



Sensory Acceptability of Tea Bag Prepared from Mango and Guava Leaves

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Abstract

The main aim of this study was improving the lipid profile. The leaves of *Psidium guajava* (*P.guajava*) have been shown to have a hypoglycemic effect on blood glucose levels in both normal and STZ-induced diabetic mice. Though guava leaves have been shown to have hypoglycemic properties and guava leaves extract tea is available on the market, the significance of guava fruit in regulating blood sugar and lipid profile in humans is still unknown. The antihyperlipidemic property of the aqueous extract of leaves of *M.indica* induced an increase in serum HDL-C levels in the hyperlipidemic models. Four treatments of 100gm were made by using different proportion of guava and mango leaves. Sensory evaluations of all the four treatments of prepared tea bags were done by using 9-point hedonic scale. The experiment was replicated three times and the data obtained during the investigated were statistically analyzed by using analysis of variance (ANOVA). The treatment T₃ scored highest for color and appearance, taste and flavor, consistency, aroma and overall acceptability with score (8.73), (8.93), (8.6), (8.13) and (8.93) respectively and hence, was found to be best.

Key Words- Antihyperlipidemic, replicated, statistically, ANOVA, acceptability.

1. Introduction

The guava tree belongs to the myrtaceae family, and all of its parts are used to treat a variety of ailments. A significant amount of pharmacological research has been done to illustrate the use of *guajava* leaves extract, which has proven that *guajava* leaves extract are a very beneficial drug that doctors and pharmacists use frequently. Plants, according to the WHO (World Health Organization), are the best source for obtaining many types of medications and treatments. These natural products are widely used by humans and have proven to be effective (Vibha *et al.*, 2012).

The leaves of *Psidium guajava* (*P.guajava*) have been shown to have a hypoglycemic effect on blood glucose levels in both normal and STZ-induced diabetic mice. In alloxan-induced diabetic rats, an ethanolic extract of *P.guajava* leaf had a hypolipidemic and hypoglycemic effect. Though guava leaves have been shown to have hypoglycemic properties and guava leaves extract tea is available on the market, the significance of guava fruit in regulating blood sugar and lipid profile in humans is still unknown (Suchitra *et al.*, 2016).

One of the most essential tropical plants is the mango (*mangifera indica*). Mango peels, juices, and stem bark have received the most focus in studies on mango exploitation, but mango leaves have received less attention. Mango leaves have a potential hypoglycemic impact because they regulate blood sugar levels, insulin levels, and tannins in the form of gallic acid (antioxidant) protect beta cells from destroying themselves, thereby preventing apoptosis (Joon *et al.*, 2013).

The antihyperlipidemic property of the aqueous extract of leaves of *M.indica* induced an increase in serum HDL-C levels in the hyperlipidemic models. Increased serum HDL-C levels may be beneficial in lipid disorders and may also serve as a cardio protective factor to prevent the gradual initiation of the atherosclerotic process by mediating the transfer of excess cholesterol from peripheral cells to the liver for catabolism through a pathway known as "reverse cholesterol transport." As a result, increased serum HDL-C levels may prove beneficial in lipid disorders and may also serve as a cardio protective factor to prevent the gradual initiation of the atherosclerotic (Kemasari *et al.*, 2011).

