# Assessment of Taro Flour Yielded from Two Processing Methods on Baked Products

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## INTRODUCTION

Cakes and other bakery products have become part of the daily diet of Filipinos. With the increasing price of wheat flour, it has also affected not only the quality of baked products but its production as well, making only few people afford the price of said products.

To address this problem, it is encouraged that further researches on alternative flour, as additive ingredient should be conducted. Aside from the domino effect faced by the food industry regarding the fluctuating flour price, health benefits as value adding to underutilized crops are also being considered.

Among the many alternative sources of flour are root crops that are rich in starch. Although compared to wheat flour with having high protein of starches, root crop such as taro can be considered as an alternative ingredient for cakes and other bakery products that also have a considerable amount of nutrients and vitamins.

In Oriental Mindoro, taro or gabi (*Colocasia esculenta* Linn.) is a common root crop used as an ingredient with other vegetables for home cooking. Plant propagation of taro only uses the corm, and the plant grows abundantly in low-lying areas. Nowadays, upland farmers had also considered cultivating the said crop as their source of food.

Taro is said to be rich in carbohydrates (73-80%), starch (77.9%) and crude fiber (1.4%) based on dry matter. Minerals present in the fresh product are potassium (3.23-5.30 g/kg); calcium (110-450 mg/kg); magnesium (190- 370 mg/kg); and sodium (0-3mg/100g). Oxalate, an anti nutritional factor, is also present and causes acridity of the tubers (Soudy et al., 2010).

Njintang, Mbofung, Abdoubouba, Aboubakar, Parker, Faulk, Smith, Graham, Bennett and Waldron (2003) stated that taro has not gained sufficient research attention concerning its potentials despite having nutritional, industrial and health importance. It is likewise noted that there is a dearth of study on postharvest technology of taro due to its short shelf life. In addition, the acridity factor in taro has been reported to cause irritation and inflammation of tissues to some consumers thus; its reduction or suppression has been studied to improve further the quality of the products.

Njintang, Mbofung, Abdoubouba, Aboubakar, Parker, Faulk, Smith, Graham, Bennett and Waldron (2007) also noted that the phenol content that naturally occurs in root crops, such as taro, has a significant correlation in the browning of its flour.

A study conducted by Ammar, Hegazy and Bedeir (2009) on the use of taro flour as additive showed that a maximum of its 10% blend with wheat flour in making bread and cookies was acceptable in terms of the organoleptic properties such as color, texture, taste and overall acceptability.

In a similar vein, Tekle (2009) recommended that 33.33% blend of taro as acceptable in terms of textural quality (breaking strength) and sensory qualities (color, flavor, crispiness, and overall acceptability) in making snap cookies. In this study, Tekle also found out that acridity caused by calcium oxalate raphides was seen as a limitation in using taro as an additive ingredient. It was noted that there was a significant decrease in the oxalate content of the cookies as the amount of taro increased in the formulation, which may be attributed to the incorporation of other ingredients, which lessen the proportion of oxalate in the cookies.

In the study conducted by Arenillo, Balbuena and Macalalad (2008), taro was utilized as an ingredient for the chiffon cake. Results showed fair performance of taro. It was recommended that the acrid after taste of taro should be eliminated to make the root crop more acceptable for baked products and that taro be also tested as an ingredient for cookies, biscuits, and breadstick.

With this on hand, this study was initiated to determine the potentials of taro flour in baked products, reducing if not totally eradicate its acrid factor.

## OBJECTIVES OF THE STUDY

Generally, the study determined the performance of taro flour on diversified baked products. Specifically, the study aims to:

1. Describe the acceptability of the baked products using taro flour yielded from the two processing methods in terms of their quality attributes, such as appearance, taste aroma, texture, color and overall acceptability.
2. Compare the acceptability of baked products using taro flour yielded from each of the two processing methods in terms of their quality attributes.
3. Compare the quality attributes of baked products using taro flour yielded from two processing methods.

## MATERIALS AND METHODS

### Processing of Taro Flour

a. *Raw Materials:* Taro root crop, Brine and water

b. *Equipment:* Oven, Grinder, Trays, Container, Knife and Strainer

c. *Procedure*

Taro root crop was washed and peeled before soaking in brine solution for 24 hours. After which, it was washed then chopped into thin slices.

Two processes were conducted to remove the acridity. First processing method (T1) was blanching or soaking of taro root crop for 10 minutes in pure hot water. Second processing method (T2) was soaking of taro root crop in brine or salt solution for 10 minutes.

