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Different Types of Super Food Product Its Sensory Evaluation Storage and Packaging

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Abstract: 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, making them powerful anti-aging tools. Some super like avocado, rambutan, dragon fruits blackberries, blueberries, corn, garlic, ginger, onion berries, etc. All foods that have been associated with preventing age are called antiaging foods. The aging process is natural of life for every person. There are many products and methods to prevent and reduce aging, from antiaging skin care The study was carried out to determine the different types of super food product and shilf life (packaging) of orange squash and ginger ele juice, kiwi sherbet produced were prepared and were processed into juices and sensory analysis of the juices were done. Fruits juices of orange, which was stored for 60 day in orange squash, and ginger ele, product were pressurization and storage in packaging glass bottles (250ml). Sensory evaluation showed that there was no significant difference among the juices from four samples considering color and overall acceptability. But considering flavor and texture there was significant difference among the juices from three samples and sample 3 was the best. However, the shelf life of juice was established within 30 days.

Keywords: Super Food, Anti-aging Properties, Sensory Evolution, Shelf life, Packaging.

I. INTRODUCTION

Super food is a nonmedical, marketing term that refers to natural foods supposed to be useful for health because they are rich in a particular or any other nutrient. They are edibles that deliver the maximum amount of nutrients with minimum calories. They help to fight disease, maintain healthy skin and shiny coat, improve healthy digestion, and maintain joints and strong bones, and against diseases.

Kiwi Fruit (Actinidia chinensis): Kiwi fruit or Chinese gooseberry is known 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 a pleasing aroma. It can be eaten fresh or processed in to saush, juice, and wine.

Passion Fruit: Passion fruit is a high value export oriented crop owing to its excellent flavoured juice. This is native of Brazil, in India, it grows widely in Niligiri Hills. Himachal Pradesh. The juice is a good source of vitamin A and c and used to flavour ice cream, making jam and Refreshing drinks juice can be utilised to enhance juice overall quality of the blended product

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

Lucuma: Lucuma powder is made from the fruit of the Pouterialucuma tree, which is native to Peru, Chile, and Ecuador. Lucuma powder is made by drying the fruits at a low temperature and then gently grinding them up into an easy-to-use powder. Even though it has a sweet flavor, it's quite low on the glycaemic index, making it a great natural sweetener. Lucuma is an excellent source of carbohydrates, fiber, and vitamins, especially B3. It is abundant in betacarotene, niacin, and iron and has significant amounts of calcium and phosphorus. Lucuma may have anti-inflammatory, anti-aging, and skin-repair effects on human skin.

Dragon Fruit (Hylocereusundatus): Dragon fruit is a cactus fruit that can be found throughout Asia Australia North America and south America even though they are believed to be native to Mexico originally. This fruit belonged to the Cactaceae family also known as strawberry pear or pitaya. They small delicious fragrant and most have a sweet flavour similar to kiwi fruit. Juice or wine can be obtained from the fruit, while the flowers can be eaten or used for etc.

Rambuta (Nephelium Lappaceae): Rambutan is a juicy tropical fruit belonging to the family Sapindaceae and the aril resembling litchi fruit. Its aril is sweeter and crispier than litchi or longan aril. The fruit is native to Indonesia and Malaysia from where it spreads westward to Thailand, Burma, Sri Lanka and India. In India, it is cultivated in Kerala, Karnataka. Seeds are light brown in certain fats and oil (primarily oleic acid and arachidic acid) used in cooking and the manufacture of soap. Rambutan roots bark and leaves have various uses in medicine and in the production of dyes. The rambutan fruit is rich in nutritive value and has a very rich source of energy containing 82Kcal, carbohydrate 20.87g, dietary fibre 0.09g less fat 0.21g and protein 0.65g in 100g of fresh fruits. It is rich in minerals matter containing potassium 42g, calcium 21g, sodium 11mg, magnesium 7mg, phosphorous 9mg and small quantities of iron and zinc. The fruit is rich in several vitamins and acid viz. folate (vit b9) 9 ug, riboflavin (vit b2) 0.022mg, thiamine (vit b1) 0.031 mg, niacin (vit b3) 1.352 mg, coblamin (vit b6) 0.02 mg and ascorbic acid (vit c) 4.9mg in 100gm of fresh fruit aril.