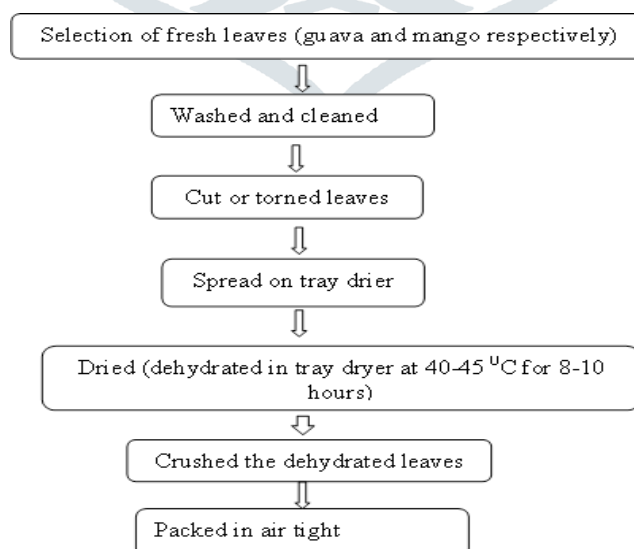
Tulsi has a high index in antimicrobial, immunomodulatory, antistress, anti-inflammatory, antiulcer, antidiabetic, hepatoprotective, chemoprotective, antihyperlipidemic, cardioprotective, antioxidant, antitussive, radioprotective, memory enhancing, antiarthritic, antifertility, antihypertensive, antihypertensive, anticoagulant, anticataract, anthelmintic (Gupta *et al.*, 2002).

2. MATERIALS AND METHODS

2.1 Raw material:

Healthy fresh leaves of Guava (*psidium gujava*) and Mango (*Mgnifera indica*) for the experiment were collected from the local area of SHUATS and other ingredients were purchased from the local market of Allahabad.

2.2 Dehydration of leaves



Sources: (Srivastava and Kumar, 2009)

2.3 Development of tea bags

Calculated amounts (3 gm) of selected ingredients were filled in tea bags. Four treatments were made by using different proportion of guava and mango leaves. Basil leaves are used as a flavouring agent.

Table no. 1 Treatments detail of different tea bags

Content	T ₁	T ₂	T ₃	T ₄
Guava leaves (g)	2.1	1.8	1.5	1.2
Mango leaves (g)	0.9	1.2	1.5	1.8

All the treatments were replicated three times.

2.4 Organoleptic evaluation of the development tea bags-

Prepared tea bags which 3g of selected ingredients were dipped in 100ml of boiling water for three to four minutes. The sensory evaluation of the prepared product was done by the panel of judges selected from the faculty member of the Ethelind College of Home Science. Product was judge by using the various sensory attributes like color and appearance, taste and flavor, consistency and overall acceptability. The sample was placed before the judges with simple codes. The evaluation was done using the 9-point Hedonic scale-based score card (Srilakshmi, 2015).

2.5 Statistical Analysis

The data was subjected to statistical analysis of variance using ANOVA, standard deviation and other appropriate statistical technique (MS Excel, 2010) the collected data was analyzed with the help of appropriate statistical technique.

3. RESULTS AND DISCUSSION

This chapter presents and discusses the collection of data and tabulation findings with the help of appropriate illustrations.

Table: 2 Average sensory scores of different sensory attributes of treatments of prepared tea bag

Treatments	Color and Appearance	Taste and Flavor	Consistency	Aroma	Overall Acceptability
	Mean±SE	Mean±SE	Mean±SE	Mean±SE	Mean±SE
T ₁	7.13±0.066	6.93±0.066	7.00±0.00	6.33±0.13	7.00±0.00
T ₂	8.06±0.066	7.46±0.13	7.26±0.66	7.06±0.24	7.60±0.11
T ₃	8.73±0.066	8.93±0.066	8.6±0.066	8.13±0.066	8.93±0.66
T ₄	8.46±0.066	7.93±0.006	8.20±0.30	7.80±0.11	7.93±0.66

