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A Study on Formulation and Nutritional Evaluation of *Leucas Asperiflower* (Thumbai) Balls

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Abstract

Leucas aspera is an herbal plant species within the leucas genus and the lamiaceae family, it is commonly known as Thumbai in Tamil, drona pushpi in Sanskrit, gomamadhupati in Hindi (Kalachaveedu et al. 2006). All parts of Thumbai plant have medicinal values. Flowers and leaves of Thumbai plant are used for curing many diseases. *Leucas asperai.e.* Thumbai flowers is used as stimulant, expectorant, aperient, diaphoretic, insecticide and emmenagogue (Prajapati et al, 2010). Nutrient balls are pretty much a perfect nutritious snack, they offer satiating combination of proteins, carbohydrates, and fats and are customizable and portable and offer perfect nutrient mix of calories and body building nutrients (Misra. 2005). It was observed that standardized leucas aspera flower balls had mean score and standard deviation for appearance, colour, texture, taste, flavour was 3.73 ± 0.746 , 3.92 ± 0.784 , 4.96 ± 0.952 , 3.64 ± 0.728 , 3.66 ± 0.55 and the overall acceptability was 19.91 ± 3.760 and showed good characteristics. The nutrient content of the leucas aspera flower balls have increased amounts of Carbohydrate i.e. 39gm, protein 9.2 gm, fat content 0.3%, iron 20mg, and calcium 1.2mg/dl.

Keywords: *Leucas aspera* flowers, nutrient balls, sensory evaluation, standardization

1. Introduction

Leucas aspera is most commonly known as Thumbai and is known for its uses in the fields of medicine and agriculture. It consists of beautiful white flowers that can be spotted easily and used for home remedies, it is a best medicine for treating insect bites and snake bites. Thumbai flowers and leaves have medicinal value and aid in the preparation of Ayurveda and Siddha medicine (R. Srinivasan, 2011). *Leucas aspera* is a shrub, it's flowers are white, small in size with dense terminal or auxiliary whorls, bracts 6mm long, linear, acute, bristle-tipped, ciliate with long

slender hairs. Hot water extract of entire plant is used to treat inflammation, dyspepsia and jaundice (Khatoon et al., 2005). The minimum inhibitory concentration was found to be 5mg/ml. It has both fungistatic and fungicidal actions. Triterpenoids is present in *Leucas aspera* plant. Other ingredients like Sprouted green gram, Roasted bengal gram dhal which are rich in protein, fibre and Jaggery which has iron content were added and mixed well and leucas aspera flower balls was developed).

2. Materials and Methods:

Leucas aspera flowers were procured from the villages in Thanjavur and it was cleaned, shadow

dried, roasted, and other ingredients (Sprouted green gram, roasted Bengal gram dhal, jaggery were added and mixed well and *leucas aspera* flower balls was developed, consumer acceptability was assessed by score card method and statistical methods like mean and statistical methods were applied.[1-5]

Table.1.Mean score and standard deviation of consumer acceptability for *leucas aspera* flower balls:

Mean score and standard deviation of consumer acceptability for <i>leucas aspera</i> flower balls			
Name of the recipe	Criteria	Mean standard Deviation ±	Overall acceptability
Leucas aspera Flower balls	Appearance	3.73 ± 0.746	19.91± 3.760
	Colour	3.92 ± 0.784	
	Texture	4.96 ± 0.852	
	Taste	3.64 ± 0.728	
	Flavour.	3.66 ± 0.550	

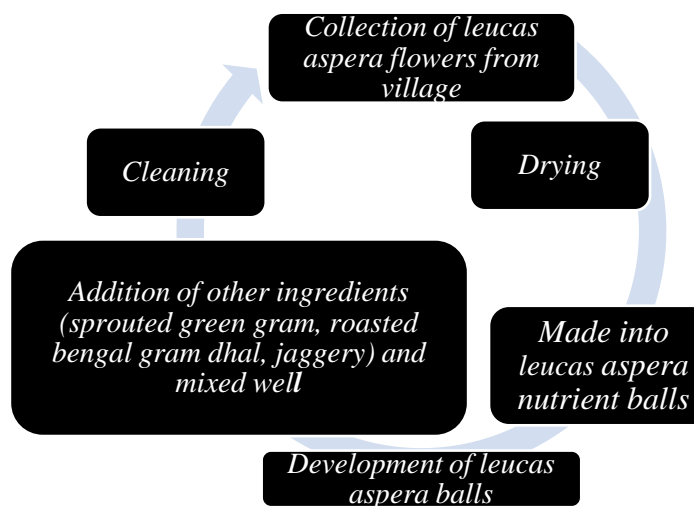


Chart.1.Flow chart for the development of *leucas aspera* flower balls

Table.1. reveals standardized leucas aspera flower balls showed good quality attributes like

appearance, colour, flavour, texture, and taste. The

nutrient content of the leucas aspera flower balls have increased amounts of Carbohydrate, Protein, Calcium, Iron and low fat were analysed by Anthrone method, Lowry method, EDTA method, AOAC (2000) method and Soxhlet method respectively.

