Formulation And Standardisation of Sourashtra Herbal Tea

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***Abstract* – Anemia is a condition were the number of red blood cells or the haemoglobin concentration is lower. Herbs have potential to prevent anaemia. Sourashtra Herbal Tea is easy to prepare and acceptable as a daily practice. The present study is designed to analyze acceptance tests and nutrient composition of SHT. Acceptance tests revealed that 5g of SHT was more accepted compared to other proportions. Nutrient composition of the formulated SHT were (6mg Fe, 3.31mg Mg, 1.57mg Zn, total antioxidant, total flavonoids, and total polyphenols content were (11.27mg, 1.57mg and 1.61mg), ascorbic acid and β-carotene content were (0.908mg and 9.24 µg) respectively.**

***Index Terms*- Formulation, Sensory evaluation, Sourashtra Herbal Tea, Standardization.**

1.INTRODUCTION

Anaemia result from a number of causes, the most significant contributor is iron deficiency. Approximately 50% of cases are considered to be due to iron deficiency, but the proportion probably varies among population groups and in different areas, according to the local conditions[1]. Other causes of anaemia include micronutrient deficiencies (e.g. folate, riboflavin, vitamins A and B12), acute and chronic infections, and inherited or acquired disorders that affect hemoglobin synthesis, red blood cell production or red blood cell survival (e.g. haemoglobinopathies)[2].

Many studies had proved that herbs have potential to prevent anaemia. Sourashtra Herbal Tea (SHT) is composed of several herbs in which each herb helps in preventing anaemia and also helps to cure premenstrual problems in adolescent girls. Dry ginger -Decrease the level of osteoarthritis. Black pepper -relief from respiratory disorders. Thippili and Ajwain -relief from toothache. Palm jaggery –regulating blood pressure. Poppy seeds and Sitharathai -anti oxidant property. Athimathuram -helps for digestion. Akkarakaram and Satakuppai –anti-inflammatory property. Asafoetida-prevents menstrual issues.

OBJECTIVE

To Formulate and standardize the product (SHT)
Conduct sensory evaluation of the product (SHT)
Determine the nutritive value of the product (SHT)

2.METHODOLOGY

2.1 PROCUREMENT OF RAW MATERIALS

The ingredients for iron rich herbal tea were procured from the local market in Madurai city.

Plate 1

2.2. FORMULATION OF SHT

All raw materials were cleaned to remove dust, dirt, stone then dry roasted for 5 minutes at 80°C and separately powdered into fine powder. All the powdered ingredients were mixed along with hot water. Proportion of ingredients used in the development of SHT is given in Table 2 and the flow chart for formulation and standardization of SHT is given in figure1.

Table 2 Proportion of Ingredients used in the Development of SHT

S.No	INGREDIENTS	QUANYTITY
1.	Palm jaggery	50g
2.	Athimathuram	10g
3.	Akkarakaram	5g
4.	Ajwain	5g
5.	Sitharathai	5g
6.	Satakuppai	5g
7.	Dry ginger	5g
8.	Poppy seed	5g
9.	Thippili	5g
10	Black pepper	3g
11	Asafoetida	2g

Figure 1 Design of the study

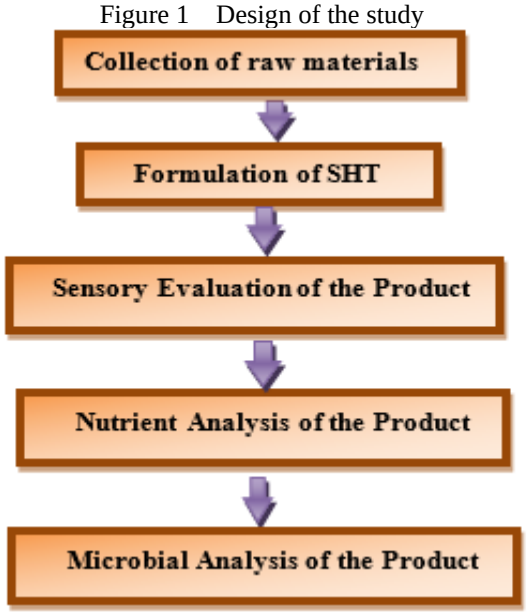


Plate 2 Sourashtra Herbal Tea

2.3. SENSORY EVALUATION

Sensory evaluation is multidisciplinary science that uses human panelists and their sense of sight, smell, taste, touch and hearing to measure the sensory characteristics and acceptability of food is judged sound.