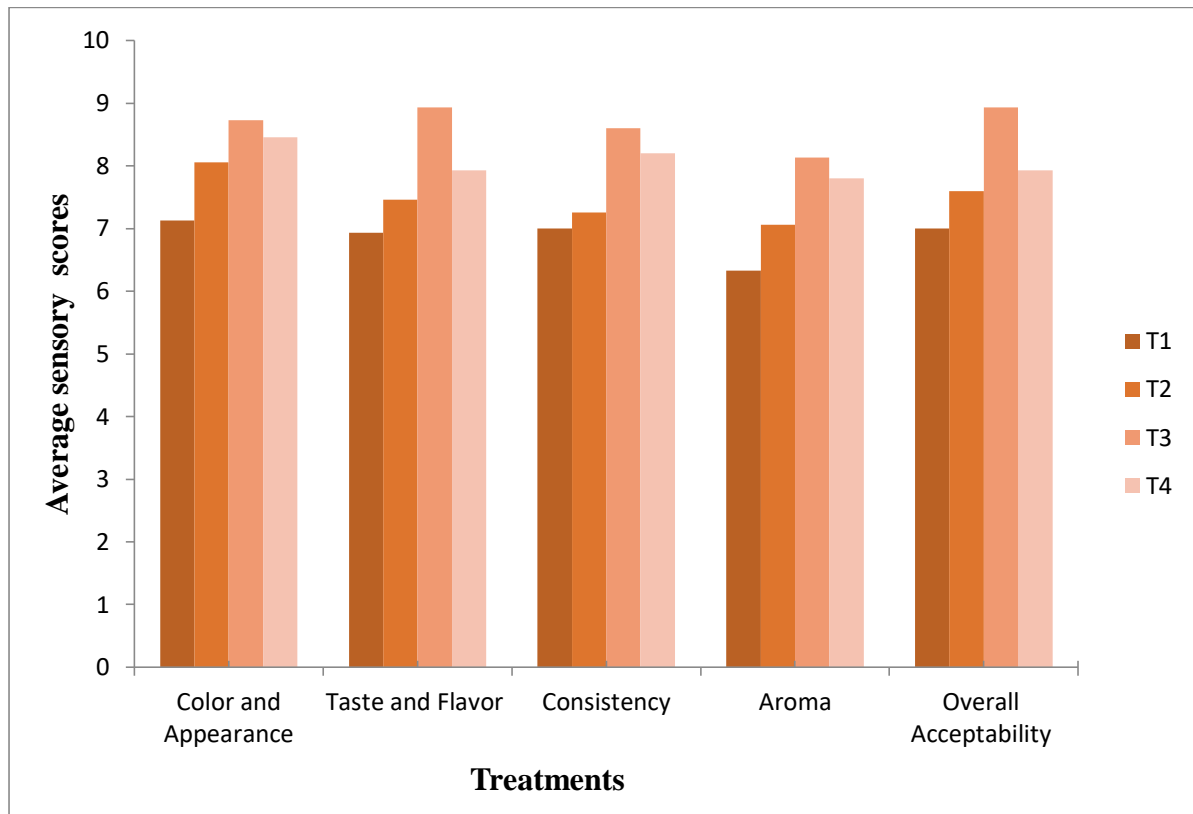


Figure 1: Average sensory scores of different sensory attributes of treatment sample of prepared tea bag

3.1 Color and Appearance of tea bags: The table 3.2 and figure1 shows the mean scores of tea bags in relation to Color and Appearance which indicates that T₃ (8.93) had the highest score followed by T₁ (6.93), T₂ (7.46) and T₄ (7.96) respectively. Scoring shows that the treatment T₁, T₂ and T₄ were moderate liked while and T₃ were very much liked by panel of judge. The results are supported by the finding of (De-Heer et al, 2013) the tea in general and herbal tea in particular are gaining increasing consumer attention due a growing awareness of health benefits.

3.2 Taste and Flavor of tea bags: The above Table 2 and figure 1 shows the mean scores of tea bags in relation to taste and flavor which indicates that T₃ (8.93) had the highest score followed by T₁ (6.93), T₂ (7.46) and T₄ (7.96) respectively. Scoring shows that the treatment T₁, T₂ and T₄ were moderate liked while and T₃ were very much liked by panel of judge. It indicates that the treatment has significant influence on the taste and flavor of the dehydrated guava and mango leaves tea bags.