The crop was again rinsed before subjected to oven drying for 8 discontinuous hours and afterwards it was solar dried for 2 consecutive days. After drying, the taro flour was milled twice to come up with fine texture. To remove the strong odor, the yielded flour was solar dried for 2 hours. Clumps of flour were removed through sifting.

## Preparation of Baked Products

a. *Raw Materials:* Taro flour, Baking powder, Sugar, Eggs, Margarine and butter, Lard, Salt, Yeast, Evaporated milk, Cocoa powder, Cheese and Garlic flour

b. *Equipment:* Bowl, Knives, Sheet pan and Oven

c. *Procedure*

Oven was preheated from 300-400 °F based on heat requirement for each product. All ingredients were measured according to specific needs. Dry ingredients were first mixed before wet ingredients were added. The mixture was kneaded and formed into dough. Dough was cut or formed according to shapes and sizes then placed on slightly greased sheet pans.

After which, palitos de quezo, choco crinkles, and biscuits from the two processing methods were baked simultaneously for 15-20 minutes at 300-350 °F, 5-10 minutes at 400-450 °F and 25-30 minutes at 275-280 °F, respectively.

## Statistical Test Design and Test Procedure

Two-group experimental design was employed in the study to compare two processes of taro flour preparation, which was utilized for baked products.

Hedonic scale was used for describing acceptability, where 9 is interpreted as like extremely, and 1 as dislike extremely.

Ten (10) food experts served as panelists for the organoleptic test. Freshly baked taro products were served with water to the panelists to get better comparisons of taste.

Analysis of Variance (ANOVA) was employed for test of acceptability differences among the quality attributes.

*t*-test analysis was utilized to compare acceptability differences of the two processing methods.

# RESULTS

In both processing methods, 1 kg of taro root crop yielded ½ kg or 50-53% of flour. Based on the observed color of the flour, T1 (blanched method) has a darker color compared to T2 (brine solution method). Flour texture was observed to be the same in both processes even before sieving. In both processes, though, taro flour did not result to a fine texture as compared to wheat flour.

## Acceptability of the Quality Attributes of Baked Products

Based on the overall mean results (Appendix Table 1), choco crinkles in T1 (blanched method) had the highest overall mean score (8.35) in terms of appearance, taste, aroma, texture, color and overall acceptability. All the panelists described the baked product as liked extremely.

Palitos de quezo followed with an overall mean score of 7.53, described as like very much, while biscuits were the least accepted by the panelists with an overall mean score of 6.50.

Similarly, among the baked products in T2 (brine solution method); quality parameters of choco crinkles obtained the highest mean score (7.83) followed by palitos de quezo (7.22) and biscuits (7.00).

As noted, the quality attributes of choco crinkles and palitos de quezo were described mostly by the panelists as like very much. However, biscuits were described as 'liked moderately'.

**Acceptability Differences of the Quality Attributes of Baked Products Prepared from Taro Flour Yielded Using T1 (Blanched Method)**

F-test results for the appearance (Table 2.1.a) of T1 showed that the difference in mean score of the appearance of the baked products was not significant at 5% level. F-value obtained for the sample was 1.122 ($F(2, 18) = 3.55$) and F-value obtained for the panelists, 0.852 ($F(9, 18) = 2.45$). This indicates that the samples do not significantly differ with each other because the appearance was acceptable and evaluation of the panelists was similar.

For taste samples (Table 2.1.b), the F-value obtained was 1.016 ($F(2, 18)= 3.55$), and panelists, 0.536 ($F(9, 18) = 2.45$) which was found not significant at 5% level. This means that the baked products do not differ with each other because their taste was similar and the panel evaluation was consistent.

The computed F-value obtained for aroma samples

(Table 2.1.c) was 1.514 (F (2, 18) = 3.55) while F-value obtained for panelists was 0.758 (F (9, 18) = 2.45). These values were not significant at 0.05 level. Statistical analysis showed that the aroma of the baked products does not differ with each other, and the panelists evaluated them with almost similar responses.

The F-value obtained for texture samples (Table 2.1.c) was 0.860 (F (2, 18)= 3.55) and for panelists, 0.782 (F (9, 18) = 2.45). These values were not significant at 5% level. The result shows that the baked products do not really differ with each other because their textures were moderately acceptable and evaluations of the panelists were the same.

