

Development of Tea incorporated Jackfruit (*Artocarpus heterophyllus Lam*) cordial

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Introduction

Since few decades tea has become one of the most famous and commonly consumed beverage which only second to the water in the world. There is evidence that the bio active compound like polyphenols, flavonoids, catechins, caffeine which comprise in tea are responsible for the human health (Puneet, 2013) by helping to reduce the risk of cardiovascular diseases and some forms of cancer, promoting oral health, reduce blood pressure, helping for weight control, improving antibacterial and antiviral activity etc. Jackfruit is an excellent source of phytonutrients including lingans, isoflavones and saponins which all have anti-cancer properties due to their capacity to protect the body from the effects of free-radicals, slowing the degeneration of cells that can lead to degenerative diseases. Jackfruit also provides small amounts of essential fatty acids with an ideal omega 3 to omega 6 ratio of roughly 1:2. We now know that the ratio at which we consume these essential fatty acids is just as important, if not more important than how much we consume of them (Baslingappa, 2012). The ripened jackfruits have appealing flavor, color, and a taste that can be used to prepare a delicious fruit drink enriched with vitamins. Therefore, this research was carried out to develop a tea incorporating jackfruit cordial which enrich with nutritional and stimulant effect with the endurable cost of production and maximizing the consumer satisfaction.

Methodology

There were two treatments conducted by changing tea type as green tea and black tea and amount of tea. Jackfruit to tea combination was evaluated and trial was done in order to find the best overall acceptability and finally three treatments were prepared and evaluated on sensory, chemical and microbiological basis. The sensory evaluation was done using 30 untrained panelists. In chemical analysis, proximate composition was determined for moisture content, crude fat, crude protein, ash and carbohydrate for content. pH value, brix value and microbiological analysis were done for *Escherichia coli*, Total Plate Count (TPC) and Yeast and mold in weekly for 1 month and analyzed by using Friedman nonparametric statistical method.

Table 1: Six recipes developed in preparation of tea incorporated jackfruit cordial

Ingredients	Sample Codes					
	443	521	352	289	450	365
Jack fruit pulp (g)	500	500	500	500	500	500
Water (ml)	500	500	500	500	500	500
Sugar (g)	450	450	450	450	450	450
Black Tea (g)	40	30	20			
Green Tea (g)				40	30	20

Citric Acid (CMS) (g)	5	5	5	5	5	5
Sodium Meta bi-sulfite (SMS) (mg)	610	610	610	610	610	610

Results and Discussion

According to the sensory evaluation, two best recipes were selected from green tea and black tea incorporated recipes. With 20 g of tea added cordial recipe has given a desirable sensory attributes in sensory evaluation.

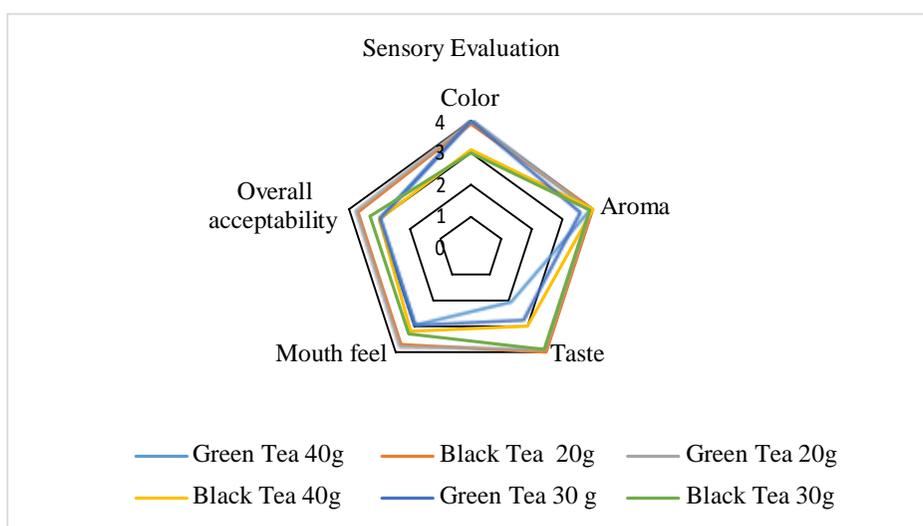


Figure 1: Web diagram for the sensory evaluation

There was a significant difference ($P < 0.05$) among six samples regarding color, taste, mouth feel and overall acceptability.

Table 2: Proximate analysis for 30 ml sample of final products

Parameter	Black tea incorporated	Green tea incorporated
Moisture %	41.1	47.5
Ash %	0.5	0.3
Crude Protein %	1.0	0.7
Fat %	00	0.1
Carbohydrate %	57.4	51.4

As indicated by the Table 2, the highest moisture content and no fat was observed in green tea incorporated cordial followed black tea incorporated cordial. Highest crude protein and ash content was observed in black tea incorporated cordial.

The pH values of final products showed a slight elevation and it was between 4 to 5 pH levels. Total soluble solids (Brix) value for black tea incorporated cordial and green tea incorporated cordial were respectively 54 °and 48 °.

Total plate count in the samples complied with the requirement of Sri Lankan Standard (SLS). TPC value of both green tea and black tea added cordial has increased in increasing rate during first week. Then it has increased in decreasing rate with the time period. Yeast and mold and *Escherichia coli* were absent in both samples for four week time period.

Green tea incorporated cordial was contained 0.94 mg/mL polyphenol and black tea incorporated cordial was contained 0.72 mg/mL.

Conclusion

Tea incorporated jackfruit cordial can be produced from ripened jackfruit pulp and tea syrup, as a value added product having 54 bfix for black tea incorporated cordial and 48 brix for green tea incorporated cordial. Black tea incorporated cordial consists with high nutritional value and zero fat. There is no significant undesirable changes in final products within storage period. Microbiological and chemical parameters in the recommended level.

References

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