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Preparation, processing and nutritional attributes of beetroot & carrot jelly

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Abstract
Jelly: a food preparation of a soft, elastic consistency due to the presence of gelatine, pectin, etc., especially fruit juice boiled down with sugar and used as a sweet spread for bread and toast, as a filling for cakes or doughnuts, etc. Most commonly available Jelly flavours are Strawberry, Cherry and grape.bt the vegetables jellies are not available in the market while the vegetable jellies have more nutrient content which is beneficial for health. Carrots are rich sources of carotene, ascorbic acid and are known as vitaminized food with moisture protein, fat, carbohydrates, sugars and fibre. The red variety of the carrot root has been reported to contain higher concentrations of lycopene (10 mg/100g) even higher than tomatoes. Beetroot juice contains a high level of biologically accessible antioxidants as well as many other health promoting compounds such as Potassium, magnesium, folic acid, iron, zinc, calcium, phosphorus, Sodium, niacin, biotin, B6 and soluble fibre. Beetroot helps lower blood pressure, Improves exercise stamina, improve muscle power in people with heart failure.

Keywords: preparation, processing, nutritional analysis

1. Introduction
Jelly is firm and will hold its shape. Most commonly available Jelly flavours are Strawberry, Cherry and grape. But the vegetables jellies are not available in the market while the vegetable jellies have more nutrient content which is beneficial for heal.

Carrot
The carrot roots are the unique roots rich in carotenoids and have a characteristic flavours due to the presence of Terpenoids and polyacetylenes. Carrots are rich sources of carotene, Ascorbic acid and are known as vitaminized food with moisture, protein, fat, carbohydrates, sugars and fibre The red variety of the carrot root has been reported to contain higher concentrations of lycopene(10 mg/100g) even higher than tomatoes (Grassmann *et al.*, 2007). Carrots are perhaps best known for their rich supply of the antioxidant nutrient that was actually named for them: beta-carotene. However, these delicious root vegetables are the source not only of beta-carotene, but also of a wide variety of other health-supporting nutrients.

Beetroot
Beets boast an impressive nutritional profile they are low in calories, yet high in valuable vitamins and minerals. In fact, they contain a bit of almost all the vitamins and minerals that you need here is an overview of the nutrients found in a 3.5-ounce (100-gram) serving of cooked beetroot.
Beets also contain inorganic nitrates and pigments, both of which are plant compounds that have a number of health benefits. Beets contain a high concentration of nitrates, which have a blood pressure-lowering effect. This may lead to a reduced risk of heart attacks, heart failure and stroke.
Beetroot juice and beetroot extract have been shown to reduce kidney inflammation in rats injected with toxic chemicals known to induce serious injury.

2. Methodology
2.1 Collection of Ingredients
Fresh carrot and beetroot purchased from easy day. The carrot and beetroot were washed with clean water to remove dirt, sand and other undesirable materials before use.

2.2 Preparation of classified samples
This phase involved the processing of sample of carrot and beetroot which was collected from market of Lucknow. All of these products are clean and pure. All ingredients were purchased from easy day which is located in Lucknow.
Other materials like sugar, lemon, gelatin, etc. required for value added product of carrot and beetroot jelly making were purchased from Easy day and Spencer.

2.3 Product Development
This phase involved the whole idea of development of value added product of carrot and beetroot jelly by using different ratio of sugar, lemon juice, gelatine etc. Combinations.

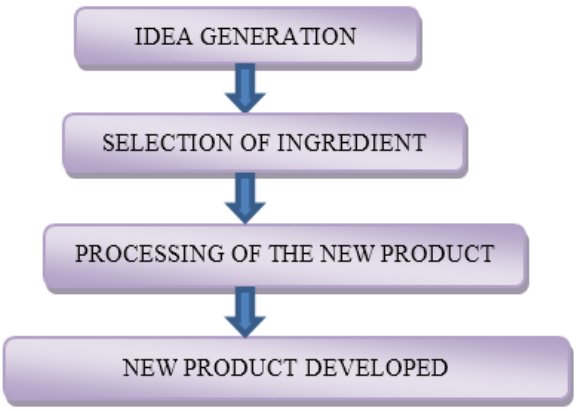

Fig 1: Development of a new product

The Techniques used for the development of beetroot & carrot jelly described below as flow chart:

Fig 2: Flow chart for manufacturing of jelly

Preparation of Recipe
This phase is mainly deals with preparation of two different variant of jelly but beetroot & carrot.