The computed F-value obtained for color samples (Table 2.1.d) was 0.685 (F (2, 18) = 3.55) and for panelists, 0.308 (F (9,18) = 2.45) at 0.05 level. Statistical analysis showed that variations of the color of the samples do not differ with each other, and evaluation of the panelists was almost similar.

The F-value obtained for the overall acceptability of the samples (Table 2.1.e) was 0.793 (F (2, 18) = 3.55). This value was not significant at 0.05 level. The F-value obtained for panelists was 3.66 (F (9, 18) = 2.45). This value was likewise not significant at 5% level. Result further shows that the overall acceptability of the samples does not differ with each other as well as the evaluation of the panelists because the quality attributes of the baked products are mostly acceptable.

**Acceptability Differences of the Quality Attributes of Baked Products Prepared from Taro Flour Yielded Using T2 (Brine Solution Method)**

For the baked products yielded from taro flour processed using brine method, the computed F-value obtained for appearance samples (Table 2.2.a) was

0.288 (F (2, 18) = 3.55). The value was not significant at 5% level. For panelists, the F-value obtained, 1.522 (F (9, 18) = 2.45) was not significant at 5% level. This means that the samples do not differ with each other because the appearance of the baked products was acceptable and evaluation of the panelists was consistent.

The F-value obtained for taste samples (Table 2.2.b) was 0.216 (F (2, 18) = 3.55) while for the panelists was 1.695 (F (9, 18) = 2.45). These values were not significant at 0.05 level. The results indicate that the samples do not differ with each other because the taste was not discernible and evaluation of the panelists was almost similar.

Statistical analysis showed that F-value obtained for aroma samples (Table 2.2.c) was 0.116 (F (2, 18) = 3.55) while for the panelists was 2.169 (F (9, 18) = 2.45). These values were found not significant at 0.05 level. This means that the aroma of the samples do not differ with each other and evaluation of the panelists was consistent.

The F-value obtained for texture samples (Table 2.2.d) was 1.057 (F (2, 18) = 3.55). For panelists, the F-value obtained was 2.322 (F (9, 18) = 2.45). These values were not significant at 0.05 level. Results show that the textures of the samples do not differ with each other and evaluation of the panelists was almost similar.

The computed F-value for color samples (Table 2.2.e) was 0.483 (F (2, 18) = 3.55) and panelists, 2.138 (F (9, 18) = 2.45). These values were not significant at 5% level. This indicates that the colors of the samples do not differ with each other and evaluation of the panelists was the same in their responses.

There was no significant difference in the overall acceptability scores of the samples as revealed in the computed F-value, 0.503 (F (2, 18) = 3.55) at 0.05 level (Table 2.2.f). Similarly, no significant differences were noted for panelists with the computed F-value (3.42) using (F (9, 18) = 2.45) at 0.05 level. This means that the quality attributes are mostly acceptable in baked products.

**Acceptability Differences in the Quality Attributes of Baked Products Prepared from Taro Flour Yielded Using T1 (Blanched Method) and T2 (Brine Solution Method)**

*t*-test analysis of Palitos de quezo (Table 3.a) showed that appearance, taste, aroma and overall acceptability were found not significant as indicated in the computed t-values of 1.718, 0.395, and 0.975, respectively, which do not exceed the critical value of 2.101 using 18 degrees of freedom at 0.05 level of significance.

However, significant differences were noted in texture and color as borne out in the computed t-values of 3.220 and 5.177, respectively, which exceeded the critical t-values.

The results may be attributed to the fact that the texture of palitos de quezo prepared from taro flour using T1 (blanched method) was liked slightly compared to its texture in T2 (brine solution method) which was liked very much. In terms of color, significant differences were prominent in T1 (blanched method) which was liked extremely as compared with the color of T2 (brine solution method) which was liked slightly.

For Choco crinkles (Table 3.b), there were no significant differences noted in the quality parameters including appearance, taste, aroma, texture, color and overall acceptability of choco crinkles prepared from taro flour processed using T1 (blanched method) and T2 (brine solution method) as indicated by their computed *t*-values ranging from 1.379 (color) to 0.131 (texture), which did not exceed the critical *t*-value of 2.101 using df = 18 at 0.05 level of significance.

Further, results denote that quality attributes of crinkles are incomparable.

*t*-test analysis of Biscuits (Table 3.c) showed that there were no significant differences noted in the quality attributes of biscuits in terms of appearance, taste, aroma, texture, color, and overall acceptability prepared from taro flour processed using two methods. The results indicated that the computed *t*-values ranging from 1.754 (appearance) to 0.016 (texture) did not exceed the critical value of 2.101 using df = 18 at 0.05 level of significance.

