



Preparation & Evaluation of Ginger Squash

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Abstract:

Fruit squashes are becoming popular in comparison with synthetic beverages because of taste, flavour, Nutritive value & storage stability. It consists essentially of strained juice containing moderate quantities of fruit pulp to which sugar is added for sweetening. Acid is added to lower the pH of ginger, underground stem (rhizome) of zingiber officinale has been used as a medicine since ancient times. Citrus Fruits are rich source of flavonoid glycosides and volatile oils and rich in polyphenols, the most important being vitamin C. Lemon is an important medicinal plant of the family Rutaceae. The present study showed that blended mixed fruit juices of Ginger & Lemon could enhance the nutritional quality of squash & development of the new product. Three combinations ABC were tried for the preparation & quality evaluation of mixed fruit squash. Analysis showed that Sample B (40 % Ginger and 20 % Lemon) was found to be satisfactory and acceptable in terms of chemical analysis and sensory attributes

.Keywords:- Ginger, Lemon, , Soft drink, Squash, Polyphenols.

1. Introduction

Fruit squashes are becoming popular in comparison with synthetic beverages because of their taste, flavour, nutritive value and storage stability. A number of research workers in different countries investigated the formulations of different fruit based on soft drinks, squash, non carbonated fruit drink etc. Containing sugar, water, Citric acid, KMS, Artificial Colour and Flavour. (Ahmed, et.al 1988). This beverage may be served as fresh juice drink as soon as it is expressed from the fruit. It could be processed & packed for further utilization Gatchalian & Deleon, 1992). As per Sikder (1999) beverages are characterized as a liquid and thirst quenching properties among all beverages squash is quite popular all over the world as nutritious sub drink. (Babasaheb, 2000). It consist of strained juice to which sugar and acid is added to improve the taste various fruits such as papaya, banana, carrots etc may be used for squash preparation. Underground Stem (rhizome of zingiber officinale).

Ginger has been used as a medicine since ancient times (Altman & Marcussen, 2001) & as a herbal medicine for the treatment of arthritis & muscular discomfort (Bordia etal, 1997, Langner 1998).

Lemon is important medicinal plant of the family Rutaceae. Citrus flavonoids have a large spectrum of biological activities including anti bacterial, antifungal & anticancer etc. Benavente Garcia & J. Castillo, 2008 & peel of citrus fruits is a rich source of flavonoids, Glycosides & coumarins & volatile oils. (Shahnah, 2007). The present study showed that blended mixed fruit juices of ginger & lemon could enhance the nutritional quality of squash.

2. Material & Methods :-

Materials :-

The following raw materials were used in the present study. These were purchased from the local market.

1. Ginger (rhizome)
2. Lemon
3. Sugar
4. Citric Acid
5. Colour & Flavour.

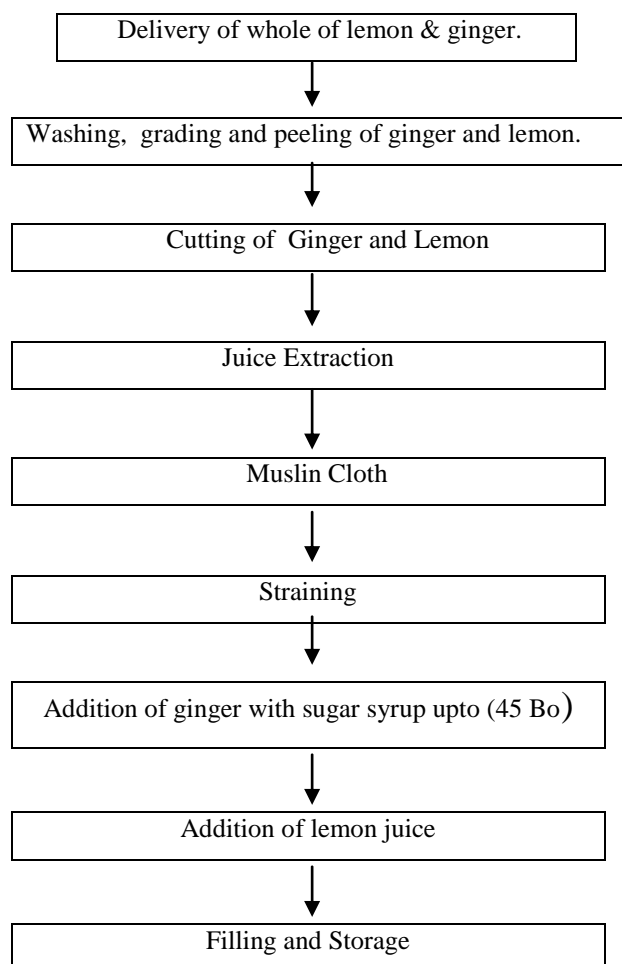
Chemicals :-All the chemicals were of AR Grade.