Product Development
Treatment for the preparation of Carrot & Beetroot jelly
T1-Carrot & Beetroot juice 12% + Lemon juice 1% + Gealtin
T2-Carrot & beetroot juice 13% + Gelatin 63% + Sugar 13% + Water12%

3. Result and Discussion
Sensory Evolution
Sensory Evolution of therapeutic flour was done by the 5 member panellist.

3.1 Parameter 1-Flavour and Taste of Carrot jelly

Table 1: Individual markings for flavour and taste

Members	T1	T2	T3	T4
M1	9	7	8	6
M2	8	9	7	8
Total	17	16	15	14

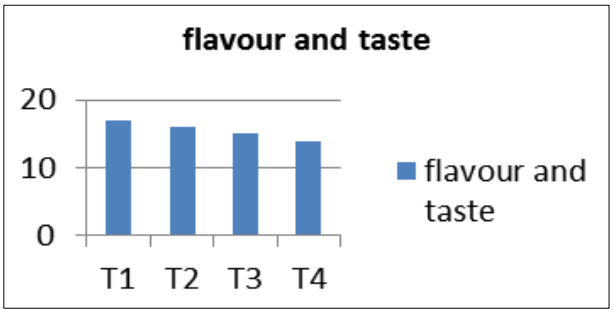

Fig 3: Graphical Representation- Flavour and Taste

It shows that the Sample T1 is most accepted among the panellist members and it gets highest scoring, then after sample T2 and sample T3, T4 respectively.

Parameter 1: Flavour and Taste of Beetroot jelly

Table 2: Individual markings for flavour and taste

Members	T1	T2	T3
M1	9	9	8
M2	8	7	7
Total	17	16	15

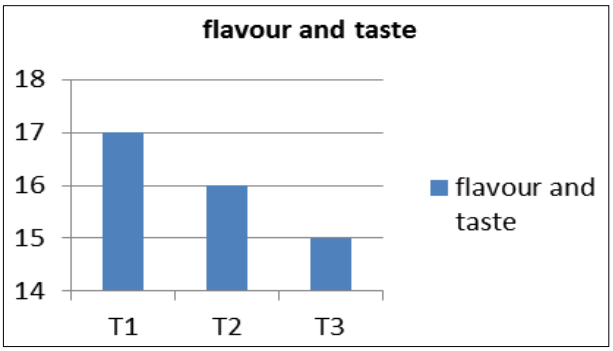

Fig 4: Graphical Representation- Flavour and Taste

It shows that the Sample T1 is most accepted among the panellist members and it gets highest scoring, then after sample T2 and sample T3, T4 respectively.

Parameter 2: Body and Texture of carrot jelly

Table 3: Individual markings for Body and Texture

Members	T1	T2	T3	T4
M1	9	9	8	6
M2	8	7	6	8
Total	17	16	15	15

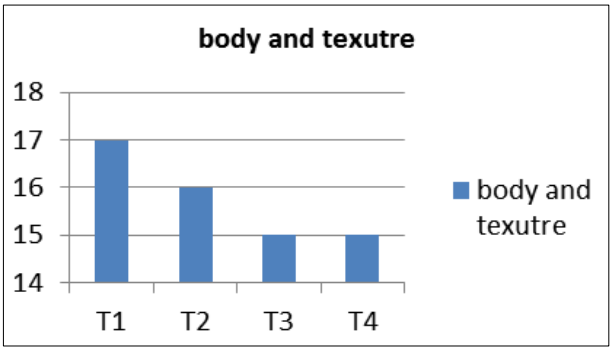

Fig 5: Graphical Representation- Body and texture

From the above graph it shows that the Sample T1 is most accepted among the panellist members and it gets highest scoring, then after sample T2 and sample T3, T4 respectively.

