves are used as a sedative and a soporific (inducer of sleep) in the West Indies and Peruvian Andes when drunk as a tea. This infusion is also used to relief pain or for antispasmodic purposes. For liver problems a leaf tea is used in the Brazilian Amazon. The roots and bark can be of aid for diabetes, but can also be used as a sedative.

Sometime, it was claimed to have potential against cancer [2]. However, due to absence of solid clinical evidence, majority of available information are still unreliable or biased [3].

These multifarious uses of guyabano tea had motivated the researchers to develop this product in the local setting

which will eventually be used in its instruction, research, extension and production functions. Hence, the researchers pursued this study.

Objectives of the Study. This study was conducted to determine the acceptability of guyabano tea as rated by faculty, staff and students of ESSU-Salcedo Campus. Specifically, this sought to answer the following objectives:

1. To determine the quality characteristics of guyabano tea in terms of: color, aroma and taste.
2. To evaluate the level of acceptability of guyabano tea among faculty, staff and students.
3. To determine significant difference in the quality characteristics assessment of guyabano tea when gender and age of the respondents were considered.
4. To determine significant difference in the level of acceptability of guyabano tea when gender and age of the respondents were considered.

II. METHODOLOGY

Research Method. This is a product development research, which aimed to produce locally-processed guyabano tea; and subsequently evaluate the product in terms of its quality and acceptability. Randomly selected faculty, staff and students of ESSU-Salcedo campus were made to evaluate the products using organolyptic test and hedonic rating scales.

Preparation of Guyabano Tea. Guyabano leaves were collected from the native varieties existing in the locality. The researchers selected only those plants which are far from the national highway to ensure that they are free from dust and pollutants. Gathered leaves were placed in sacks and transported to an accredited laboratory facilities located at Quinapondan, Eastern Samar.



Plate 1. Air-drying of guyabano leaves

Gathered leaves were air-dried for about 3-5 days. This was made by hanging the leaves in a shaded place (plate 1). Air-dried samples with at least 14% moisture content were shredded (plate 2). To achieve desired particle sizes, the researchers further pulverized the samples using blender.



Plate 2. Dr. Gonzaga shreds air-dried guyabano leaves

Grinded tea were then placed in tea bags purchased from the market. These were packaged similar to that of existing commercial tea in the market. Finally, the products were properly labeled before it was given to the respondents for product testing (plate 3).



Plate 3. Properly labeled locally-processed guyabano tea ready for testing

Product Testing. The respondents rated the quality characteristics of locally-processed guyabano tea using organolyptic test which consisted of 5 scales: 5=excellent, 4=very good, 3=good, 2=fair, 1=poor. On the other hand, acceptability of the product was gauged from a 9-point scale: 9=like extremely, 8=like very much, 7=like moderately, 6=like slightly, 5=neither like nor dislike, 4=dislike slightly, 3=dislike moderately, 2=dislike very much and 1=dislike extremely. Filled out score cards were immediately retrieved by the researchers for coding and analysis using mean, t-test and F-test.

III. RESULTS AND DISCUSSION

Quality Characteristics of Guyabano Tea.

Reflected in table 1 are the quality characteristics of guyabano tea with respect to color, aroma, and taste. It was noted that all quality characteristics indicators were rated “very good” which got an overall mean of 4.13, 3.89 and 3.72, respectively.

These results are indicative that the observed characteristics of locally-processed guyabano tea were comparable to commercial ones and would have high market prospects in the local market.

Table 1: Quality Characteristics of Locally- Processed Guyabano Tea in terms of Color, Aroma and Taste

Quality Characteristics	Mean	Description
Color	4.13	Very Good
Aroma	3.89	Very Good
Taste	3.72	Very Good

Acceptability of Guyabano Tea. Table 2 indicates that in terms of acceptability, guyabano tea was rated “like very much” with a grand mean of 7.72. It can be implied from this study that guyabano tea would have the potential of being selected as one of the beverages in the locality.

Table 2: Acceptability of Locally-Processed Guyabano Tea

Quality Characteristics	Mean	Description
Acceptability	7.72	Like Very Much

Differences in the Mean Ratings Between Male and Female Respondents on the Quality Characteristics of Locally-Processed Guyabano Tea

Color. Shown in table 3 are the differences in the mean ratings between male and female respondents with regards to the quality characteristics of guyabano tea.

