



ISSN: 2456-0057  
IJPNPE 2018; 3(2): 675-677  
© 2018 IJPNPE  
www.journalofsports.com  
Received: 24-05-2018  
Accepted: 26-06-2018

**R Arivuchudar**  
Assistant Professor, Department  
of Clinical Nutrition and  
Dietetics, Periyar University,  
Salem, Tamil Nadu, India

## Preparation and organoleptic evaluation of aloe vera blended ready to serve functional drink

**R Arivuchudar**

### Abstract

The formulation of a ready to serve functional drink with a mishmash of aloe vera and fruit juice is conceded with the intent to substitute the consumption of carbonated beverages which pay for nothing but empty calories. Aloe vera has been considered as a major ingredient for the study because of its known therapeutic effects on various organs for all sects of people and fruit juice supplies the micronutrients from fruits needed for energy production, amla provides vitamin -C for instant refreshment, mint and ginger extracts contributes to flavour and mask the off taste and flavour of aloe vera. Five different blends of extracts of aloe vera, fruit juice (Watermelon/ Pomegranate/ Kiwi/ Orange/ Apple), amla, mint, ginger and sugar in fixed proportion of 60: 20:15:0.5:0.5:4 were developed and subjected to organoleptic evaluation. The most preferred RTS functional drink blend was found to be Aloe Vera: Watermelon: Amla: Mint: Ginger and its storage period under refrigeration was 37 days.

**Keywords:** RTS, Functional drink, Aloe Vera, Fruit juices

### Introduction

The functional drink is a non- alcoholic mixture of either one or all of the following viz. fruit juices, herbs, synthetic amino acids, vitamins and minerals added in order to provide energy, to quench thirst and replenish cells and tissues by hydrating, refreshing to relieve mental fatigue, provide immunity. Even though the globalization has influenced the Indian diet pattern by heading western diet a point has set in now, where the urban elite population has started to pose more conscious on weight reduction and general well-being. This state of mind of consumers has now turned the food market towards the innovative formulations of ready to drink, ready to serve functional drinks from easily available and nutritious natural fruit or vegetable juices.

Aloe Vera, has its foot in Indian, Chinese, Western and Mexican American medicine as a therapeutic agent in controlling metabolic disorders like diabetes, as detox in liver disorders, anti -inflammatory role in Gastrointestinal disorders and as a coolant in alleviating skin lesions and hydrating epithelial cells. In short, the pharmaceutical as well as the cosmetic industry will paralyse if aloe vera production declines. Hence, aloe vera is the base material for the RTSF drink to be prepared.

The fruits Watermelon/ Pomegranate/Kiwi/Orange/Apple were the choices due to the abundant availability of essential micronutrients - Vitamins and Minerals. Fruits are the major sources of sodium and potassium which serve as electrolytes and bioflavonoids, the nutraceuticals. The seasonal obtainability of the fruits is also a matter of choice.

Amla being the richest source of Vitamin C, which plays a vital role as antioxidant, t helps in boosting immunity, delays aging, and aids the formation and maintenance of collagen.

Mint with its distinct flavour and palate eases digestion, relieves from depression and mental fatigue, averts nausea, freshens the mouth and a well-known detoxicant.

Ginger extract possess virulent anti- carcinogenic, anti-viral and anti ulcerogenic properties and is a popular spice in all Indian cuisine.

### Objectives

The present study has been framed with the objective of

- To formulate different variations of RTSF drink with blends of aloe vera and fruit juices.
- To assess the overall acceptability of the variations of RTSF drink.

### Correspondence

**R Arivuchudar**  
Assistant Professor, Department  
of Clinical Nutrition and  
Dietetics, Periyar University,  
Salem, Tamil Nadu, India

## Materials and Methods

### Procurement of raw materials

The fresh, quality fruits and vegetables free from bruises required for the formulation of RTSF drink namely aloe vera, watermelon, pomegranate, kiwi, orange, apple, mint was procured from farmer's shandy in Salem district. Sugar, free

from adulteration was purchased from local departmental store.

