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Study the physico - chemical properties of different super food product

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Abstract
The study was carried out to determine the physic- chemical properties and super food product from orange squash, ginger ele, kiwi sherbet, avocado sandwich. Smoothies with improved were developed by selected tropical Indian fruits and vegetable/juices. Fruit pulps from orange, ginger, kiwi and avocado juices were blended at various proportions by considering four individual properties such as pulpy, juicy, sweetness, sourness and color to yield palatable smoothies without addition of external sugar and acidulate. Study the physic- chemical composition of fresh tomato, orange, avocado kiwi, dragon exotic fruit to standardize the recipe for kiwi sherbet ginger ele, avocado sandwich. Phytochemicals are chemical compounds that occur naturally in plants (phyto means "plant" in Greek) Some are responsible for color and other organoleptic properties, such as the deep purple of blueberries and the smell of garlic. Phytochemicals may have biological significance, for example carotenoids or flavonoids, but are not established as essential nutrients There may be as many as 4,000 different phytochemicals Analysis such as total soluble solids, titratable acidity lycopene, vitamins A and C mineral, fiber, potassium, were proved to be helpful.

Keywords: exotic fruits, and vegetable super food, physic- chemical properties

Introduction
Super food is an informal term for foods that benefit the body in many different ways. Super foods help to meet several dietary needs and are great sources of essential vitamin and minerals also fight disease and sickness super foods considered as powerful anti-aging tools. Some super fruits like avocado, rambuten, dragon fruits blackberries, blueberries, corn, garlic, ginger, onion leek and lettuce berries, etc All foods that have been associated with preventing age are called anti aging foods. The aging process is a natural of life for every person. There are many products and methods to prevent and reduce aging, from ant aging skin care. some foods are considered to be responsible for leading to aging.

Exotic Fruits and Vegetables
Exotic fruits and vegetable are those eatables that are found in common markets. These are expensive and are full of nutrients. Exotic fruits and vegetable could be utilized for developing nutritious food preparation that could help meeting the daily nutritional needs of adolescents. A widely accept definition of underexploited exotic fruit and vegetable crops is "species with underexploited potential for contributing to food security, nutrition, health, income generation and environmental services. Avocado (Persea Americana) Avocado (Butter fruit) is a native of tropical America belongs to family Lauraceous. In India, avocado is not a commercial fruit crop. Avocado is that most nutritive among fruits and is regarded as the most important contribution of the new world to human diet.
Kiwi fruit (Antinidio deliciosa) Kiwi fruit orchinese gooseberry is know as china miracle fruit and the horticultural wonder of New Zealand. It belongs to family Actinidiaceae. Kiwi fruit among fruit crops has been a recent introduction in India. Fruit is rich in minerals, sugars, vitamin and carbohydrates. It has a refreshing flavour with pleasing aroma. It can be eaten fresh or processed in to saush, juice and wine.
Orange has a good production potential and suitable for the production of a variety of products with good taste and flavour. The overall acceptability is not good in the beverages due to the lack of pleasing colour. To overcome this problem these can be blended with fruit pulp rich in colour and have good acceptability. The fruits have excellent colour due to the presence of anthocyanins, phenols and betalains in the pulp. Both these anthocyanins and phenols are promising antioxidants. Dietary trends currently emphasis on safe and healthy foods and extend to searches for new components with more than just nutritive value.
As with other citrus fruits, orange pulp is an excellent source of vitamin C. Oranges are full of vitamin C, which protects cells by neutralizing free radicals. Free radicals cause chronic diseases, like cancer and heart disease.
Ginger is the underground rhizome of *Zingiber officinale* perennial plant and is one of the world's most popular medicinal spices. Ginger also claims for use as anti-vomiting and anti-sickness agent. Ginger extracts have been extensively studied for a broad range of biological activities including antibacterial, anticonvulsant, analgesic, antiulcer, gastric antisecretory, antitumor, antifungal, antiallergenic, anti-inflammatory and other activities. Ginger is extremely low in calories (only 80 per 3.5 ounces) and is an excellent source of:

Thiamine (B1), Riboflavin (B2), Niacin (B3), Pantothenic acid (B5), Vitamin B6, Folate, Vitamin C, Vitamin E as well as Calcium, Iron, Magnesium, Manganese, Phosphorus, Potassium, Sodium and Zinc and help to fight gallstones, reduce cholesterol, protect the skin from sunburn, and premature aging.

Carrot is a root vegetable that is often claimed to be the perfect health food. It is crunchy, tasty and highly nutritious. Carrots are a particularly good source of beta-carotene, fibre, vitamin K, potassium and antioxidants. The carrot gets its characteristic, bright orange colour from β-carotene, and lesser amounts of α-carotene, γ-carotene, lutein and α- and β-carotenes are partly metabolized into vitamin A. Carrot and carrot juice benefits that we know about today. Many studies have shown that beta carotene is crucial for improving immunity in the body, protecting skin and eye health, and fighting free radical damage that can cause various forms of chronic diseases.

Thus, the study aimed, through mixture design and response surface methodology, to optimize a reduced calorie juice of persimmon, orange, ginger, kiwi and avocado sandwich based on sensory and nutritional characteristics. This study also aimed to carry out a survey of the physicochemical characteristics that are desirable in this product.

- To prepare different types of super food product and its sensory evaluation.
- To study the shelf life

(Packaging) of the different super food product by using different method.

2. Material & methods

In this section we discussed about the materials and methodology used for the development and quality testing of super food.

Raw Materials

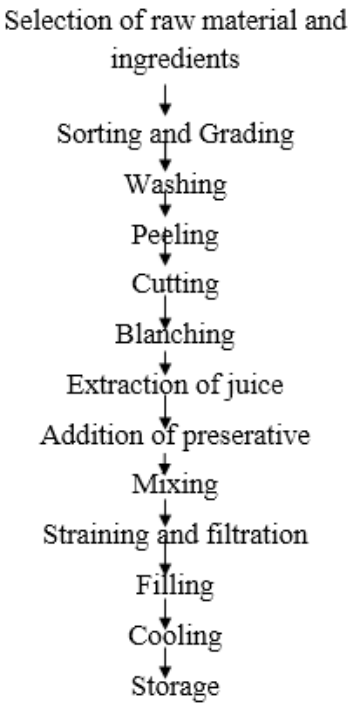
Fleshy orange, ginger, and kiwi or collected from a local market in Luck now. Synthetic colour, flavour, Sugar, sprite, soda, salt, and mint leaves, ice, used in the preparation of super food product juice.

Preparation of different types of juices

Fresh fruit and vegetables (orange, kiwi, and ginger) were collected and washed with potable water and cleaned properly. The fruit and vegetables were then sliced/ chopped and blended separately in the electrical blender. The juice was then obtained after filtering. Then each four types of juice were then heated separately for 2-3 minutes, and cooled down at room temperature. The mixed juice and vegetable juices were then prepared as per the formulation.

The stated amount of sugar, citric acid, thickening agent and water were mixed properly. The mixture was then boiled for about prepare the syrup. The prepared syrup was filtered through cheese cloth and then cooled. The prepared juices of individual fruits were weighed and mixed and KMS were then mixed with syrup and then homogenized the whole mixture using a pressure homogenizer for about 5to 10 min to obtain the ready to serve fruits juice. The prepared juices were packed into sterilized bottles through sterilized funnels keeping head space about 2cm. The bottles were then capped and sealed tightly and stored both at room temperature and refrigeration temperature.

Preparation of juices



Flow chart for preparation

Physico - chemical evaluation – The next phase involved Physic- chemical evaluation of the prepared super food product involving different parameters like.

- Estimation of vitamin c
- Estimation of sodium

3. Result and Discussion

The experiment was conducted to determine the effective means of processing and preservation of fruit and juice and vegetable juice from orange, kiwi, ginger. fruit and Vegetable juice was studied for their acceptability and shelf life at room temperature (28-30°C) and at refrigeration temperature (4°C). The acceptability and shelf life were evaluated through organoleptic taste testing procedure.

Sensory analysis of super food product

Sensory characteristics of blended beverage were determined on 9 point Hedonic scale. It could be observed from the that appearance of beverage improved with increase in concentration of orange, kiwi, ginger juice up to the level of while further increase in orange, kiwi and ginger juice content enhanced of taste due to sweetness. Flavour profile of sample A1, A2, A3,A4 found to be superior to that of control sample this may be due to improvement mouth feel of product by orange, kiwi, avacado, ginger product while further increase in flavour. Overall acceptability was calculated considering the average of all the organoleptic parameters and it was observed

that sample A1 and A3 containing juice was preferred by the judges.

Sensory Analysis

The experimental super food product were sensory evaluated by a panel of five members on a 9- point hedonic scale and marking was done on the basis of four parameters.

- Body and Texture
- Color and Appearance
- Flavour and Taste
- Overall Acceptability

Parameter 1

Flavor and Taste

Table 1: Individual markings for flavour and tast

sample	A1	A2	A3	A4
Member 1	8	8	8	7
Member 2	8	8	8	7
Member 3	7	7	9	8
Member 4	8	7	8	8
Member 5	7	8	8	9
TOTAL	38	38	41	39

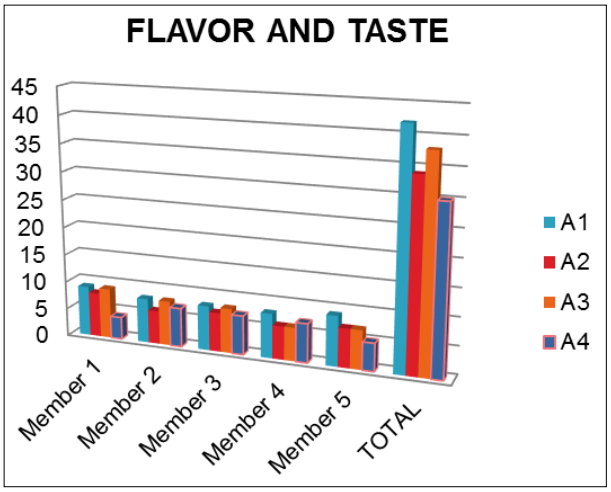


Fig 1: Graphical representation of scores for flavour and taste.

The above mentioned score represents individual markings by members on the basis of flavour and taste the minimum average scored is 30 by A4 while maximum is of A1 with an average of 42.

Parameter 2

Body and Texture

Table 2: Individual markings for body and texture

sample	A1	A2	A3	A4
Member 1	8	6	9	4
Member 2	7	6	8	7
Member 3	8	8	8	7
Member 4	9	7	6	7
Member 5	8	7	7	6
Total	40	34	38	30

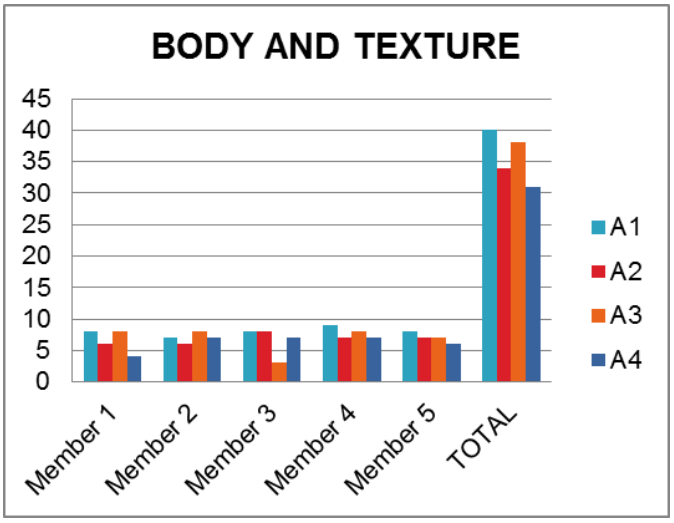


Fig 2: Graphical representation of scores for body and texture.

The above graph represents the scores for body and texture the minimum average scored is 31 by A4 while maximum is of A1 with an average of 40.

Parameter 3

Colour and appearance

Table 3: Individual markings for colour and appearance.