Parameter 3: Body and Texture of beetroot jelly

Table 4: Individual markings for Body and Texture

Members	T1	T2	T3
M1	9	7	7
M2	8	7	6
Total	17	14	13

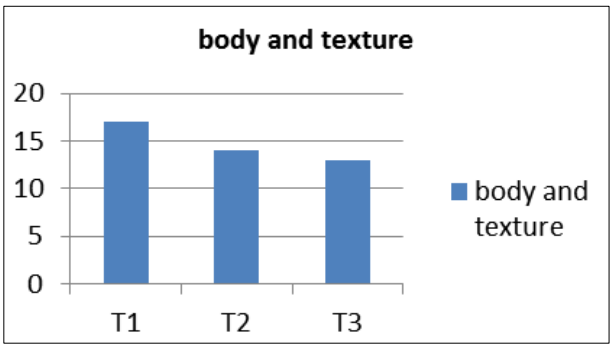

Fig 6: Graphical Representation- Body and texture

It shows that the Sample T1 is most accepted among the panellist members and it gets highest scoring, then after sample T2 and sample T3, T4 respectively.

Parameter 4: Colour and Appearance of carrot jelly

Table 5: Individual markings- Colour and Appearance

Members	T1	T2	T3	T4
M1	9	7	8	7
M2	8	7	6	6
Total	17	14	14	13

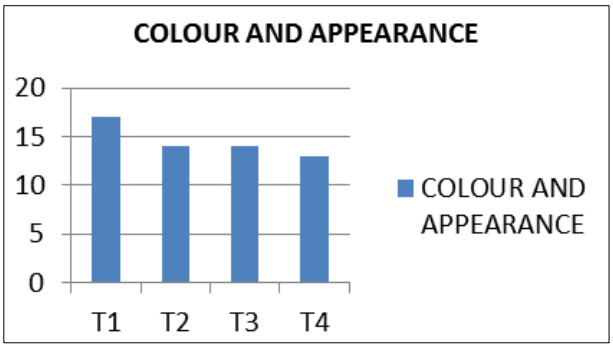

Fig 7: Graphical Representation- Colour and Appearance

It shows that the Sample T1 is most accepted among the panellist members and it gets highest scoring, then after sample T2 and sample T3, T4 respectively.

Parameter 5: Colour and Appearance of beetroot jelly

Table 6: Individual markings- Colour and Appearance

Members	T1	T2	T3
M1	9	8	7
M2	8	7	6
Total	17	15	13

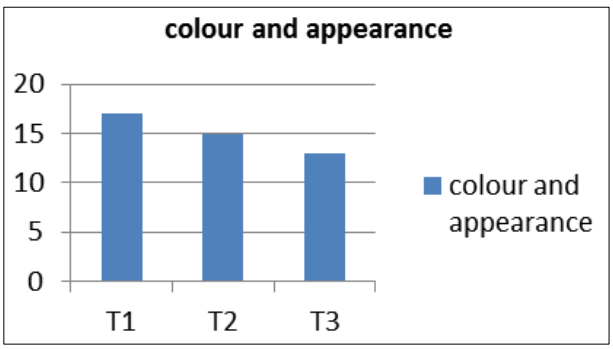

Fig 8: Graphical Representation- Colour and Appearance

It shows that the Sample T1 is most accepted among the panellist members and it gets highest scoring, then after sample T2 and sample T3, T4 respectively.

Overall Acceptability of carrot jelly

Table 7: Individual Markings- Overall Acceptability

Members	T1	T2	T3	T4
M1	9	7	8	7
M2	8	7	7	6
Total	18	14	15	13

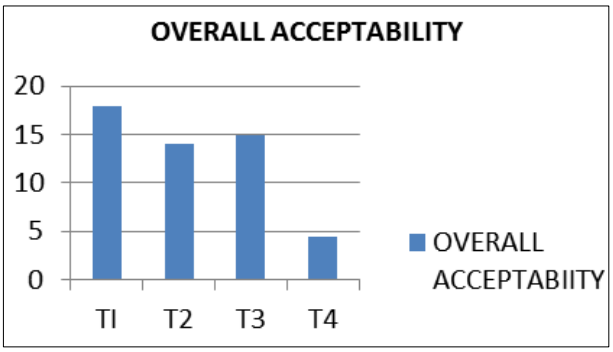

Fig 9: Graphical Representation-Overall Acceptability

From the above graph it shows that the sample T1 is most accepted overall among the sensory panellist members and it gets highest scoring, then after sample T2 and T3 .t4 respectively.
The overall quality of Guava leaves product with 18% carrot jelly product was the most acceptable in all the parameters of quality