### Formulation of RTSF Drink

The proportion of ingredients for formulation of different variations of RTSF drink is represented below:

**Table 1:** Formulation of Different Variations of RTSF Drinks

Variations	Ingredients	Proportions
Variation 1	Aloevera: Watermelon:Amla:Mint:Ginger:Sugar	(60: 20:15:0.5:0.5:4)
Variation 2	Aloevera: Pomegranate:Amla:Mint:Ginger:Sugar	
Variation 3	Aloevera: Kiwi:Amla:Mint:Ginger:Sugar	
Variation 4	Aloevera: Orange:Amla:Mint:Ginger:Sugar	
Variation 5	Aloevera: Apple:Amla:Mint:Ginger:Sugar	

According to Danme C M Sangma *et al* (2016) <sup>[16]</sup>, the most preferred variant of the aloe vera RTS blends prepared from aloe vera: sweet lime: amla with respect to the sensory quality was in the ratio of 60: 20:15, hence the same fraction of aloe vera: fruit: amla was preferred and the extracts for different variations from the aloe vera, respective fruits (watermelon, pomegranate, kiwi, orange, apple), mint and ginger was prepared and blended.

The required amount of sugar syrup was prepared by mixing sugar, water and .3% of citric acid and just heated to dissolve the sugar. The different variations of blends and sugar syrup was homogenised and heated to 90<sup>0</sup> C for 25 minutes (TNAU, PHT, 2015), cooled and RTSF drink is ready for consumption. Rheology in sensory evaluation is used as an

essential design tool in engineering food as it is important to processing, shelf stability and sensory perception, including texture and mouth feel, and it can probe the overall structure as well as the interplay between individual colloidal components. (Jason *et al.* 2013) <sup>[5]</sup>. Thus, the prepared variations of RTFS drink was subjected to sensory evaluation, which was carried out by 20 semi-trained panellist on a 9.0 point Hedonic scale.

### Results and Discussion

The results obtained from the sensory scores were statistically analyzed using the values and expressed as Mean  $\pm$  SD (Standard deviation) using SPSS software (version 11.5) in the following table:

**Table 2:** Statistical Analysis of Sensory Evaluation of Different Variations of RTSF Drink

S. No	Criteria (Sensory evaluation)	Variation 1 Mean $\pm$ S.D	Variation 2 Mean $\pm$ S.D	Variation 3 Mean $\pm$ S.D	Variation 4 Mean $\pm$ S.D	Variation 5 Mean $\pm$ S.D
1	Appearance	8.65 $\pm$ 0.48	8.0 $\pm$ 0.725	5.95 $\pm$ 0.933	7.35 $\pm$ 0.933	5.65 $\pm$ 0.933
2	Colour	8.71 $\pm$ 0.489	8.4 $\pm$ 0.598	6.55 $\pm$ 0.91	8.22 $\pm$ 0.821	5.65 $\pm$ 0.81
3	Flavor	8.80 $\pm$ 0.68	7.9 $\pm$ 0.63	5.30 $\pm$ 0.86	7.80 $\pm$ 0.65	6.34 $\pm$ 0.78
4	Taste	8.25 $\pm$ 0.55	8.0 $\pm$ 0.5	5.22 $\pm$ 0.82	7.28 $\pm$ 0.63	5.73 $\pm$ 0.66
5	Mouth Feel	8.80 $\pm$ 0.70	8.02 $\pm$ 0.56	5.01 $\pm$ 0.78	7.65 $\pm$ 0.58	5.90 $\pm$ 0.73

In respect to appearance, the variation 1 with watermelon as fruit of choice has scored highest, trailed by pomegranate, orange, apple and kiwi.

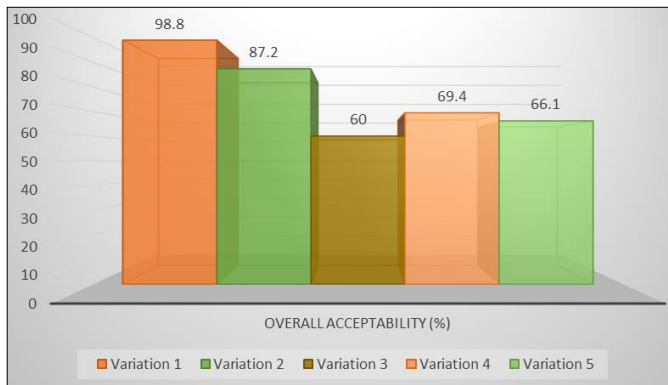
The colour was very appealing in variation 1 with watermelon with a slight fall pomegranate ranks second and orange RTSF

drink, Apple RTSF drink and Kiwi RTSF drink follows the order.

The criterias flavour, taste and mouth feel also followed the same position- The 1<sup>st</sup> fruit of choice being watermelon, followed by pomegranate, orange, apple and kiwi.