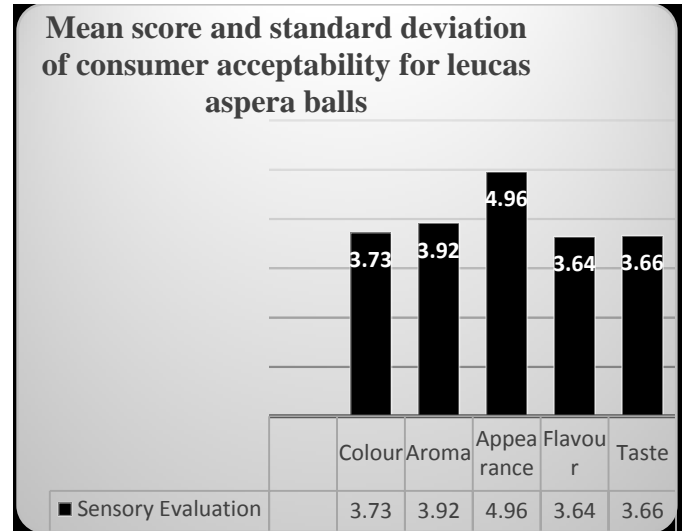


Fig.1.Mean score and standard deviation of consumer acceptability for *leucas aspera* flower balls.

3. Assessment of the consumer acceptability:

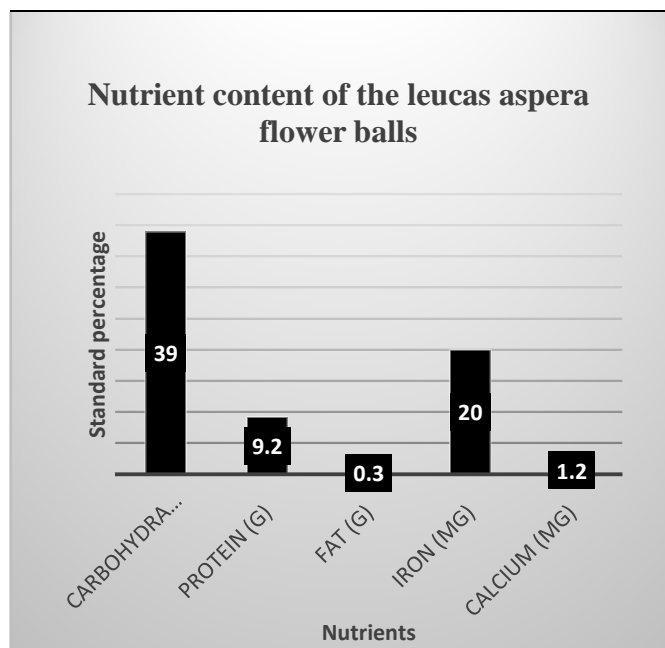
The formulated recipe was assessed by score card method, A total number of 25 consumers were randomly selected and appearance, colour, flavour, texture, taste of leucas aspera balls were scored with a 5 point hedonic scale rating 5-Excellent to 2-Fair, The nutrient content of the Carbohydrate, Protein, Calcium, Iron and low fat were analysed by Anthrone method, Lowry method, EDTA method, AOAC (2000) method and Soxhlet method respectively.

The percentage of ingredients used for *Leucas aspera* flower balls are *Leucas aspera* flower - 50%, Sprouted green gram-20%, Roasted Bengal gram dhal -20%, jaggery-10% equivalent to 50 gm, 20gm, 20 gm, and 10 gm (50+20+20+10 = 100 gm) each. The mean score and standard deviation of consumer acceptability for leucas aspera flower balls were given in Table - I

Table.2. Nutrient content of the leucas aspera flower balls:

Nutrients	StandardPercentage (%)
Carbohydrates (g)	39
Protein (g)	9.2
Fat (g)	0.3
Iron (mg)	20
Calcium (mg)	1.2

Table II reveals the nutrient content of the *leucas aspera* flower balls have increased amounts of Carbohydrate i.e. 39gm, protein 9.2 gm, fat content 0.3%, iron 20mg, and calcium 1.2mg/dl respectively.



Conclusions

The present study reveals that selected recipe can be prepared and standardized using *leucas aspera* flowers and they did not have any adverse effect on quality attributes like appearance, colour, flavour, texture and taste of the product. The nutrient content of the leucas aspera flower nutrient balls have increase damounts of Protein,

Carbohydrates, Calcium and Iron.

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Conflict of Interest

We declare that we have no conflict of interest.

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