



Optimisation of value added product of banana chips on sensory aptitude

Singh Suman¹, Mishra Sunita²

¹ Student, Department of Food Science and Technology School for Home Science, Babasaheb, Bhimrao Ambedkar University, Lucknow, Uttar Pradesh, India

² Dean and Head, Department of Food Science and Technology School for Home Science, Babasaheb Bhimrao Ambedkar University, Lucknow, Uttar Pradesh, India

Abstract

Knowledge and concern of the bad health implications of high fat intake consumers has resulted in a rising demand for low fat foods. Banana is one of the oldest cultivation plants all parts of the banana plant have medicinal application. Three major products were developed using different composite mint flavour, tomato flavour and sweet flavour. Developed product was evaluated on various parameters i.e. sensory evaluation and nutritional analysis. Sensory evaluation of prepared product was carried 9 hedonic scale, out of there. Analyses and measures human responses to the composition of foods. e.g. Appearance, touch, odour, texture, temperature and taste. Hence, highest accepted product was put five for the nutritional analysis and percentage of protein, energy, carbohydrates, fibre and fat were respectively.

Keywords: raw banana, banana chips, nutritional value, flavours, tomato, mint and sugar powder

Introduction

Banana is giant perennial, herbaceous monocotyledon, propagated vegetative, belonging to the family Musaceae, genus *Musa*. It flourishes well under tropical, moisture rich, humid, low lying form lands. Edible banana are derived from either *Musa acuminata* or *Musa balbisiana* or a combination of both. Banana is originally grown in south and Southeast Asia. It is cultivated in numerous tropical and subtropical countries. Banana rank second amongst fruits and vegetables that are exported worldwide; the first being citrus fruits, and followed by apples and frozen vegetables.

Banana chips are a crispy snack food similar to potato chips, and there are several type of e.g. banana figs, savoury banana chips and sweet banana chips. Banana is highly nutritious and easily digestible than many other fruits. Digestion time of banana fruit is less [105 min] than apple [210 min]. Banana are popular for aroma, texture and easy to peel and eat, besides rich in potassium and calcium and low in sodium content. The high content of carbohydrates makes banana a very good source of energy, for example, for people practicing sports. In addition to its high content of carbohydrates, banana also is rich in vitamins and minerals. It is considered to be good for the treatment of gastric ulcer and diarrhoea. Because they contain vitamin A, bananas act as aid to digestion. Due to their high content of B6 vitamin, they help to reduce stress and anxiety. They are also considered beneficial for cancer prevention and heart diseases.

Banana chips are usually prepared by deep frying in oils, which will increase the fat content of the chips and consumption of this type of chips may affect the lipid profile of the consumers. Interest in low fat foods has recently increased. Therefore, an alternative method of preparing bananas chips is needed to limits the amount of fats in the chips, This study aimed to determine the nutritional profile and acceptability of three preparation of banana chips.

Value added incorporated product

- **Mint:** Mint flavour banana chips are prepared for variation in banana chips use the mint and some spices for variation this is the first variation. Mint is also known as *Mentha*, from Greek Linear B *mi-ta* is a genus of plants in the family Lamiaceae (mint family). Mints are aromatic, almost exclusively perennial, rarely annual, herbs. They has wide spreading underground and over ground stoles and erect square branched stems pairs from oblong to lanceolate, often downy and with a serrated margin. leaf colours range from dark green and gray-green to purple, blue and sometimes pale yellow.
- **Medicinal Uses:** Ayurvedic physicians have used mint for centuries as a tonic and digestive aid and as a treatment for colds, cough, and fever. Medieval German abbess/herbalist Hildegard of Bingen recommended mint for digestion and gout. Shortly after Culpeper wrote about the benefits of mint, peppermint and spearmint were differentiated, and herbalists decided the former was the better digestive aid, cough remedy, and treatment for colds and fever. Spearmint cannot replace peppermint in combined bile and liver or nerve herbal teas even though it is used as stomachic and during carminative. The infusion of the herb has been used for diarrhea and as an emmenagogue. Mint tea eases colic and lifts depression. Black pepper; black pepper is the plant from the *piperaceae* family and used as both a spice and a medicine. The chemical piperine, which is present in black pepper, causes the spiciness; it is native to Kerala, the southern state of India. Since ancient time, black pepper is one of the most widely traded spices in the world. It is not considered a seasonal plant and is therefore available throughout the year. When dried, this plant –derived spice is referred to as a peppercorn, and is the ground into a powder to be put on food to add flavour and spices. Because of its anti-bacterial properties, pepper

is also used to preserve food. It is a rich source of manganese, iron, potassium, vitamin-C, vitamin-k and dietary fibre. Black pepper is a very good anti-inflammatory agent.

- **Health Benefits of Black Pepper:** Pepper increases the hydrochloric acid secretion in the stomach, thereby facilitating digestion. Proper digestion is essential to avoid diarrhoea, constipation and colic.
- **White Loss:** The outer layer of peppercorn assists in the breakdown of fat cells. Therefore, peppery foods are a good way to help you shed weight naturally.
Respiratory Relief: In Ayurvedic practices, pepper is added to tonics for colds and coughs. Pepper also provides relief from sinusitis and nasal congestion.
- **Antibacterial Quality:** The antibacterial property of black pepper helps to fight against infections and insect bites.
Antioxidant Potential: An antioxidant like pepper can prevent or repair the damage caused by the free radicals and thus help to prevent cancer, cardiovascular diseases and liver problems. Free radicals are the byproducts of cellular metabolism that attack healthy cells and cause their DNA to mutate into cancerous cells. Fennel seed (*Foeniculum vulgare*) is a flowering plant species in the carrot family. It is a highly aromatic and flavorful herb with culinary and medicinal uses and, along with the similar-tasting anise, is one of the primary ingredients of absinthe Florence fennel or finocchio is a selection with a swollen, bulb-like stem base that is used as a vegetable.

Health benefits of fennel seed

- **Anemia:** Iron and histidine, an amino acid found in fennel, are both helpful in treatment of anemia
- **Indigestion:** It is a common practice, particularly on the Indian Subcontinent, to chew fennel seeds after meals. This is done to facilitate digestion and to eliminate bad breath.
- **Constipation:** Fennel seeds, particularly in powdered form, can act as a laxative. The roughage helps clear the bowels, whereas it’s stimulating effect helps maintain the proper peristaltic motion of the intestines, thereby helping promote proper excretion through the stimulation of gastric juices and bile production.
- **Tomato:** Tomato (*Lycopersicon esculentum*) is a staple fruit vegetable. Fresh fruits and vegetables are very important source of vitamins and minerals which are essential for human health. Tomato is one of the most important vegetables in the world (Babalola *et al.*, 2010). The many health benefits of tomatoes can be attributed to their wealth of nutrients and vitamins, including an impressive amount of vitamins A, C, and K, as well as significant amounts of vitamin B6, foliate, and thiamine.
- **Sugar:** Sugar is the generalized name for sweet, short-chain, soluble carbohydrates, many of which are used in food. They are composed of carbon, hydrogen, and oxygen.

Methodology

Materials

The experiment has been carried out in research laboratory of Food Science and Technology, School for Home Sciences Babasaheb Bhimrao Ambedkar University, Lucknow. Raw banana, sun dried mint, fennel, black pepper, and salt, sugar,

powder. Raw samples were purchased from local market. Sun dried tomato powder.

Preparation of value added banana chips;

The basic ingredients used were banana chips.

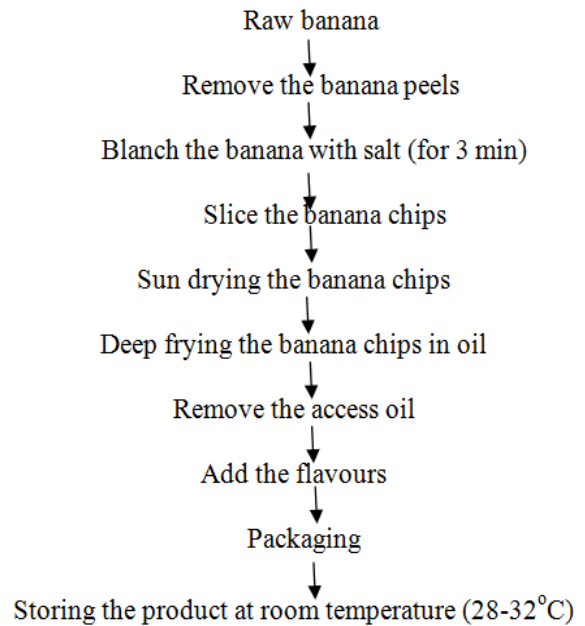


Fig 1: Flow diagram for the preparation of value added banana chips.

Statistical and Nutritional analyses– The tests were determined at the RFRAC (Regional Food Research Analysis Centre) Lucknow. The protein content was determined by AOAC method. The carbohydrate and iron content was determined by SP: 18 method the moisture and total ash content was determined by IS: 7874-1975.

**Result and Discussion
Flavour and Taste**

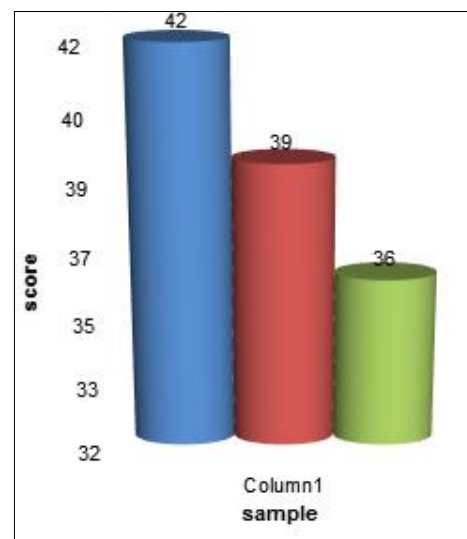


Fig 2: Graphical representation of scores for flavour and taste

The above mentioned score represents individual markings by members on the basis of flavour and taste the minimum average scored is 36 by T₃ while maximum is of T₁ with an average of 42.

Body and Texture

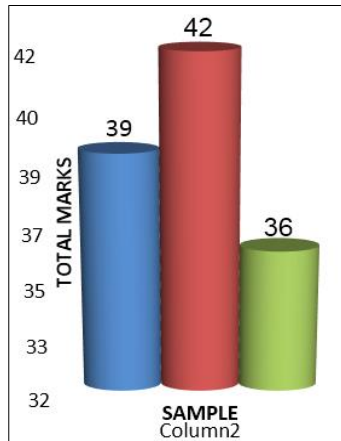


Fig 3: Graphical representation of scores for body and texture

The above mentioned score represents individual markings by members on the basis of body and texture the minimum average scored is 36 by T₃ while maximum is of T₂ with an average 42.

Colour and Appearance

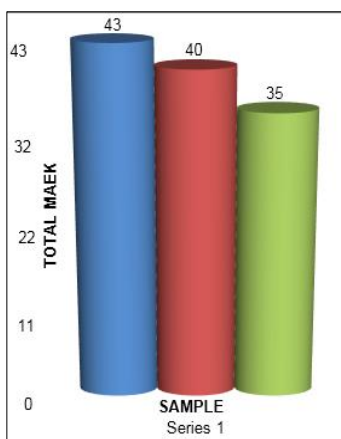


Fig 4: Graphical representation of scores for colour and appearance.

The above mentioned score represents individual markings by members on the basis of colour and appearances the minimum average scored is 35 by T₃ while maximum is of T₁ with an average of 43.

Overall Acceptability

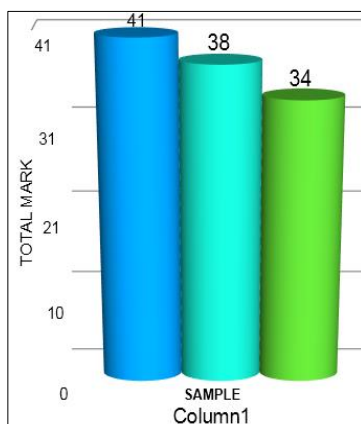


Fig 5: Graphical representation of scores for overall acceptability

The above mentioned score represents individual markings by members on the basis of overall acceptability the minimum average scored is 34 by T₃ while maximum is of T₁, with an average of 41.

Overall Calculation

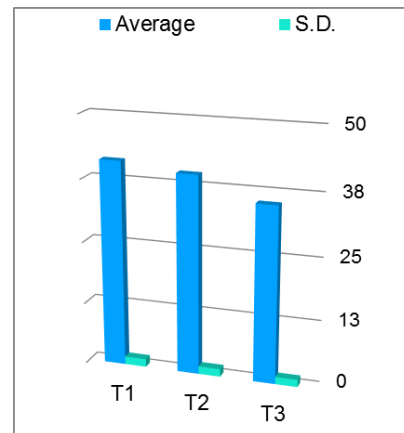


Fig 6: Graphical representation of average score and standard deviation for overall calculation

The respective table which is drawn above shows the overall calculations of average marks given by each panellist in each parameter, with calculated average values & S.D. of each sample on the basis of each parameter.

Conclusion

Nutritive value of banana chips is protein, iron and carbohydrates. In the preparation of banana chips they increased their flavour by using tomato powder, mint powder and sugar powder they all are enhance their taste and also there nutritive value other component also increased but the one factor of banana chips is there sweet flavour are balanced all the taste. Banana chips are a very good snack and banana chips is also a good source of energy. Nutritive value of banana chips higher then potato chips. Potato chips are more popular but banana chips is also in demand because of their nutritive value.

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