

Enhancing Women's Health Through Nutrient-Rich Beverages

Mrs. Ritika K. Chandwani Asst. Prof. Department of Food Technology, CNCVCW, CSIBER,
Kolhapur Email: ritika.k1389@gmail.com

Abstract:

Women's health is influenced by various physiological, nutritional, and lifestyle factors that require special attention. Nutrient-rich beverages can play a crucial role in addressing common health concerns among women, such as anemia, bone health, hormonal balance, and immunity. Squash is a type of fruit beverage containing at least 25% fruit juice/ pulp and 40-50% total soluble solids. It is diluted before serving. Aonla and pineapple are rich source of vitamin C that boosts the immunity. Giloy (*Tinospora Cardifolia*) among the most important ayurvedic plant which act as, immune-enhancer, anti-inflammatory, anti-oxidant, anti-carcinogenic, anti-diabetic, anti-hypertensive, and anti-cancer, anti-allergic. Squash is made with varying proportions of pineapple juice (100ml, 75ml, 50ml, 25ml and 0ml), aonla juice (0ml, 25ml, 50ml, 75ml, and 100ml), rock candy (khadisakhar-150gm), and citric acid (1%). Sample with proportion 75% aonla and 25% pineapple was selected for further trials. Selected sample was incorporated with giloy stem Satva (0%, 1%, 1.5%, 2%, 2.5%, and 3%) with constant amount of khadisakhar and citric acid. The combination made with 75% aonla-pineapple blend and 1.5% giloy stem Satva had good acceptance with TSS (43°Brix), acidity (0.36%), ascorbic acid (30.78mg/ml), and total sugar (41.58). Empowering women through awareness of such nutrient-rich beverages can lead to improved health outcomes and encourage healthier dietary choices. Additionally, promoting the production and commercialization of these drinks can create entrepreneurial opportunities for women, enabling them to contribute to both household nutrition and financial independence.

Keywords- Women's health, Squash, pineapple, aonla, giloy, immunity.

INTRODUCTION

Women's health is a crucial aspect of societal well-being, yet it remains underprioritized in many regions. Biological, nutritional, and lifestyle factors make women more vulnerable to various health issues, including hormonal imbalances, osteoporosis, cardiovascular diseases, and mental health disorders. Nutrient-rich diets and functional beverages play a significant role in empowering women to lead healthier lives.

Squash is a type of fruit beverage containing at least 25% fruit juice/ pulp and 40-50% total soluble solids. Commercially it also contains about 1% acid and 350ppm sulphur dioxide or 600ppm sodium benzoate. It is diluted before serving (R. P. Srivastava and Sanjeev Kumar, 2017). Among all beverages squash is quite popular all over the world as nutritious soft drinks. Citrus fruits (particularly orange, lime and lemon) or a blend of fruits and berries are commonly used as the base of squash. Fruit squashes are becoming popular in comparison with synthetic beverages evidently because of their taste, flavour, nutritive value and their storage stability.

Pineapple (*Ananas comosus*, Bromeliaceae) is a tropical fruit crop with several nutritional benefits. It is a good source of vitamin B1, B6, and vitamin C (Remizeet et al. 2018). Pineapple is a wonderful tropical fruit having exceptional juiciness, vibrant tropical flavour and immense health benefits. Pineapple contains considerable calcium, potassium, fibre, and vitamin C. It is low in fat and cholesterol (Joy, 2010). Indian Gooseberry or Amla (*Phyllanthus emblica* L.) have medicinal and curative properties and its extracts are efficiently used in Ayurveda, and modern medicines.

