

Production and Qualitative Analysis of Gummies from Tulsi (Holly Basil) and Jivanti (*Leptadenia reticulata*) Powder

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ABSTRACT

Gummy, jellies are a typically un nutritious product, but now we can increase some health properties by the reduction of sugar and the addition of healthier components. Therefore, the purpose of this study is to create gummy jellies using natural materials, without the addition of extra or large amount of sugar or other additives. Making the gummies nutritious and to study set out to create gummy jelly candies that were enhanced with a crude extract of Tulsi leaves (Holly Basil) and Jivanti leaves (*Leptadenia reticulata*) leaf. The medium-sized, evergreen Tulsi (Holly Basil) tree belongs to the Lamiaceae family and Jivanti (*Leptadenia reticulata*) belongs to Apocynaceae family. A puree prepared from a variety of these underwent sensory, microbiological, and physicochemical studies. These gummies are rich in vitamin A, C, K. This herbal gummy contains juice of jivanti (*Leptadenia reticulata*) and Tulsi (Holly basil) hence they are rich in Antioxidants. It has been used to maintain the cholesterol level, blood regulation, boosts Immunity, maintain the Blood Pressure, helps to improve gut system, treat the skin problems. The outcomes of the microbiological analyses demonstrated that gummies prepared were safe for ingestion. The purpose of this study was to create gummies that were enriched with Jivanti (*Leptadenia reticulata*) and Tulsi (Holy Basil) leaf crude extract.

Key Words : Tulsi, Jivanti, Sensory evolution, Physicochemical analysis

INTRODUCTION

There is no denying that the gelatinous, rainbow-colored candies most of us first came to know and love simply as “gummy bears” are one of the most well-liked confections in the entire world, regardless of whether you call them “gummy” or “gummi,” prefer bears or worms, or belong to Haribo or Black Forest. Yes, chocolate bars and their many variations continue to be the most popular sweets sold worldwide. These gummies are the confection containing Tulsi leaves (Holly Basil) and Jivanti leaves (*Leptadenia reticulata*) roots powder, honey and sugar as a principal ingredient. Gummy, jellies are a typically un nutritious product, but now we can increase some health properties by the reduction of sugar and the addition of healthier components (Baliga *et al.*, 2013).

Therefore, the purpose of this study is to create gummy jellies using natural materials, without the addition

of extra or large amount of sugar or other additives. Making the gummies nutritious and to study set out to create gummy jelly candies that were enhanced with a crude extract of Tulsi leaves (Holly Basil) and Jivanti leaves (*Leptadenia reticulata*) leaf. These gummies are rich in vitamin A, C, K. This herbal gummy contains juice of jivanti (*Leptadenia reticulata*) and Tulsi (Holly basil) hence they are rich in Antioxidants. It has been used to maintain the cholesterol level, blood regulation, boosts Immunity, maintain the Blood Pressure, helps to improve gut system, treat the skin problems.

Tulsi:

The use of the plant as drug is slowly and gradually expanding across the world as they've lesser or no side effect. Tulsi (*Ocimum sanctum* Linn.) “Queen of herbs” is a significant epitome of God in Hindu religious traditions (Cohen, 2014). Tulsi has immensely complex makeup and

been applied by Hindus but now after feting its immense restorative benefits, it has been used by ample number of people. Tulsi is used in different formulas of remedy like Ayurved and Siddha for safeguard and restorative of skin conditions, bellyache pain, digestive diseases, night blindness, sleeping diseases, inflammation in the joints and pain caused by it, diarrhoea, etc. This paper presents the phytochemistry, traditional as well as medicinal parcels of Tulsi. Also, it illustrates the benefits of diurnal addition of Tulsi to the diet.

Structure of Tulsi:

Ocimum sanctum is rigid, important furcate shrub with the height of 30- 60 cm on maturity. It has 5 cm long simple, contrary, sweet, elliptical, blunt, dentate periphery leaves (Kulkarni and Adavirao, 2018). Flowers are stretched raceme and purplish in round spiral (Pattanayak *et al.*, 2010). The shade of the seeds are radish unheroic and berry are little in size (Kumar *et al.*, 2010 and Mondal *et al.*, 2009).