This implies that the performance of taro flour processed using T1 (blanched method) and T2 (brine solution method) in biscuits is acceptable.

## DISCUSSION

The study indicates that through blanched and brine processing, acridity property of taro can be reduced and the flour produced can be an alternative source for baked products particularly palitos de quezo, choco crinkles and biscuits. This is in contrast with the results of the studies conducted by Ammar et. al (2009) and Tekle (2009), which found out that blend proportion of taro flour and wheat flour requires greater amount of the latter for better quality of baked products such as bread and cookies. However, one aspect that was not covered in this study is the baking temperature which Tekle (2009) has proven that baking the cookies at lower temperature yield better sensory scores for color and flavor.

Results from the organoleptic test prove further that taro flour yielded using two processing methods obtained acceptable quality attributes. However, in palitos de quezo and biscuits, their color and texture could be more acceptable when enhanced with flour additives. This result elaborates the study of Njintang et. al (2007) which showed that phenol content in taro is responsible in the browning of the flour which may result to darker color of baked products.

In terms of acceptability differences among the quality attributes of the baked products in T1 (blanched) and T2 (brine solution), F-test results showed that appearance, taste, aroma, texture, color, and their overall acceptability did not differ with each other because these were most acceptable and evaluation of panelists was almost similar.

On the other hand, Chinnasarn and Manyasi (2010) looked into the chemical and physical properties of taro flour and found out a particular formulation which is close to the ideal product profile. Similarly, Azman and Iswari (1996) investigated the use of wheat, taro, cassava and corn composite flour for biscuit and found out that the substitution of wheat flour by 'taro + corn' and 'cassava + corn' flour at proportion of 30 and 20 percent did not affect the quality of biscuit. All the aforementioned studies affirm under varying conditions the acceptability of taro flour for baked products.

## CONCLUSIONS

Taro has very limited use owing to its acridity property. In most studies, flour produced from taro is usually mixed with wheat flour to come up with an acceptable quality of baked products. Thus, there is still a dearth of study on using taro flour as an alternative to wheat flour. However, the results of this study prove that taro flour has potential to be utilized for baked products. Blanched and brine applications in the taro root crop during the flour processing method alleviate the acridity content of taro, rendering better performance.

On the other hand, the quality attributes of the palitos de quezo, choco crinkles and biscuits baked from taro flour such as appearance, taste, aroma, texture, color, as well as their overall acceptability are acceptable.

## RECOMMENDATIONS

As to the potential of taro flour yielded from two processing methods, other baked products should be tested to further determine its quality performance. Other variations in the processes with the inclusion of flour additives should also be tested to examine their effects on the quality of the flour as well as the baked products.

With regards to baking process, time and temperature are essential factors that may affect the quality of baked products thus, giving much attention is required.

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# APPENDICES

Table 1. Mean acceptability of the quality attributes of baked products using taro flour yielded from the two processing methods.

| Quality attributes | Palitos de Quezo | | | | Choco Crinkles | | | | Biscuits | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | T1 | | T2 | | T1 | | T2 | | T1 | | T2 | |
| | Mean | Description | Mean | Description | Mean | Description | Mean | Description | Mean | Description | Mean | Description |
| Appearance | 7.9 | Liked very much | 7.0 | Liked moderately | 8.5 | Liked extremely | 8.0 | Liked very much | 7.1 | Liked moderately | 7.6 | Liked very much |
| Taste | 7.7 | Liked very much | 7.4 | Liked very much | 8.3 | Liked extremely | 7.8 | Liked very much | 6.1 | Liked moderately | 6.8 | Liked Moderately |
| Aroma | 7.8 | Liked very much | 7.3 | Liked very much | 8.2 | Liked extremely | 7.7 | Liked very much | 6.3 | Liked slightly | 7.1 | Liked moderately |
| Texture | 5.9 | Liked slightly | 7.8 | Liked very much | 8.2 | Liked extremely | 7.9 | Liked very much | 6.3 | Liked slightly | 6.3 | liked slightly |
| Color | 8.1 | Liked extremely | 6.2 | Liked slightly | 8.5 | Liked extremely | 7.7 | Liked very much | 6.7 | Liked moderately | 7.4 | Liked very much |
| Overall Acceptability | 7.8 | Liked very much | 7.6 | Liked very much | 8.4 | Liked extremely | 7.9 | Liked very much | 6.5 | Liked moderately | 6.8 | Liked very much |
| **Overall Mean** | **7.53** | **Liked very much** | **7.22** | **Liked very much** | **8.35** | **Liked extremely** | **7.83** | **Liked very much** | **6.50** | **Liked moderately** | **7.00** | **Liked moderately** |