Medicinal plants are defined as "plants in which one or more of their parts contain compounds that can be used for treatment purposes or which are precursors for the preparation of competent drugs" by the World Health Organization (WHO), and it is estimated that 70–80 percent of people in developing countries rely on traditional medicine. Giloy (*Tinospora cordifolia*) belongs to the Menispermaceae family and is known in India by different names such as giloy, guduchi, and amrita. It is well known in Ayurveda and traditional medicine for its wonderful therapeutic efficiency (Sankhala et al., 2012). In Indian Ayurveda Pharmacy, it is a well-known medicinal herb used to cure fever, liver, spleen disorders, bleeding sickness and heat burning feeling. Its roots, stems, and leaves have all been utilized medicinally in Ayurvedic tradition for thousands of years. Because of its ability to impart juvenility, liveliness, and long life, it is referred to as "Nectar of Immortality." The stem is a more widely utilised and beneficial component of the plant than the leaves (Sarala et al., 2012). Its extract has been shown to be an excellent source of antioxidant for nutraceutical purposes, providing protection against cardiovascular disease, premature ageing, and cancer (Ilaiyaraja and Khanum 2011). Many researchers have laboured to characterise the *Tinospora cordifolia*'s medicinal and outstanding positive properties, but only a few studies have been conducted with food containing giloy stem. Supplementing with medicinal herbs not only provides therapeutic benefits, but it can also boost the nutritional value of the product while also providing functional health benefits. Giloy, which has a high therapeutic value, can also be utilised to make ready-to-eat and nutritious foods. Large number of the population of our country uses traditional medicines for their primary health care. So there is a great need for the recognition of the medicinal and economic benefits of flora and fauna (Sangeeta et al. 2015).

OBJECTIVES OF STUDY

1. Develop and promote nutrient-rich beverages that help address common deficiencies in women.
2. Formulate beverages for different phases of a woman's life.
3. Incorporate functional ingredients like Aonla, Pineapple, and Giloy to enhance immunity, digestive health, and energy levels.
4. Raise Awareness About Women's Health Needs.

MATERIALS AND METHODS

For the present investigation, ingredients i.e. pineapple of Queen variety, aonla, khadisakhar, giloy stem were procured from the local market of Kolhapur city. The procuring was done in a single lot to avoid variation compositional differences so that the quality difference should be rule out.

Preparation of Giloy Satva

Giloy Stem

Washing and peeling

Crushing

Soaking in water (1:4, stem: water)

Mixing

Straining

Settling (2 -3hrs)

Removal of supernatant

Drying (sundry 3-4hrs)

Packaging

Storage (airtight container)

Figure No. 1: Preparation of Giloy Satva

- Development of Aonla- Pineapple Squash

Table 1: Different proportions of Aonla- Pineapple Squash

Ingredients	Control(ml/gm)	T1(ml/gm)	T2(ml/gm)	T3(ml/gm)	T4 (ml/gm)
Pineapple	100	75	50	25	0
Aonla	0	25	50	75	100
Khadisakhar	150	150	150	150	150
Citric acid	0.6	0.6	0.6	0.6	-
KMS	0.06	0.06	0.06	0.06	0.06
Water	100	100	100	100	100

Table 2: Different Proportions of Giloy stem Satva

Ingredients	Control (ml/gm)	S1(ml/gm)	S2(ml/gm)	S3(ml/gm)	S4 (ml/gm)	S5 (ml/gm)
Pineapple	25	25	25	25	25	25
Aonla	75	75	75	75	75	75
Giloy stem Satva	00	1.0	1.5	2.0	2.5	3.0
Khadisakhar	150	150	150	150	150	150
Citric acid	0.6	0.6	0.6	0.6	-	-
KMS	0.06	0.06	0.06	0.06	0.06	0.06
Water	100	100	100	100	100	100

Preparation of Aonla- Pineapple Squash

Washing and trimming Cutting

Juice Extraction Straining

Juice measuring

Preparation of syrup

(sugar + water + acid, heating just to dissolve)

Straining

Mixing with Juice Addition of preservative Bottling and Capping

Storage

(Figure 2: Process flow of preparation of Aonla- Pineapple Squash)

Clean, ripen and diseased free pineapple was taken and trimmed off. Pineapple was cut into uniform pieces and grinded into mixer to get juice. The juice then filtered with muslin cloth and measured accordingly. Clean, diseased free aonla were taken and blanched in cooker. Segments were separated and seeds were removed after blanching. Aonla pieces were then grinded to get juice. The juice was then strained. It was weighed and kept aside for further process. Khadisakhar, citric acid and water was taken into utensil and boiled till all sugar dissolves. Syrup was then filtered. Strained juices were mixed with syrup in desired proportion. KMS i.e. potassium meta-bisulphite was weighed and added to mixture. Prepared squash was bottled and kept for sensory evaluation.

Selected sample form above different proportion was taken for further work. Selected juice mixture of pineapple and aonla proportion was mixed with different proportion of giloy stem Satva. The process for squash followed as it is.