3.3 Consistency of tea bags: The above Table 2 and figure 1 shows the mean scores of tea bags in relation to Consistency which indicates that T₃ (8.6) had the highest score followed by T₁ (7.00), T₂ (7.26) and T₄ (8.20) respectively. Scoring shows that the treatment T₁, T₂ and T₄ were moderate liked while and T₃ were very much liked by panel of judge. It indicates that the treatment has significant influence on the consistency of the dehydrated guava and mango leaves tea bags.

3.4 Aroma of tea bags: The above Table 2 and figure 1 shows the mean scores of tea bags in relation to Aroma which indicates that T₃ (8.13) had the highest score followed by T₁ (6.33), T₂ (7.06) and T₄ (7.80) respectively. Scoring shows that the treatment T₁, T₂ and T₄ were moderate liked while and T₃

were very much liked by panel of judges. It indicates that the treatment has significant influence on the aroma of the dehydrated guava and mango leaves tea bags.

3.5 Overall acceptability of tea bags : The table 2 and figure 1 shows the mean scores of herbal tea bags in relation to overall acceptability which indicates that T₃ (8.93) had the highest score followed by T₁ (7.00), T₂ (7.60) and T₄ (7.93) respectively. Scoring shows that the treatment T₁, T₂ and T₄ were moderate liked while and T₃ were very much liked by panel of judges. It indicates that the treatment has significant influence on the overall acceptability of the dehydrated guava and mango leaves tea bags.

Conclusion

From finding of the study undertaken, it is concluded that guava, mango and basil (tulsi) leaves can be successfully used for the preparation of tea bags. On the basis of sensory acceptability, it was found that T₃ (guava leaves 50 %, mango leaves 50% was scored highest in terms of color and appearance, taste and flavor, consistency, aroma and overall acceptability.

References-

- De-Heer, N.E.A., Twumasi, P., Tandoh, M.A., Ankar-G. and Oduro, I. (2013).** Formulation and sensory of Herb Tea from *Moringa Oleifera*, *Hibiscus Sabdariffa* and *Cymbopogon Citratus*. *Journal of Ghana Science Association*.15(1):53-62.
- Gupta SK, Prakash J, Srivastava S. (2002).** Validation of traditional claim of Tulsi, *Ocimum sanctum Linn.* as a medicinal plant. *Indian Journal of Experimental Biology* 40(7):765-73
- Imran, R.L and cover, W.V. (1983).** A modern approach to statistics. New York: John wiley and sons inc, 497.
- Joona K, sowmia C, Dhanya KP, and Divya MJ (2013).** Preliminary Phytochemical Investigation of *Mangifera indica* leaves and screening of Antioxidant and Anticancer activity. *Research Journal of Pharmaceutical, Biological and Chemical Science*, 4(2): 1112-1118
- Kemasari P., Sangeetha S. and Venkatalakshmi P. (2011).** Antihyperglycemic activity of *Mangifera indica Linn.* in alloxan induced diabetic rats. *Journal of Chemical and Pharmaceutical Research*, 3(5):653-659
- Srilakshmi B. (2015)** "Food Science" New Age International (P) Limited, Publishers, New Delhi 4 Edition pp:127
- Srivastava, R.P, and Kumar Sanjeev (2002).** Fruit and Vegetable preservation principles and practices, 3rd edition. *Journal of molecular nutritional food research*. 36(3):320-321
- Suchitra Kumari, raKavi, mana Swini mangaraj. (2016.)** Effect of Guava in Blood Glucose and Lipid Profile in Healthy Human Subjects: A Randomized Controlled Study. *Journal of Clinical and Diagnostic Research*. Sep, Vol-10(9): BC04-BC0
- Vibha Porwal, Pallavi Singh, Devendra Gurjar (2012).** A Comprehensive Study on Different Methods of Extraction from *Guajava* Leaves for Curing Various Health Problems. *International Journal of Engineering Research and Applications (IJERA) ISSN: 2248-9622 www.ijera.com Vol. 2, Issue 6:490-496*