Table 3 Different Composition of SHT

Ingredients	S1	S2	S3	S
Palm jaggery (g)	1.5	2	2.5	-
SHT powder (g)	1.5	2	2.5	-
Water (ml)	120	120	120	130
BT powder	-	-	-	2
Total Amount (ml)	130	130	130	130

SHT prepared in different proportions was evaluated by panel members. Each sample was rated on a scale of nine for the attributes which were taste, colour, flavor, appearance and consistency. Using the scores of the above attributes the overall acceptability of the product was determined. The tea that gained maximum rating by the majority of the panel members was said to be the most acceptable tea. The acceptability of the product from the scale of 1-9 ranging from 'like extremely' to 'dislike extremely'.

2.4. STANDARDIZATION OF SHT

Table 4 Standardization of SHT

INGREDIENTS	QUANTITY
Palm jaggery	2.5g
SHT powder	2.5g
Water	120 ml

Amount of ingredients used to make 130 ml of tea.

2.5. NUTRIENT ANALYSIS

Nutritional quality can be assessed by chemical or instrumental analysis for specific nutrients[3].

The formulated SHT was analyzed for selected nutrients such as Zinc by (AAS) method[4]. The concentration of β- carotene in the sample was determined with the help of UV- beam spectrometer. The analysis of vitamin C was performed by 2,6-dichlorophenol-indophenol visual titration method. The food samples were ashed at a temperature at 550° in the muffle furnace to estimate the trace elements. Iron in the food was determined by converting the iron into ferric from using the oxidizing agent like potassium persulphate or hydrogen peroxide or treating thereafter with potassium thiocyanate which was measured calorimetrically at 480 nm. The antioxidant activity was determined by Phosphomolybdenum Method. The concentration of

total polyphenol compound in the extract was determined by Folin-Ciocalteu Reagent Method[5]. The total flavonoids content was estimated by Colorimetric Method.

3.RESULTS AND DISCUSSION

SENSORY EVALUATION OF SHT

3.1. Total Means Score of Overall Acceptability of SHT

The Table 5 – shows the mean score of sensory evaluation for the formulation of SHT. In Three different proportions of the samples were prepared and these samples were evaluated by the panel members.

Table- 5 Total Means Score of Overall Acceptability of SHT

Proportion of SHT	S1	S2	S3	S
Appearance	6.8	7.2	8.3	6.7
Colour	6.4	7.2	8.4	60
Flavour	6.1	7.1	8.1	6.1
Consistency	6.7	7.3	8.4	6.8
Taste	5.8	7.1	8.2	6.0
Over All acceptability	5.9	7.1	8.2	6.1
Total mean score	6.2	7.1	8.2	6.2

S1 = Palm jaggery 1.5g + SHT powder 1.5g
S2 = Palm jaggery 2g + SHT powder 2g
S3 = Palm jaggery 2.5g + SHT powder 2.5g
S = Black tea powder 2g

Figure 2 Sensory Evaluation of SHT

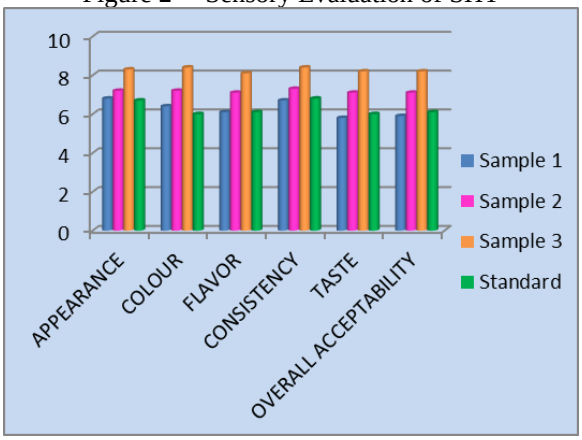
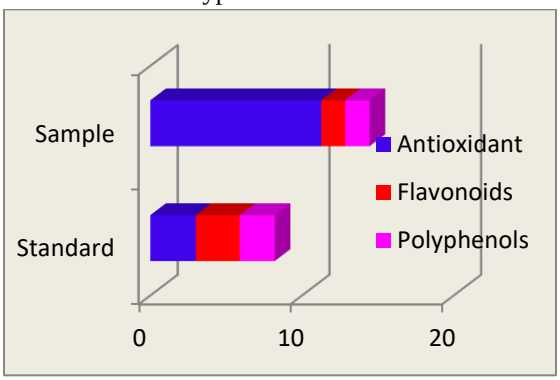


Figure 2 indicates that the Sample 3 had the highest mean score in overall. Mean score for overall acceptability of standard was significantly different from those of other samples. Sample 3 was selected by the panel members were expected as it was the most preferred tea in appearance, flavor, consistency and taste were comparatively higher mean value of other samples.

3.2. NUTRIENT COMPOSITION OF SHT:

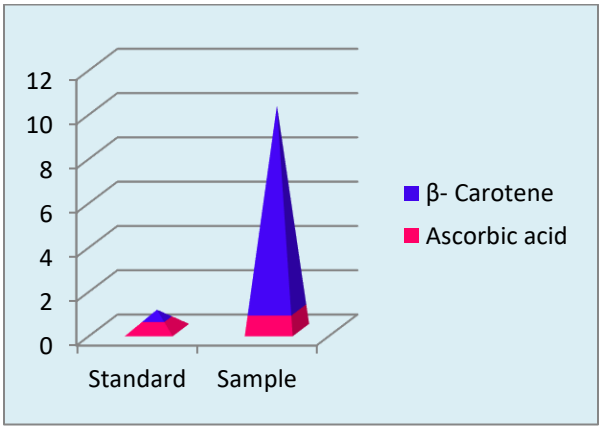
The nutrient contents of SHT were analyzed and represented

Figure 3 Total Antioxidant, Total Flavonoids and Total Polyphenols contents of SHT



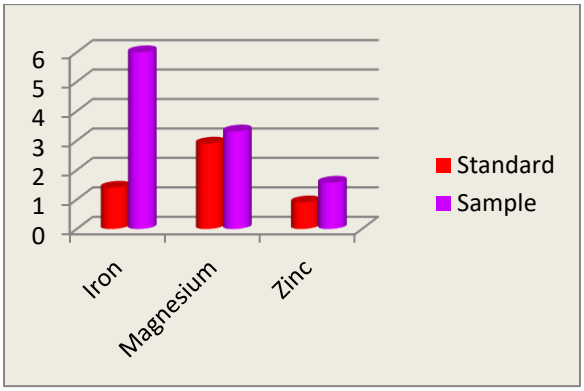
The above figure 3 depicts the nutrient contents of SHT and Black Tea that the total antioxidant, total flavonoids and total polyphenols were 11.27mmol, 1.57mg and 1.61mg and 3mmol, 2.9mg, 2.3mg respectively.

Figure 4 Micronutrient contents of SHT



The above figure 4 evident that the ascorbic acid and β-carotene content of SHT was 0.908mg and 9.24 µg. Black tea was 0.49mg and 0.043µg respectively.

Figure 5 Mineral contents of SHT



The above figure 5 - evident that the iron, magnesium and zinc content of SHT contains 6mg, 3.31mg and 1.57mg and Black tea was 1.4mg, 2.9mg and 0.9mg respectively.

Table 6 Statistical Analysis of Vitamin, Mineral and Antioxidant Contents SHT

Statistical Analysis	Vitamin		Mineral		Antioxidant	
	BT	SHT	BT	SHT	BT	SHT
Mean	0.415	0.905	2.066	3.523	2.73	4.7
SD	0.212	0.070	0.763	2.260	0.378	5.551
T test	27.00	179.0	4.664	2.692	12.459	1.491
Degree of freedom	1	1	2	2	2	2
Significant (2-tailed)	0.24	0.04	0.043	0.115	0.006	0.274

BT-Black Tea, SHT-Sourashtra Herbal Tea
1% significant level

The statistical analysis inferred that there is significant different in vitamin, mineral and antioxidant content of SHT and black tea.

4.CONCLUSION

Acceptability study revealed that, the proportion 2.5g of palm jaggery and 2.5g of SHT powder was highly accepted. Nutrient composition of the formulated SHT and the black Tea were analyzed, and the amount of minerals (Fe, Mg, Zn) had estimated in 5g of SHT and 2g of black tea were (6mg, 3.31mg and 1.57mg) and (1.4mg, 2.9mg and 0.9mg) respectively. The amount of total antioxidant, total flavonoids, and total polyphenols content of SHT and black tea were (11.27mg, 1.57mg and 1.61mg) and (3mg, 2.9mg, 2.3mg) and respectively the amount of ascorbic acid and β-carotene content of SHT and Black tea were (0.908mg and 9.24 µg) and (0.49mg, 0.043µg) respectively.

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