It was noted that male respondents rated the product with a mean rating of 3.95 which means “very good” while the female respondents rated the color of guyabano tea equivalent to 4.28 which is interpreted as “excellent”. Subjecting these data to t-test analysis it had obtained a t-value of 2.362 with a p-value of .023 which means significant. This data suggests that female respondents appreciate more on the color of guyabano tea compared to male respondents.

Aroma. On aspect of aroma, a computed t-value of 1.514 and a p-value of 0.137 were generated which are indicative of a not significant result. It can be deduced from the result that the mean ratings of male respondents which was 3.77 described as “very good” and that of female respondents which was 4.00 also described as “very good” were statistically comparable.

Taste. With regards to the taste of locally-processed guyabano tea, male respondents rated the product with a mean of 3.68. Similarly, female respondents rated the product 3.76, both values were described “very good”. Further test showed a t-value of .458 with a p-value of .649 indicative of a not significant difference. This leads

to the acceptance of the null hypothesis suggesting comparable ratings of both groups of respondents. In this way, regardless of gender, similar level of assessment was recorded.

Differences in the Mean Ratings Between Male and Female Respondents on the Acceptability of Locally-Processed Guyabano Tea

Acceptability of Guyabano Tea. It was further shown in table 3 the differences in the mean ratings between male and female respondents on the general acceptability of

guyabano tea. It was found out that male respondents gave a rating of 7.60 described as “like very much”. Similarly, female respondents rated 7.84 which means “like very much”. t-test analysis obtained a t-value of 1.485 with a p-value of .144 which means that the level of acceptability of male and female respondents of guyabano tea are statistically similar. Hence, the null hypothesis is accepted which can be inferred that the difference in the mean ratings of the respondents is insignificant.

Table 3: Differences in the Mean Ratings of Male and Female Respondents on the Quality Characteristics of Guyabano Tea.

Quality Characteristics	Rater	Mean	t-value	p-value	Description
Color	Male	3.98	2.36	0.023	Significant
	Female	4.28			
Aroma	Male	3.77	1.51	0.137	Not Significant
	Female	4.00			
Taste	Male	3.68	0.45	0.649	Not Significant
	Female	3.76			
Acceptability	Male	7.60	1.485	0.144	Not Significant
	Female	7.84			

Differences in the Mean Ratings on the Quality Characteristics of Locally-Processed Guyabano Tea by Age Groups

Color. It was established in table 4 that in terms of color, respondents between 35-44 years old rated guyabano tea with a mean value of 4.57 which means “excellent”. Similarly, respondents who are 55 years old and above, 45-54 years old, and 25-34 years old rated the color “excellent” having obtained mean ratings of 4.32, 4.50 and 4.30, respectively. Lastly, respondents below 25 years old had a mean of 3.00 describing the color of guyabano tea as “good”.

Results of the analysis of variance showed that the mean ratings given by the respondents on the color of guyabano tea across age groups differ significantly. A computed F-value of 4.011 with a p-value of .011 was generated. It can be explained that the mean rating of respondents below 25 years old significantly deviates from the other age groups.

Aroma. With regards to aroma, it was found out that respondents who were 55 years old and above give the highest numerical rating of 4.07 characterizing the aroma of guyabano tea as “very good” (table 5). This was followed by respondents between 35-44 years old who rated aroma with a mean of 4.00 which means “very good”. Next are groups of respondents between 45-54 years old with a mean of 3.84 also describing aroma as “very good”. Then, respondents 25-34 years rated aroma with a mean of 3.67 described as “very good”. Lastly, respondents below 25 years old rated the product with a mean of 3.00 which means that the aroma of guyabano tea for this age group is only “good”. Further test of the data, using analysis of variance resulted in an F-value of 5.635 with a p-value of .031 which means significant. This result suggests the rejection of null hypothesis which means that the mean ratings of the respondents in the five (5) age groups, particularly those below 25 years old, were statistically different.