Conventional uses of Tulsi:

Conventionally, Tulsi is employed in different pattern; juicy substance from the fresh or dried leaves In Ayurveda and Siddha fabrics Tulsi has been employed as a preventative measure just as cure for pain in the head, cough, flu, pain in the cognizance, fever, throat pain, bronchial asthma, hepatic conditions, also remedy for snake chomp and scorpion mouthful, migraine, fatigue strength, flatulence, dermal conditions, cut, arthritis, digestive problems, wakefulness, optic conditions, diarrhoea (Joshi, 2017).

Jivanti :

Table 1 : Comparative morphology of leaves of source plants of jivanti

Sr. No.	Parameter	Results
		<i>L. reticulates</i>
1.	Type	Simple
2.	Phyllotaxy	Opposite
3.	Stipules	Very small or absent
4.	Petiole	1.1-2.1 cm
5.	Shape and Size	Ovate to 5-4.7 cm
6.	Venation	6 pairs of nerves with reticulate venation
7.	Texture	Hiatellids above pubescent beneath
8.	Apex	Cuspidate

METHODOLOGY

List of Glassware's:

Beaker, Conical flask, Measuring cylinder, Stirrer, Test tube, Pipette, Burrete, Silica crucible, Petri plate

List of instruments:

Hot air oven, Refrigerator, Drier, Weighing balance, Autoclave, Tray drier, Steel utensils, Spectrophotometer, Refractometer

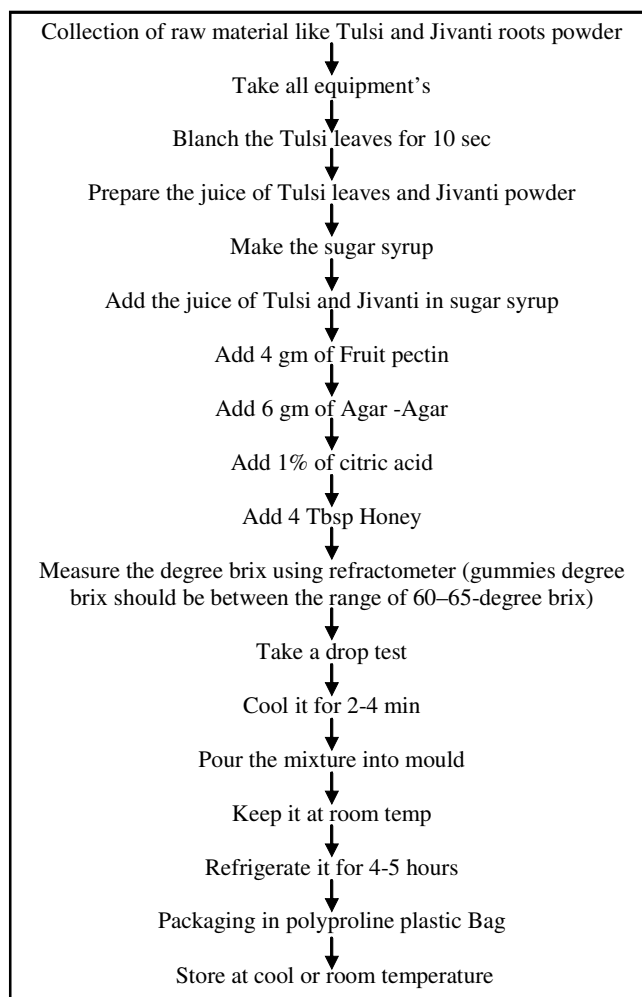
Chemicals and Ingredients:

– Tulsi leaves, Jivanti powder, Sugar, Honey, Pectin, Agar – Agar, Citric Acid, Aspartame, Water

Collection of samples:

The collection of Tulsi leaves from garden.

Flow chart of protocol for preparation of Herbal gummies from Tulsi and Jivanti plant:



Physico-Chemical Analysis of Tulsi and Jivanti Gummies:

Estimation of moisture:

Moisture was determined by taking 10gm of the sample in the counted petri plate. The samples were dried at 60 °C. The samples were counted after every 2 hrs till a constant value was recorded for posterior three times. Each time before importing, the petri plates were cooled in the desiccator. Moisture content of the sample was expressed as gm/ 100gm of the gummies sample.

Estimation of total soluble solids:

ml of the sample was placed on the prism face of at ago pocket refractometer and the value was noted. Distilled water was used to standardise the fund refractometer. In case of solid sample distilled water was used for birth and 0.3 ml of the supernatant was used for the analysis.