Overall acceptability of beetroot jelly

Table 8: Individual Markings- Overall Acceptability

Members	T1	T2	T3
M1	9	8	6
M2	8	7	7
Total	17	15	13

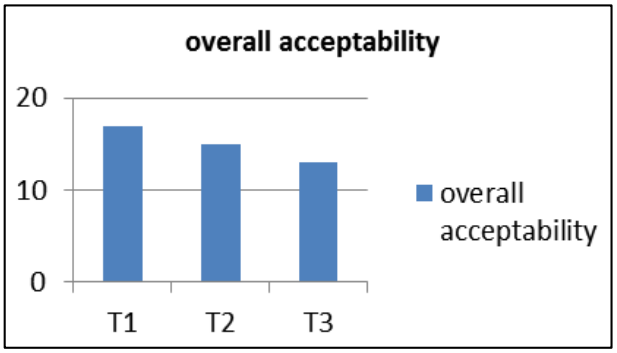

Fig 10: Graphical Representation-Overall Acceptability

From the above graph it shows that the sample T1 is most accepted overall among the sensory panellist members and it gets highest scoring, then after sample T2 and T3 .t4 respectively. The overall quality of product with 18% beetroot jelly product was the most acceptable in all the parameters of quality.

Overall Calculation

Overall calculation are done to know most acceptability of the product in all terms of quality by sensory evaluation scoring given by the panellist members, in this all scoring of texture, colour, flavour and taste are calculated in the table, by this we did statistical analysis and obtained standard deviation, average and other calculations.

In this table of overall calculation we got the average of T1, T2, T3 & T4 as 1.75, 0.75, 3.15& 0 respectively. Sample T1 with highest average and low deviation is most accepted statically Hence T1 is most accepted.

Table 9: Overall Calculation

Parameters	T1	T2	T3	T4
1	18	15	16	12
2	17	18	14	12
3	18	15	15	13
4	18	14	12	15
Total	71	62	57	52
Average	17.75	15.5	14.25	13
Standard Deviation	1.75	0.75	3.15	0

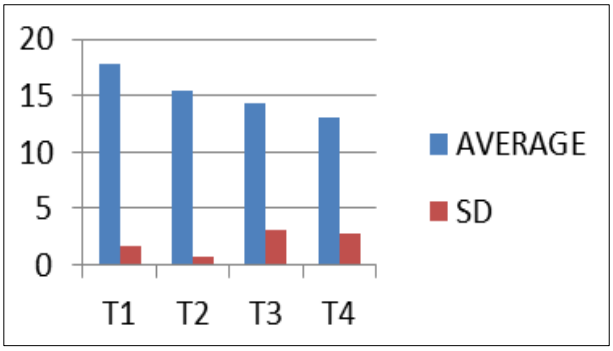

Fig 11: Graphical Representation-Overall Calculation

Nutritional value of the developed beetroot & carrot jelly assessed In the Food Analysis Laboratory with different specific equipment's for each nutritional like Vitamin c, Vitamin A, & Iron.

4. Conclusion

Result & discussion chapter in any research work must be compiling with summarization & conclusion section. So, keeping this point this chapter showed every table Value Highlighting point, which was done in the present study these are broadly divided into five points.

Product development

Three samples were prepared by using beetroot and carrot and other ingredient in different ratio.

Sensory quality value added products of carrot and beetroot jelly.

The sensory evaluation of the Vegetable jelly was done by using 9- point hedonic scale by a panel of 3 members. The scoring for each of the samples of products by various parameter i.e. flavour, taste, texture, colour, appearance and overall acceptability. There were 3 samples of different percentage of ingredients, but by sensory evaluation card the sample T4 with (20% Guava leaves and 80% other raw ingredients) T1 sample was most accepted among the four

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