Quinoa: quinoa is also associated with preventing heart disease and cancer. Because it is nutritionally denser than most processed carbohydrates, it makes an excellent rice and grain alternative. Natural peanut butter: A tasty source of protein used to build and repair muscle tissue; peanut butter is filled with "good fats" that support a healthy cardiovascular system. Caution should be taken while feeding pups with peanut butter as it is high in calorie

SUPER SEEDS

Seeds are the nutritional powerhouses wrapped in very small packages. They are a great source of fiber, essential fatty acids, proteins, minerals, vitamins and life enhancing nutrients.

Flax Seeds A good source of fibre, it prevents constipation, aids digestion and helps control hunger. Is Milk is a complex mixture of lipids, carbohydrates, proteins and many other organic and inorganic compounds. Milk fat or butter fat is of great economical and nutritive value. The flavour of milk is due to milk fat. Milk is a true emulsion of oil-in-water. Milk fat is a mixture of several different glycerides. Casein is a milk protein which constitutes 80% of the total nitrogen in milk. Other than this, lactalbumin, lactoglobulin, lactoferrin, serum albumin and serum transferrin are present which are together called whey proteins. The chief carbohydrate present in milk is lactose or milk sugar is a disaccharide. Milk has good quality protein, easily digestible fat and a significant amount of calcium. Standardized milk has 4.5% fat and 8.5% SNF. Toned milk is prepared by mixing milk constituted from skim milk powder with buffalo milk containing 7%fat. Double toned milk is prepared by admixture of cow's or buffalo milk with fresh skimmed milk and has 9% SNF and not less than 1.5%fat. The other types of milk are recombined milk, sterilized milk, filled milk, and flavoured milk. Fermented milk products are cream, butter, cheese, and curd. A rich source of antioxidants and aids in preventing cancer. Helps in reducing menopausal symptoms and hot flushes. Lowers bad cholesterol and reduces hypertension. Ground flax seeds can be added to any batter, dough, smoothies, soups, and salads. Can also be added to yoghurt, cereals and mouth fresheners. 3

CHIA SEEDS Chia seed is a grain of wheat beans, chia seeds are high in fiber and protein, vitamins and minerals. It is gluten free. These little seeds, which are white, dark brown or black in colour, boost energy and aid in digestion. Is rich in calcium, magnesium, and manganese and phosphorous. It can be used as whole or in ground form. Can be added to smoothies, salads or any desserts.

Sunflower Seeds help maintain healthy cholesterol levels and act as a careful antioxidant to prevent cancer. The magnesium content in the seed helps in proper functioning of the skeletal and muscular system. They are small in size and are dense of essential fatty acids, vitamins, and minerals. Contains nutrients like vitamin E and folate which promote cardiovascular health. Can be used as whole or in ground form. Can be added to smoothies, salads or any other preparation.

- Super food product its preservation, storage and shelf life packaging.
- Different types preservative use in a super food product.

II.METHODOLOY

Development of super food products by using different methods for different products.

- Idea generation
- Selection of ingredient
- Processing of the product
- New product development

RAW INGREDIENT Orange3 (kg), 600 (ml) water, 800(gm) sugar, orange essence and orange colour ginger. Collected from a local market in Lucknow.

PREPARATION OF DIFFERENT TYPES OF SUPER PRODUCT

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 by filtering. Then every four types of juice were then heated separately for 2-3 minutes, and cooled down to 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 5 to 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 SQUESH

Flow Chart for Preparation



Physico - Chemical Evaluation: The next phase involved Physic- chemical evaluation of the prepared orange, squesh, ginger ele involving different parameters like.

- Estimation of vitamin c
- Estimation of sodium

III. RESULT AND DISCUSSION

Sensory characteristics of orange squash were determined on 9 Point Hedonic Scale. It could be observed from the appearance of beverage improved with an increase in the concentration of orange squash. Flavor profile found to be superior. Overall acceptability was calculated considering the average of all the organoleptic parameters and it was observed that Sample orange squash was preferred by the judges.