Estimation of Titratable acidity:

Titratable acidity was estimated. Adulterated gummies extract was titrated against 0.1 N sodium hydroxide using phenolphthalein index. Trial was performed thrice. Titratable acidity was reported as citric acid.

Nutritional Value of Tulsi and Jivanti:

Nutritional composition (Tulsi)	Nutrition Value (in mg)	Nutritional composition (Jivanti)	Nutrition Value (in mg)
Calories	1.38	Calories	1.38
Fat	0.038	Crude Fat %	0.038
Sodium	0	Sodium	0
Carbohydrates	0.159	Carbohydrates %	23.40
Fiber	0.096	Fiber	0.096
Sugars	0.018	Sugars	0.018
Protein	3.2	Protein %	35.80
Vitamin A	3%	Vitamin A	3%
Vitamin C	30%	Vitamin C	30%
Vitamin B6	10%	Vitamin B6	10%
Vitamin D	0%	Vitamin D	0%
Vitamin K	13%	Vitamin K	13%
Magnesium	16%	Magnesium	1.50
Calcium	17%		
Iron	17%		
Potassium	8%		

RESULTS AND DISCUSSION

Physico-chemical analysis of Tulsi and Jivanti Gummies:

The prepared Gummies were further utilized for their Physico-chemical parameters (such as moisture. pH, Titrable acidity, total soluble solids, etc.).

Table 2 : Physico- chemical analysis of Tulsi and Jivanti Gummies

Sr. No.	Physico- chemical parameters	Tulsi and Jivanti Gummies
1.	Moisture %	50 %
2.	Total soluble solids (B°)	35
3.	Protein %	1.37
4.	Total plate count cfu/gm	<10
5.	Yeast and mould count	<10
6.	Total fat %	0.80
7.	Carbohydrates %	34.40
8.	Dietary Fiber %	1.80
9.	Titrate Acidity %	1.29

Statistical analysis of sensory evaluation of Gummies:

The product was served to a panel of judges for organoleptic appraisal. They were handed with 9 hedonic score card for evaluation. The both delectables were rated by the judges for sensitive attributes like general appearance, body, texture, flavour and taste. The commercially available products were also served along with laboratory made products.

The design was carried out in the department of Food Technology under the title product and Qualitative Analysis of Tulsi and Jivanti gummies. The present disquisition was accepted to estimate the Physico-chemical and sensitive quality of laboratory made Tulsi and Jivanti gummies. The results of present exploration

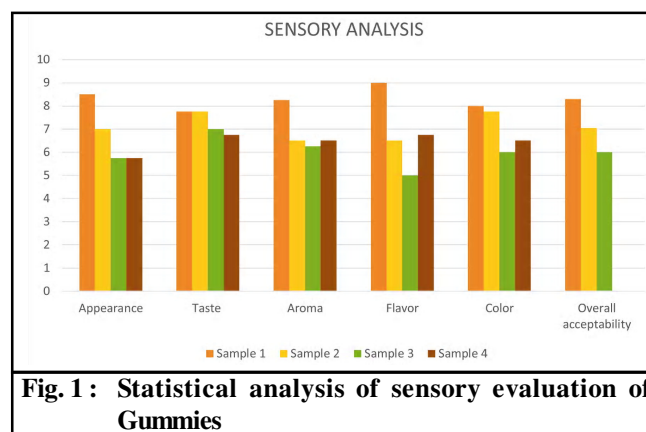


Fig. 1 : Statistical analysis of sensory evaluation of Gummies

work are tabulated, presented and introduced under the following Fig. 1.

Conclusion:

T1 sample was shown to be the most widely accepted approach out of all the preparations that contained various amounts of Tulsi juice, jivanti powder, honey, fruit pectin, agar – agar and sugar. T1 gummies sample contains (50%) moisture (1.37%) protein, (0.80% fat), (34.40%) carbs, (1.80 %) dietary fiber. T1 formulation has been observed to be nutrient rich. The prepared gummies can provide a sufficient amount of nutrition to the body. People suffering from blood pressure and diabetes problems can consume these gummies. The ingredients used for gummies preparation were chosen wisely with the intention to provide enough nutrition which can be helpful for healthy lifestyle’.

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