Table 4: Differences in the Mean Ratings on the Quality Characteristics of Locally-Processed Guyabano Tea in terms of Color due to Age of the Respondents

Quality Characteristics Evaluated	Age Group	Mean	F-test	p-value	Description
Color	below 25 years old	3.00 ^c	4.011	0.011	Significant
	25-34 years old	4.30 ^b			
	35-44 years old	4.57 ^a			
	45-54 years old	4.50 ^a			
	55 years old and above	4.32 ^b			

Means followed by common letter are not significantly different using LSD at .05

Table 5: Differences in the Mean Ratings on the Quality Characteristics of Locally-Processed Guyabano Tea in terms of Aroma due to Age of the Respondents

Quality Characteristics Evaluated	Age Group	Mean	F-test	p-value	Description
Aroma	below 25 years old	3.00 ^b	5.635	0.031	Significant
	25-34 years old	3.67 ^a			
	35-44 years old	4.00 ^a			
	45-54 years old	3.84 ^a			
	55 years old and above	4.07 ^a			

Means followed by common letter are not significantly different using LSD at .05

Taste. In terms of taste, it was established that respondents who were 55 years old and above rated the taste of guyabano tea with a mean of 4.00 which means “very good”.

Similarly, respondents between 35-44 years old and those who are 45-54 years old evaluated the taste of the product as “very good” with an overall mean of 3.71 and 3.68, respectively. However, those respondents from 25-34 years old gave a rating of 3.33 and those respondents below 25 years old rated the taste with a mean of 3.00 which means the taste is “good” (table 6).

The computed F-value was 4.070 with a p-value of .012 which means significant. This result leads to the rejection of null hypothesis which suggests that the mean ratings of the respondents in the five (5) age groups were statistically different.

Differences in Mean Ratings on the Acceptability of Guyabano Tea by Age Groups

Acceptability. In table 7 is the level of acceptability of guyabano tea due to age of the respondents. It was noted that respondents who are 55 years old and above have the highest level of acceptability with a mean of 7.83 which means “like very much”. Respondents from 45-54 years old, 35-44 years old and 25-34 years old had similar level of acceptability which is “like very much” having obtained a grand mean of 7.54, 7.79 and 7.57, respectively. Least, are respondents who were below 25 years who gave a mean rating of 7.00 described as “like moderately”

Results of the analysis of variance showed that the mean ratings given by the respondents across age groups differ significantly. A computed F-value of 3.516 with a p-value of .024 was generated which means significant. It can be explained that the numerical rating of respondents below 25 years old significantly deviates from the other groups of respondents.

Table 6: Mean Ratings on the Quality Characteristics of Locally-Processed Guyabano Tea in terms of Taste due to Age of the Respondents

Quality Characteristics Evaluated	Age Group	Mean	F-test	p-value	Description
Taste	below 25 years old	3.00 ^b	4.070	0.012	Significant
	25-34 years old	3.33 ^b			
	35-44 years old	3.71 ^a			
	45-54 years old	3.68 ^a			
	55 years old and above	4.00 ^a			

Means followed by common letter are not significantly different using LSD at .05

Table 7: Mean Ratings on the Acceptability of Guyabano Tea due to Age of the Respondents in ESSU-Salcedo Campus

Indicators Evaluated	Age Group	Mean	F-test	p-value	Description
Acceptability	below 25 years old	7.00 ^b	3.516	0.024	Significant
	25-34 years old	7.57 ^a			
	35-44 years old	7.79 ^a			
	45-54 years old	7.74 ^a			
	55 years old and above	7.83 ^a			

Means followed by common letter are not significantly different using LSD at .05

IV. CONCLUSION

Guyabano tea in general was rated “very good” by the respondents in terms of its color, aroma and taste. In addition, it had gained a higher level of acceptability having obtained a grand mean of 7.72 described as “like very much” which could be a manifestation of a high market prospect of the locally-prepared guyabano tea for commercialization in the locality.

However, respondents below 25 years old have the lowest ratings in all indicators evaluated which can be deduced this type of beverage is less preferred by this age group.

RECOMMENDATIONS

1. Value adding of the commodity should be undertaken to achieve an excellent rating in terms of its color, aroma and taste; and to gain a high level of acceptability especially among age groups below 25 years old.
2. Chemical analysis of locally-prepared guyabano tea should be undertaken prior to commercialization.
3. A thorough market study should be made in order to determine its profitability.

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AUTHOR'S PROFILE



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was born on August 21, 1968 at Salcedo, Eastern Samar. He is currently working at Eastern Samar State University, Salcedo Campus as Associate Professor V, and in concurrent capacity as the Head of the Research Services of the campus.

He had acted as research adviser in graduate and undergraduate thesis, and had presented a number of researches in local, national and international conferences.



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She is presently working at Eastern Samar State University, Salcedo Campus as Associate Professor I. Dr. Gonzaga has been very active in product development specifically virgin coconut oil (VCO). Her current research is focused on the processing and testing of guyabano tea.