Flavor, Acceptance and Antioxidant Content of Pomegranate Juice and Green Tea Blends

Poster #61

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Introduction

- Pomegranate fruit and its juice (PJ) has increased in popularity mainly for their high polyphenol content.
- Pomegranates have been used for cosmetic, beverages, food and pomegranate based products.
- Tea is one of the most consumed beverages in the world, and Green Tea (GT) is known to have the highest polyphenol content of all varieties.
- Green tea consumption is associated to numerous health related beneficial properties, and there is a wide range of green tea based products in the market.

Objective

The objectives of this study were to

- Explore sensory differences in pomegranate juice (PJ) and GT blends at different ratios
- Determine consumer acceptance of PJ and GT blends.
- Determine their total polyphenol content (TPC)

Materials and Methods

- Frozen squeezed Pomegranate Juice from the Wonderful cultivar and Lipton Pure Green Tea (Unilever, Englewood Cliffs, NJ, USA) were used to prepare the samples.
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Sample ratios						
Samples % v/v	1	2	3	4	5	6
PJ	90	80	70	60	50	40
GT	10	20	30	40	50	60

- 6 highly trained panelists evaluated the 6 juice-tea blends and determined flavor characteristics intensities using a scale from 0 to 15 with 0.5 point increments.
- A total of 100 pomegranate juice consumers evaluated the liking of the beverage blends.
- Total Phenolic Content (TPC) of samples was measured using the Folin-Ciocalteu method
- Questions included:
  - Overall liking of the samples
  - Reevaluation of the last sample after antioxidant information was provided.

Results

Descriptive Analysis

- Sample 40-60 had the highest Green Tea Like and lowest Cranberry, Cherry, Berry and Pomegranate ID flavors of all samples.

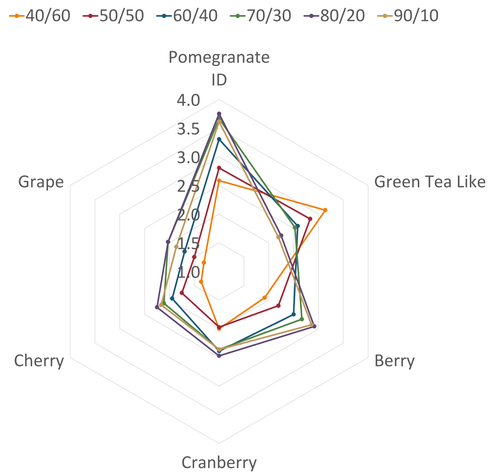

Fig. 1 – Spider Plot of significantly different attributes ($p<0.05$).

- Samples 90-10 and 80-20 were the highest in Fruity flavor.
- Sample 40-60 was the highest in Bitter and lowest in Sweet Overall flavor.

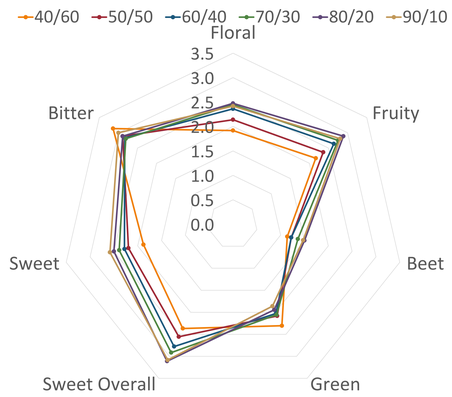

Fig. 2 – Spider Plot of significantly different attributes ($p<0.05$).

Results

Consumer Study & TPC

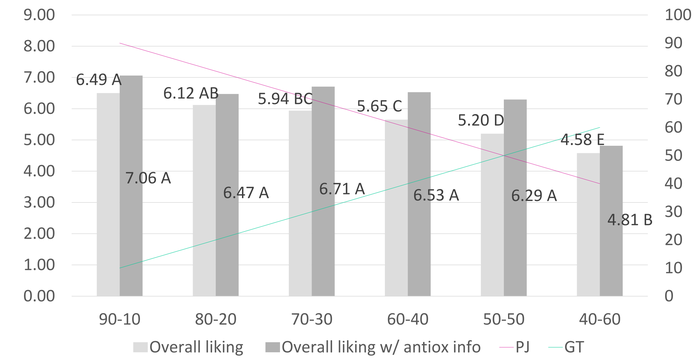

Fig. 3- Overall Liking of samples before and after antioxidant information was provided (columns with different lettering are significantly different $p<0.05$).

Table 1 – TPC of samples

Sample	TPC (mg Gallic Acid equivalents/L)
Tea	697.4
40-60	1312.8
50-50	1564.6
60-40	1802.3
70-30	1960.8
80-20	2091.4
90-10	2310.5
Juice	2450.3

- Overall liking of all samples increased after antioxidant information was provided.
- TPC was higher for samples with higher PJ content.
- TPC of blends showed to be the sum of the TPC of the individual PJ-GT samples

Conclusions

- Samples higher in Pomegranate Juice were more liked. Sample 90-10 was the most liked one.
- Overall liking of samples was higher after antioxidant information was provided. Claims on beverages labels might be a good strategy for increasing consumers consumption on high antioxidant beverages.
- TPC content of samples with increasing GT were lower than those with higher PJ concentration.
- Development of such beverages could add value to GT.