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.

Preservation and Storage and shelf life (Packaging)

Fresh orange, ginger, were collected from a different location in Lucknow market and preserved water by using preservatives like citric acid, potassium met bisulphate and ascorbic acid. The preserved orange squash, ginger ele in plastic bottles and glass bottles for shelf life study. Storage temperature should be 4°C or below. Bottles kept at a refrigeration temperature for 60 days in refrigeration and should maintain the refrigeration temperature, properly. After 60 days, both plastic and glass bottle were observed and concluded that glass bottle preservation was better than plastic bottles. The sensory quality profile of orange squash, ginger ele a prime factor to consider the marketability of the preserved product. During storage, it was observed that overall sensory quality profile of orange squash, ginger ele slightly acceptable. Glass bottle were better as compared to the plastic bottle like flavour, texture, appearance, colour etc.

SENSORY ANALYSIS

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

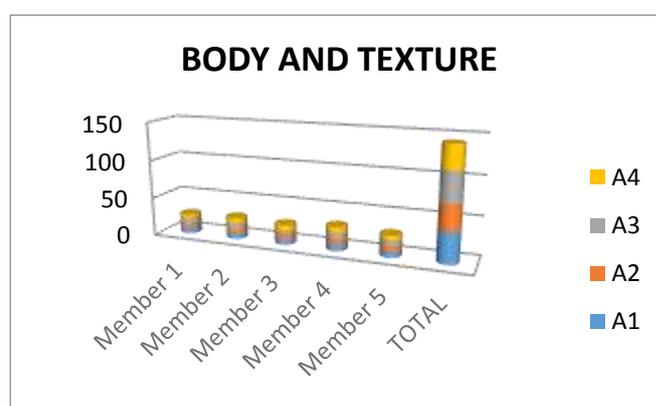
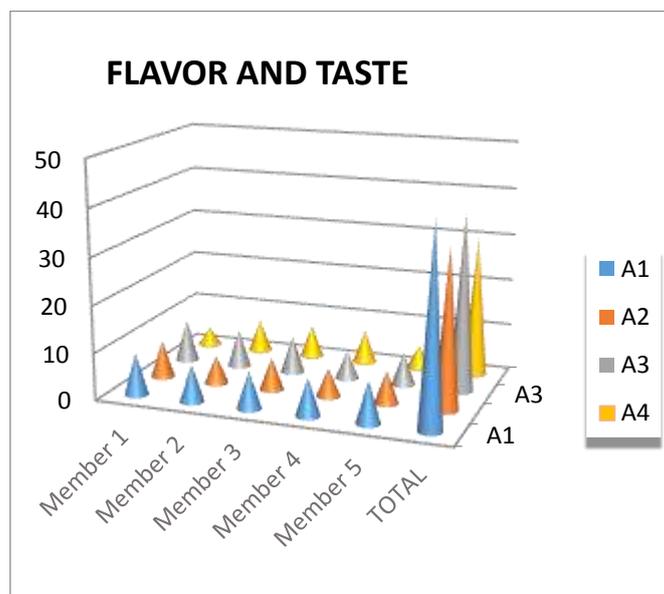
- Body and Texture
- Colori and Appearance
- Flavour and Taste
- Overall Acceptability

PAREMETER- 1

Flavor and Taste

TABLE: INDIVIDUAL MARKINGS FOR FLAVOUAND 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



GRAPHICAL REPRESENTATION OF SCORES FOR FLAVOUR AND TASTE

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

PAREMETER

Body and Texture

TABLE- 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

FIGGRAPHICAL 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 the maximum is of A1 with an average of 40.