Table 2.1.a. ANOVA Table on Appearance Acceptability Difference of Baked Products (T1).

| Source of Variance | df | SS | MS | Computed F-value | Critical F value α=0.05 | Result |
|---|---|---|---|---|---|---|
| Samples | 2 | 9.87 | 1.097 | 1.122 | 3.55 | Not significant |
| Panelists | 9 | 7.50 | 0.833 | 0.852 | 2.45 | Not significant |
| Error | 18 | 8.80 | 0.978 | | | |
| Total | 29 | 26.17 | | | | |

Table 2.1.b. ANOVA Table on Taste Acceptability Difference of Baked Products (T1).

| Source of Variance | df | SS | MS | Computed F-value | Critical F-value α=0.05 | Result |
|---|---|---|---|---|---|---|
| Samples | 2 | 25.87 | 2.874 | 1.016 | 3.55 | Not significant |
| Panelists | 9 | 13.64 | 1.516 | 0.536 | 2.45 | Not significant |
| Error | 18 | 25.46 | 2.829 | | | |
| Total | 29 | 64.97 | | | | |

Table 2.1.c. ANOVA Table on Aroma Acceptability Difference of Baked Products (T1).

| Source of Variance | df | SS | MS | Computed F-value | Critical F-value α=0.05 | Result |
|---|---|---|---|---|---|---|
| Samples | 2 | 20.07 | 2.230 | 1.514 | 3.55 | Not significant |
| Panelists | 9 | 10.04 | 1.116 | 0.758 | 2.45 | Not significant |
| Error | 18 | 13.26 | 1.473 | | | |
| Total | 29 | 43.37 | | | | |

Table 2.1.d. ANOVA Table on Texture Acceptability Difference of Baked Products (T1).

| Source of Variance | df | SS | MS | Computed F-value | Critical F-value α=0.05 | Result |
|---|---|---|---|---|---|---|
| Samples | 2 | 30.20 | 3.356 | 0.860 | 3.5 | Not significant |
| Panelists | 9 | 27.47 | 3.052 | 0.782 | 2.45 | Not significant |
| Error | 18 | 35.13 | 3.903 | | | |
| Total | 29 | 92.80 | | | | |

Table 2.1.e. ANOVA Table on Color Acceptability Difference of Baked Products (T1).

| Source of Variance | df | SS | MS | Computed F-value | Critical F-value α=0.05 | Result |
|---|---|---|---|---|---|---|
| Samples | 2 | 17.87 | 1.986 | 0.685 | 3.55 | Not significant |
| Panelists | 9 | 8.04 | 0.893 | 0.308 | 2.45 | Not significant |
| Error | 18 | 26.09 | 2.900 | | | |
| Total | 29 | 52.00 | | | | |

Table 2.1.f. ANOVA Table on Overall Acceptability Difference of Baked Products (T1).

| Source of Variance | df | SS | MS | Computed F-value | Critical F-value α=0.05 | Result |
|---|---|---|---|---|---|---|
| Samples | 2 | 0.64 | 2.097 | 0.793 | 3.55 | Not significant |
| Panelists | 9 | 8.70 | 0.967 | 3.66 | 2.45 | Not significant |
| Error | 18 | 23.80 | 2.644 | | | |
| Total | 29 | 51.37 | | | | |

Table 2.2.a. ANOVA Table on Appearance Acceptability Difference of Baked Products (T2).

| Source of Variance | df | SS | MS | Computed F-value | Critical F-value α=0.05 | Result |
|---|---|---|---|---|---|---|
| Samples | 2 | 5.07 | 0.563 | 0.288 | 3.55 | Not significant |
| Panelists | 9 | 26.80 | 2.978 | 1.522 | 2.45 | Not significant |
| Error | 18 | 17.60 | 1.956 | | | |
| Total | 29 | 49.47 | | | | |

Table 2.2.b. ANOVA Table on Taste Acceptability Difference of Baked Products (T2).

| Source of Variance | df | SS | MS | Computed F-value | Critical F-value α=0.05 | Result |
|---|---|---|---|---|---|---|
| Samples | 2 | 5.10 | 0.567 | 0.216 | 3.55 | Not significant |
| Panelists | 9 | 40.00 | 4.444 | 1.695 | 2.45 | Not significant |
| Error | 18 | 23.60 | 2.622 | | | |
| Total | 29 | 68.70 | | | | |