The selected ‘Blended squash’ was analyzed for all proximate constituents. The standard procedures suggested by Ranganna (1986) were used for determination.

The sensory evaluation of blended squash was carried out on the basis of overall acceptability. The prepared samples were analyzed for sensory attributes like appearance, flavour, texture, taste, mouth feel and over all acceptability. Selected 10 panel members (including semi-trained and consumer/untrained panel) and 9-point Hedonic rating test was used for the sensory evaluation.

RESULT AND DISCUSSION

Formulation

The 4 different combinations of pineapple juice (100ml, 75ml, 50ml, 25ml and 0ml), aonla juice (0ml, 25ml, 50ml, 75ml, and 100ml) with constant amount of khadisakhar, citric acid and KMS were prepared respectively. The combination of Sample T3 containing 25% pineapple juice and 75% aonla juice was most acceptable by the panel members.

Selected sample T3 was taken for further incorporation with giloy stem Satva (0%, 1%, 1.5%, 2%, 2.5%, and 3%) with constant amount of khadisakhar and citric acid. The combination made with 75% aonla-pineapple blend and 1.5% giloy stem Satva had good acceptance. Selected sample was then taken for nutritional analysis for proximate constituents.

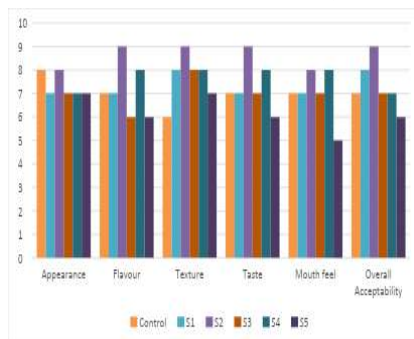


Figure 3: Graphical representation of Sensory evaluation of Blended Squash incorporated with giloy stem Satva.



Figure 4: Blended Squash Sample S2

Table 3- Nutritive Value of Blended Squash per 100ml

CONCLUSION

Investing in women’s health is not just a necessity—it is an investment in stronger families, healthier communities, and a more productive society. Nutrient-rich beverages offer a simple yet powerful solution to address key health concerns such as anemia, osteoporosis, hormonal imbalances, and weakened immunity. Various combinations of Blended Squash

incorporated with Giloy stem satva were prepared to select best among them. The combination made with 75% (Pineapple and aonla) and 1.5% Giloy stem extract had good acceptance. The selected sample S2 results in Energy (628.2KCal), protein (0.38gm), total sugars (41.58gm) and ascorbic acid (30.78mg/ml). Beyond improving nutrition, the promotion of these beverages can also empower women by creating opportunities for entrepreneurship and sustainable livelihoods.

REFERENCES

1. Ilaiyaraja N, Khanum F. Antioxidant potential of *Tinospora cordifolia* extracts and their protective effect on oxidation of biomolecules. *Pharmacognosy Journal*. 2011;3(20):56-62.
2. Pandey M, Surendra K, Vyas Mk, SharmaR. (2012) “*T.cordifolia*: A climbing shrub in health care Management.” *International journal of pharmaceutical & Biosciences*. 3(4):612-628.
3. R. P. Srivastava and Sanjeev Kumar, *Fruit and Vegetable Preservation*, 3rd Edition (2017), CBS publishers and distributors, pg. no. 217.
4. Sankhala LN, Tripathi SM, Bhavsar SK, Thakar AM. Evaluation of effect of *Tinospora cordifolia* extract on humoral and cell mediated immunity in Acephate intoxicated mice. *Veterinary practitioner*. 2012;13:168-170.
5. Sarala M, Velu V, Anandharamakrishnan C, Singh RP. Spray drying of *Tinospora cordifolia* leaf and stem extract and evaluation of antioxidant activity. *Journal of food science and technology*. 2012;49(1):119-122.
6. Sood S. (2016) Studies on the nutritional evaluation of dietetic And sugar based Giloy (*T.cordifolia*) beverage. *Nutrition & Food Science International Journal*. 1(5):NFSIJ.MS.ID.555-572.
7. <http://www.erinnudi.com>
8. <http://www.manrepeller.com>
9. <https://www.researchgate.net>
10. <http://researcherslinks.com>
11. <http://www.scirp.org/journal/fns>