PAREMETER 3

Colour and Appearance

TABLE: 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

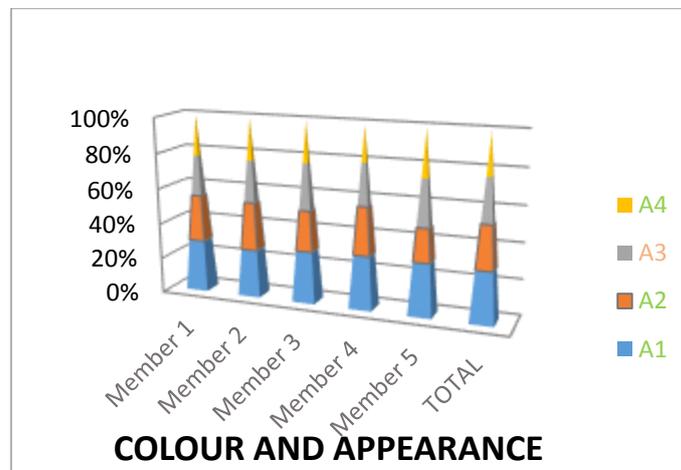


Fig: Graphical Representation of Scores for Colour and Appearance

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.

PAREMETER -4

Overall Acceptability

Table: 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

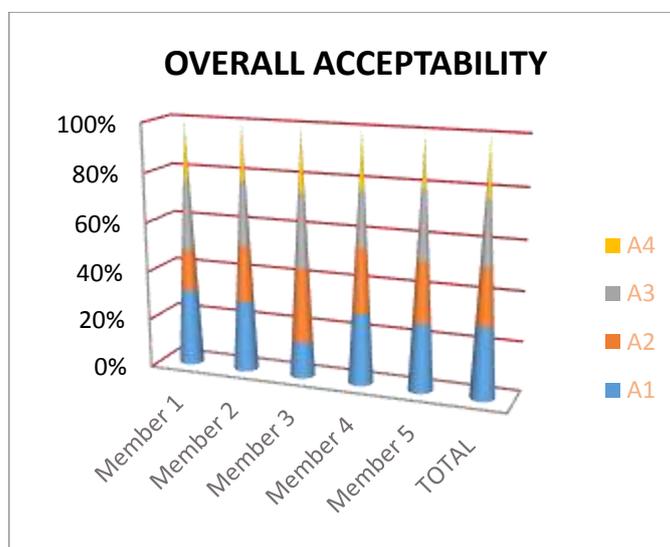


Fig: Graphical Representation of Scores for Overall Acceptability

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 was significant difference among the juices from four samples and sample and 3 was the best.

OVERALL CALCULATION

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

IV. RECOMENDATION

- Super food should be advertised among the community.
- The super food should be given to children, pregnant women, and to see health benefit from it.
- Good for feeding infants suffering from intestinal disturbances, Oral rehydration medium and Keeps the body cool.
- Application on the body prevents prickly heat and summer boils and subsides the rashes caused by small pox, chicken pox, measles, etc. And Kills intestinal worms.
- Excellent tonic for the old and sick and Cures malnourishment.
- Rich in antimicrobial and antioxidant properties.
- Also, have antithrombotic activity in super food
- Good potassium content
- It also contains electrolytes and low glycemic

V. SUMMARY AND CONCLUSION

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. The color was found yellow in vegetable juice on the day of preparation and at the end of the 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 was no significant difference among the juices from four samples considering color and overall acceptability. But considering flavor and texture there was significant difference among the super food from three samples and sample 3 was the best.

REFERENCES

1. **Hertog M. G, Feskens EJ, Hollman P. C, Katan MB, Kromhout .D.** Dietary antioxidant flavonoids and risk of coronary heart disease: The Zutphen Elderly Study. *Lancet* 1993; 342: 1007–1011
2. Grinstein, S., Poovarodom Leontowicz, H., Leontowicz, M., Namiesnik, J., Vearasilp, S. et al. (2011). Antioxidant properties and bioactive constituents of some rare exotic Thai fruits and comparison with conventional fruits. *In vitro and in vivo studies. Food Research International*, 44, 2222–2232 (this issue)
3. **C. El Kar, A. Ferchichi, F. Attia, J. Bouajila,** Pomegranate (*Punica granatum*) juices: chemical composition, micronutrient cations, and antioxidant capacity, *J. Food Sci.* 76 (2011) C795–C800K. C
4. **Klotzbach K. PN.P. Seeram,** Berry fruits: compositional elements, biochemical activities, and the impact of their intake on human health, performance, and disease, *J. Agric. Food Chem.* 56 (2008)
5. 627–629 phytochemicals and Functional Foods: Super Foods for Optimal Health. 1999. Rutgers Cooperative Research and Extension NJAES.
6. The State University of New Jersey. Desktop Publishing by Rutgers Cook College Resource Centre
7. **Amagase, H & Farnsworth, N. R. (2011).** A review of botanical characteristics, photochemistry, clinical relevance in efficacy and safety of *Lyceum barb arum* fruit (Goji). *Food Research International*, 44(7), 1702–1717