Methods :-

- a) Analytical Methods :-** The following proximate analysis of Raw materials and Finished Product were carried out as per the standard methods described by (Ranganna, 2011).i.e Total Soluble Solids, pH, Acidity, Reducing Sugar, Non Reducing Sugar, Vitamin C & Minerals etc.



b) Flow Chart for Preparation of Sample :-



Different formulations of the samples (A,B,C) were prepared with various ingredients and the volume of the juice was made upto 200 ml with water. The various compositions are given in the table 1.

Table 1 : Formulation of the Sample

Samples	Ginger (gm)	Lemon (ml)	Sugar (gm)	Water(ml)
Sample A	70.00	10.00	80.00	40.00
Sample B	40.00	20.00	80.00	60.00
Sample C	50.00	10.00	80.00	60.00

c) Sensory Evaluation:-

Sensory Analysis was carried out by panel of semi trend judges from the teachers, students and staff of the department of chemical technology of Amravati University for different attributes like colour, flavour, taste etc by hedonic rating test (Rangana 2011) by a scale of 9 in which (9 = like extremely, & 1 = dislike extremely).

3. Results & Discussion :-

Table 2 :- Analysis of Raw Materials

Parameters (%)	Ginger (%)	Lemon(%)
Moisture	14.04	78.40
Ash	3.99	0.50
TSS (o brix)	5.50	8.02
pH	5.60	2.89
Acidity	0.38	5.97
Reducing Sugar	19.84	7.68
Non-Reducing Sugar	11.81	0.10
Total Sugar	31.35	7.78
Vitamin C (mg/100 g)	10.33	32.83
Calcium (mg/100 g)	87.22	21.60
Iron (mg/100 g)	8.03	1.61

Table 3 :- Analysis of Squash Samples

Parameters (%)	Sample A	Sample B	Sample C
Moisture	87.00	87.400	84.00
Ash	2.99	2.45	2.73
TSS (o brix)	45.00	45.00	45.00
pH	3.50	3.40	3.50
Acidity	1.50	1.70	1.50
Reducing Sugar	24.59	28.87	24.11
Non-Reducing Sugar	12.81	11.93	11.89
Total Sugar	37.40	35.80	36.00
Vitamin C (mg/100 g)	15.33	15.83	15.35



4. Discussion :-

The present investigation was made with an attempt to develop mix fruit squash of ginger & lemon. Treatment A is standardised to 70% Ginger & 10% Lemon with 80 gm sugar. Treatment B is standardised to 40 % Ginger & 20 % Lemon and 80 gm sugar. Treatment C is standardised to 50% Ginger & 10 % Lemon and 80 gm sugar. The mixed Ginger Squash Samples of different treatment was analysed for various physico chemical analysis (Moisture, Acidity, Ash, TSS, Vit C pH etc), is done for the estimation of nutritional content and safety. Marginal changes in pH, TSS, Acidity Vitamin C were observed. (Jothi et al 2014) Vitamin C content of mixed squash (15.83 mg/100 gm) showed improvement in the nutritional value as lemon is good source of Vitamin C, TSS is (45%) increased which might be due to hydrolysis of polysaccharides into monosaccharides & oligosaccharides (Jothi et al 2014). Titrable Acidity is increased (1.5 - 1.7%) and pH decreased which might be due to excessive fermentation and presence of lactic acid reducing micro organism. Organoleptic characteristics (Flavour, Taste, Colour etc) is judged by semi-trained panellist using 9 point hedonic scale treatment B with 40 % Ginger, 20% Lemon and 80 gm sugar scored the highest values as compared to sample A & C. Thus as per as product acceptability and chemical analysis is concerned the treatments can be rated B>A>C. (Jenny Joseph et al 2015).

5. References

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