Table 2.2.c. ANOVA Table on Aroma Acceptability Difference of Baked Products (T2).

| Source of Variance | df | SS | MS | Computed F-value | Critical F-value α=0.05 | Result |
|---|---|---|---|---|---|---|
| Samples | 2 | 1.87 | 0.208 | 0.116 | 3.55 | Not significant |
| Panelists | 9 | 34.97 | 3.886 | 2.169 | 2.45 | Not significant |
| Error | 18 | 16.13 | 1.792 | | | |
| Total | 29 | 52.97 | | | | |

Table 2.2.d. ANOVA Table on Texture Acceptability Difference of Baked Products (T2).

| Source of Variance | df | SS | MS | Computed F-value | Critical F-value α=0.05 | Result |
|---|---|---|---|---|---|---|
| Samples | 2 | 16.10 | 1.789 | 1.057 | 3.55 | Not significant |
| Panelists | 9 | 35.37 | 3.930 | 2.322 | 2.45 | Not significant |
| Error | 18 | 15.23 | 1.692 | | | |
| Total | 29 | 66.70 | | | | |

Table 2.2.e. ANOVA Table on Color Acceptability Difference of Baked Products (T2).

| Source of Variance | df | SS | MS | Computed F-value | Critical F-value α=0.05 | Result |
|---|---|---|---|---|---|---|
| Samples | 2 | 12.60 | 1.400 | 0.483 | 3.55 | Not significant |
| Panelists | 9 | 56.00 | 6.200 | 2.138 | 2.45 | Not significant |
| Error | 18 | 26.10 | 2.900 | | | |
| Total | 29 | 94.70 | | | | |

Table 2.2.f ANOVA Table on Overall Acceptability Difference of Baked Products (T2)

| Source of Variance | df | SS | MS | Computed F-value | Critical F-value α=0.05 | Result |
|---|---|---|---|---|---|---|
| Samples | 2 | 6.47 | 0.719 | 0.503 | 3.55 | Not significant |
| Panelists | 9 | 44.04 | 4.893 | 3.42 | 2.45 | Not significant |
| Error | 18 | 12.86 | | | | |
| Total | 29 | 63.37 | | | | |

Table 3.a. Comparison of Quality Attributes of Palitos de Quezo Prepared from Taro Flour from T1 (blanched method) and T2 (brine solution method).

| **Quality Attributes** | **df** | **Computed t-value** | **Critical t-value (0.05)** | **Result** |
|---|---|---|---|---|
| Appearance | 18 | 1.718 | 2.101 | Not Significant |
| Taste | 18 | 0.395 | 2.101 | Not Significant |
| Aroma | 18 | 0.975 | 2.101 | Not Significant |
| Texture | 18 | 3.220 | 2.101 | Significant |
| Color | 18 | 5.177 | 2.101 | Significant |
| Overall Acceptability | 18 | 0.687 | 2.101 | Not Significant |

Table 3.b. Comparison of the Quality Attributes of Choco Crinkles Prepared from Taro Flour from T1 (blanched method) and T2 (brine solution method).

| **Quality Attributes** | **df** | **Computed t-value** | **Critical t-value (0.05)** | **Result** |
|---|---|---|---|---|
| Appearance | 18 | 0.459 | 2.101 | Not Significant |
| Taste | 18 | 0.772 | 2.101 | Not Significant |
| Aroma | 18 | 0.753 | 2.101 | Not Significant |
| Texture | 18 | 0.131 | 2.101 | Not Significant |
| Color | 18 | 1.379 | 2.101 | Not Significant |
| Overall Acceptability | 18 | 0.705 | 2.101 | Not Significant |

Table 3.c. Comparison of the Quality Attributes of Biscuits Prepared from Taro Flour from T1 (blanched method) and T2 (brine solution method).

| Quality Attributes | df | Computed t-value | Critical t-value (0.05) | Result |
|---|---|---|---|---|
| Appearance | 18 | 1.754 | 2.101 | Not Significant |
| Taste | 18 | 1.131 | 2.101 | Not Significant |
| Aroma | 18 | 1.961 | 2.101 | Not Significant |
| Texture | 18 | 0.016 | 2.101 | Not Significant |
| Color | 18 | 1.111 | 2.101 | Not Significant |
| Overall Acceptability | 18 | 0.670 | 2.101 | Not Significant |