Sample	A1	A2	A3	A4
Member 1	9	8	7	7
Member 2	8	8	7	7
Member 3	9	7	8	7
Member 4	9	8	7	6
Member 5	8	5	7	7
Total	43	36	36	34

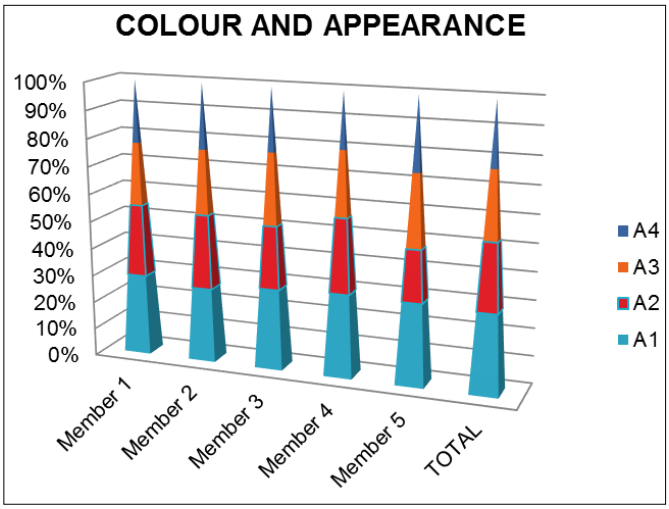


Fig 3: Graphical representation of scores for colour and appearance.

The average score for colour and appearance the maximum average score 43 by A1 and the least score is for A4 which is 34, the colour and appearance is highly affected by the concentration of blended beverages.

Parameter -4
Overall acceptability

Table 4: Individual markings for overall acceptability.

sample	A1	A2	A3	A4
Member 1	9	5	8	7
Member 2	9	7	8	7
Member 3	8	7	7	6
Member 4	9	8	7	7
Member 5	8	7	8	6
Total	43	34	38	33

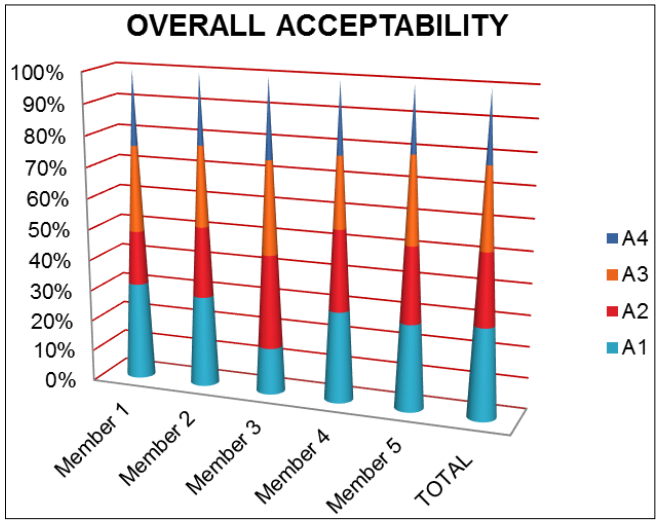


Fig 4: Graphical representation of scores for overall acceptability.

The overall acceptability graph represents the acceptance on the basis of all the mentioned parameters, the maximum average scored is 43 by the blended beverages A1.Overall acceptability considering flavor and texture there were significant difference among the juices from four samples and sample and 3 was the best.

Overall Calculation

Table 5

Parameters	A1	A2	A3	A4
1	42	34	38	36
2	40	34	38	31
3	43	36	36	34
4	43	34	38	33
Total	171	138	150	134
Average	42.75	34.5	37.5	33.5
Standard deviation	1.414214	1	1	2.081666

Summary and Conclusion
The experiment was conducted in the laboratory of Department of Food Science and Technology, School for Home Science, Babasaheb Bhimrao Ambedkar University, Lucknow. The develop super food juice from locally available vegetables and fruit assess the quality in respect of consumer's acceptability and storage ability. The fruit and vegetables used for the preparation of orange squash. Ginger ele and kiwi sherbet.

The chemical analysis (vitamin C, Potassium) of the prepared juice was done at an interval of 60 days. Change in chemical constituents except vitamin C was observed in the prepared juice throughout the 60 days storage period. There was slight variation in color and flavor in prepared juice from four samples during 60 days storage. Color was found yellow in vegetable juice on the day of preparation and at the end of storage period, the color of juice became fade. Regarding the retention of color and physio-chemical properties storage at refrigeration temperature is better.
Sensory evaluation showed that there were no significant difference among the juices from four samples considering color and overall acceptability. But considering flavor and texture there were significant difference among the super food from three samples and sample 3 was the best.

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