**Table 3:** Overall Acceptability of Different Variations of RTSF Drink

S. No	Variation	Blends	Overall Acceptability (%)
1	Variation 1	Aloevera: Watermelon:Amla:Mint:Ginger:Sugar	98.8
2	Variation 2	Aloevera: Pomegranate:Amla:Mint:Ginger:Sugar	87.2
3	Variation 3	Aloevera: Kiwi:Amla:Mint:Ginger:Sugar	60
4	Variation 4	Aloevera: Orange:Amla:Mint:Ginger:Sugar	69.4
5	Variation 5	Aloevera: Apple:Amla:Mint:Ginger:Sugar	66.1



**Fig 1:** Percentage of Overall Acceptability of RTSF Drink Variations

To conclude, Table -3 evidently depicts that the variation 1, aloe vera and watermelon based RTSF drink has scored substantially higher scores with reverence to overall acceptability succeeded by aloe vera and pomegranate, aloe vera and orange, aloe vera and apple and aloe vera and kiwi blends of RTSF drinks.

Natural sweetness present in the watermelon has masked the bitter taste of aloe vera, in addition the sugar syrup added as per FSSAI specification (2006) [3] must also have led to a welcoming taste of the Variation 1 compared to other variations.

### Conclusion

There are few fruitful RTS drink studies with blends of aloe vera and amla/mint/ginger/ sweet lime/ spiced papaya. This study is initiated to formulate replenishing RTSF drink with few more different fruit blends.

The aloe vera and watermelon based variation which has proved its overall acceptability is power packed with the wellness of aloe vera as well as watermelon.

Watermelon is an exceptional source of L-citrulline, an amino acid, which benefits athletes and body builders by reducing fatigue and muscle soreness and increase the average peak force and decrease peak torque. It also improves blood flow and improves immunity. More over watermelon is a nutritious bag of antioxidants Vitamin A, Vitamin C, Selenium, and richest store of Lycopene. It has 80% moisture which aids in immediate hydration.

Several studies on watermelon has proved effective against obesity, blood pressure and cancer. Hence, it is rewarding the sensory evaluation also has led to the choice of highly nutritious RTSF drink with aloe vera: watermelon: amla: mint: ginger and can be recommended specially for sports persons before and after work outs, and to people of all age group to refresh and replenish.

### References

1. Boghani AH, Raheem A, Hashmi SI. Development and Storage Studies of Blended Papaya-Aloe Vera Ready to Serve (RTS) Beverage. *J Food Process Technol.* 2012; 3:185. doi:10.4172/2157-7110.1000185
2. Danme Sangma CM *et al.* Preparation and Evaluation of Ready-to-Serve Drink Made from Blend of Aloe vera, Sweet Lime, Amla and Ginger *Intl. J Food. Ferment. Technol.* 2016; 6(2):457-465.
3. Food Safety and Standards Authority of India (FSSAI) Food safety and standards Act, 2006.
4. Istvan siro *et al.* Functional food. Product development, marketing and consumer acceptance-A review *Appetite.* 2008; 51(3):456-467.

5. Jason RS, Michael JR, Boehma Stefan K. Oral processing, texture and mouthfeel: From rheology to tribology and beyond. *Current Opinion in Colloid and Interface Science.* 2013; 18:349-359.
6. Lokesh Mishra K *et al.* Quality attributes, phytochemical profile and storage stability studies of functional ready to serve (RTS) drink made from blend of Aloe vera, sweet lime, amla and ginger. *J Food Sci Technol.* 2017; 54(3):761-769.
7. Meika Foster, Duncan Hunter, Samir Samman. Evaluation of the Nutritional and Metabolic Effects of Aloe Vera, *Herbal Medicine: Biomolecular and Clinical Aspects.* 2nd edition, CRC Press/Taylor & Francis, 2011.
8. Ramachandran Pushkala, Nagarajan Srividya. Quality characteristics, nutraceutical profile and storage stability of the aloe gel-papaya functional beverage blend. *International Journal of Food Science.* 2014. <http://dx.doi.org/10.1155/2014/847013>
9. Ranganna S. Handbook of analysis and quality control of fruit and vegetable products, Tata McGraw Hill Pub. Co. Ltd., New Delhi, 2001.
10. [agritech.tnau.ac.in/postharvest/pht\\_fruits\\_intro.html](http://agritech.tnau.ac.in/postharvest/pht_fruits_intro.html)
11. [www.nutraingredients-usa.com/Article/2017/06/07/Watermelon-pomegranate-juice-shows-athletic-benefits-Study](http://www.nutraingredients-usa.com/Article/2017/06/07/Watermelon-pomegranate-juice-shows-athletic-benefits-Study)