8. Flaumenbaum BL, Titova AG 2010: Production of natural fruit and vegetable juice with pulp (Union of Soviet Socialist Republics Odesskii Tekhnologicheskii Institute Pishchevoi Promyshle nnosfiim. M. V. Lomonosova) USSR Patent SU 1706530.
9. Jannaty .R 2010: Processing and Preservation of Carrot Juice, MS Thesis, Department of Food Technology And Rural Industries, Bangladesh Agricultural University, Mymen Singh, Bangladesh.
10. Mamun .A 2000: Studies on the use of an antimicrobial agent for the preservation of tomato juice, MS Thesis, Department of Food Technology And Rural Industries, Bangladesh Agricultural University, Mymen Singh, Bangladesh.
11. Rahman A 1995: studied the preservation of tomato juice in semi concentration form by using salt and sugar, MS Thesis, Department of Food Technology And Rural Industries, Bangladesh Agricultural University, Mymensingh, Bangladesh.
12. Barrett DM, Maximizing the nutritional value of fruits and vegetables. *IFT Food Technol* 61:40–44 (2007).
13. Rattanathanalerk .M, C. Naphaporn, S. Walaiporn 2005: Effect of thermal processing on the quality loss of pineapple juice. *J. Food Eng.* 66. pp. 259-265.
14. Reiter .M, Stuparic .M, Neidhart .S, Carle R 2003: The Role of process technology in carrot juice cloud stability. *Lebensmittel Wissenschaft and technologies* 26. pp. 165-172.
15. Saha N. N 2004: Fruit and Vegetable Juice Therapy, concentrates during storage .*J. Food. Engineering*, B. Jain publishers Pvt. Ltd. p.120.
16. Sims C. A, Balaban MO, Matthews RF 2006: Optimization of carrot Juice colour and cloud stability. *J. Food Sci* 58. pp. 1129-1131.
17. Tressler DK, Joslyn MA 2012: Fruit and vegetables juice processing technology. AVI Publishing Company, west Part, California.
18. USDA National Nutrient Data Base 2011: Nutritional value of Vegetables retrieved from www.nutrition-and-you.com.
19. **Wong, S. N., Loi, H. K., & Lim, C. L. (1996).** Volatile constituents from the fruits of four edible Sapindaceae: Rambutan (*Nephelium lappaceum* L.), pulasan (*N. ramboutan-ake* (Labill.) Leenh.), longan (*Dimocarpus longan* Lour.), and mata kucing (*D. longan* ssp. *malesianus* Leenh.). *Flavour and Fragrance Journal*, 11, 223–229)
20. Johnson, R. L., Htoon, A. K., & Shaw, K. J. (1995). Detection of orange peel extract in orange juice. *Food Australia*, 47(9), 426–432.
21. Shaw, P.E. 1992. Shelf life and aging of citrus juice, juice drinks and related soft drinks. In Redd, J.B., Shaw Ir, P.E., Hendrix, C.M. and Hendrix, D.L. (Eds). *Quality control manual for citrus processing*, p. 173-199. Florida, Auburndale: Agscience.
22. Kalra, S. K., and Revathi, G. 1981. Storage of orange, tomato pulp. *Indian Food Packer* 35: 29-30.
23. Vasavada, P.C. 2003. Microbiology of fruit juice and beverages. In Foster, T., and Vasavada, P.C. (Eds). *Beverage quality and safety*, p. 95-123. USA: