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STANDARDIZATION AND EVALUATION OF BANANA STEM (*MUSA ACUMINITA*) INCORPORATED PEDA

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Abstract: The study was conducted to develop sweet peda to which banana stem powder was incorporated. Banana stem powder contains carbohydrates, protein, fat, dietary fibre and many active compounds. Health benefits of banana stem powder help in weight loss, cure of constipation, keep diabetes under control, help in detoxification, great for your digestion, prevent kidney stones, check hyperacidity, prevent anaemia, prevent urinary tract, maintain your blood pressure, banana stem powder, rich in minerals, (Ca, Fe, fibre and K) and vitamins (B2, B3, B9). The banana stem powder was added for the development of peda and its quality was analysed based on sensory analysis, the best variation had desirable organoleptic properties as indicated by the semi-trained panellists. Banana stem powder can be potentially utilized as a natural preservative agent to improve the food quality and shelf life. It also minimizes the wastage and increases profitability. The result indicated that the nutritional content of peda was highly acceptable.

Key words : Banana stem powder , Peda , Health benefits , Natural preservatives

INTRODUCTION:

Traditional Indian milk products have been an important part of the socio-cultural life of India. In spite of a great number of traditional dairy products found in different parts of India, each of these indigenous products has its unique flavor, texture, and appearance (*Pal and Raju, et al., 2010*). In addition to increasing the shelf life,

manufacture of traditional dairy products add value to milk and also provide considerable employment opportunity (Parekh et.,al 2013).

Milk is one kind of essential nutriment in daily life. Milk powders are also widely used since they are easily transported and stored. The changing of main components such as lactose, protein and fat will cause deterioration of milk powders if the storage condition is improper. The lactose crystallization in milk powders has aroused more curiosity since during the storage, many physicochemical damages, mainly due to lactose glass transition, occur. It is reported that when the content of protein is decreasing the thermal stability of milk increases and the changes happening to protein structure are weaker. In addition, the presence of fat directly influences conglomeration of milk powders (M.E.C. Thomas, et.al.,2004)

The major portion of milk is water (around 85% in buffalo milk and around 87.5% in cow milk). If water is removed then the remaining portion of milk is known as Total Solids. Total solids are further composed of Fat and Solids that are not fat (abbreviated as SNF or solids not fat (B.S. Beniwal et al.,2012)

It was dried in oven for two hours at $105^{\circ} \pm 3^{\circ}$ C and then cooled in desiccators. The stopper was momentarily opened to equalize the air pressure and weighed again. Once again, the bottle was returned to oven for one hour, cooling and weighing and this action was repeated for successive hourly periods until a constant weight (B) was obtained Natural fibres are bundles of individual strands of fibres. Most of the research has focused on fibre bundles consisting of secondarily thickened, highly elongated fibre cells (Varughese, K. T. J et al 2004)

Banana stem was cut into small pieces, washed 2 times with water and shredded by using a blender. The shredded banana stem was then pressed by using the hydraulic press to remove excess water followed by drying in the oven at 110° C for 2 h. After that the dried banana stem was ground into powder and sieved to obtain about of $53 \mu\text{m}$ of banana stem powder size and also to remove any foreign matter and large banana stem powder particles. (Paiva Junior, C. Z et al 2004)

OBJECTIVES:

- To formulate and evaluate. the Standardization And Evaluation Of Banana Stem Powder (*Musa Acuminata*) Incorporated Peda
- To standardize the ingredients used in the preparation of selected peda
- To evaluate the organoleptic properties of the developed selected peda
- To assess the nutrient content of the selected peda.
- To estimate the shelf life of the selected peda.
- To pack and label the developed product with required informations.

- To calculate the cost of the developed banana stem powder incorporated peda.

RESEARCH METHODOLOGY:

PRE – PROCESSING:

All the raw materials are procured from local market of Coimbatore , Tamil Nadu, and it is stored in room temperature .the good quality of banana stem , milk powder ,milk ,ghee, sugar were selected and stored in room temperature

Banana stem cleaned and cut thin round slices. Dry in hot air oven for 2 – 3 hours in 150°c, then cool it in room temperature for 10 – 15 mins and transfer in mixer jar and grind well.seiving the banana stem powder .Finally we got a fine banana stem powder.(Figure I)

Boil the milk in medium flame continuously stir until milk get thick, spread the milk paste plain clean plate. Dry in the room temperature, after drying, flip the milk paste thin layer, and transfer into mixer jar and grind it, then grind the sugar and add it and mix well in milk powder(FIGURE II)

POST PROCESSING:

Boil the milk in 40 degree Celsius and add the milk dried powder (15g) and stir it , then add grind white sugar stir continuously and becomes thick consistency add the banana stem powder and mix well , cool it in room temperature (FIGURE III)

After this process , the banana stem powder incorporated peda is ready to serve



FIGURE I



FIGURE II



FIGURE III

STANDARDIZATION OF BANANA STEM (*MUSA ACUMINATA*) POWDER INCORPORATED PEDA**TABLE I**

S. NO	INGREDIENTS	VARIATION	VARIATION	VARIATION
		I	II	III
1	MILK	65	70	75
2	MILK POWDER	25	15	5
3	BANANA STEM POWDER	10	15	20

RESULT AND DISCUSSION:**SENSORY EVALUATION:**

Sensory evaluation was carried out by 50 panelists, they are asked to evaluate the appearance , colour , flavor , taste and overall acceptability of the product using a 5 headonic scale.

Excellent – 5

Very Good – 4

Good – 3

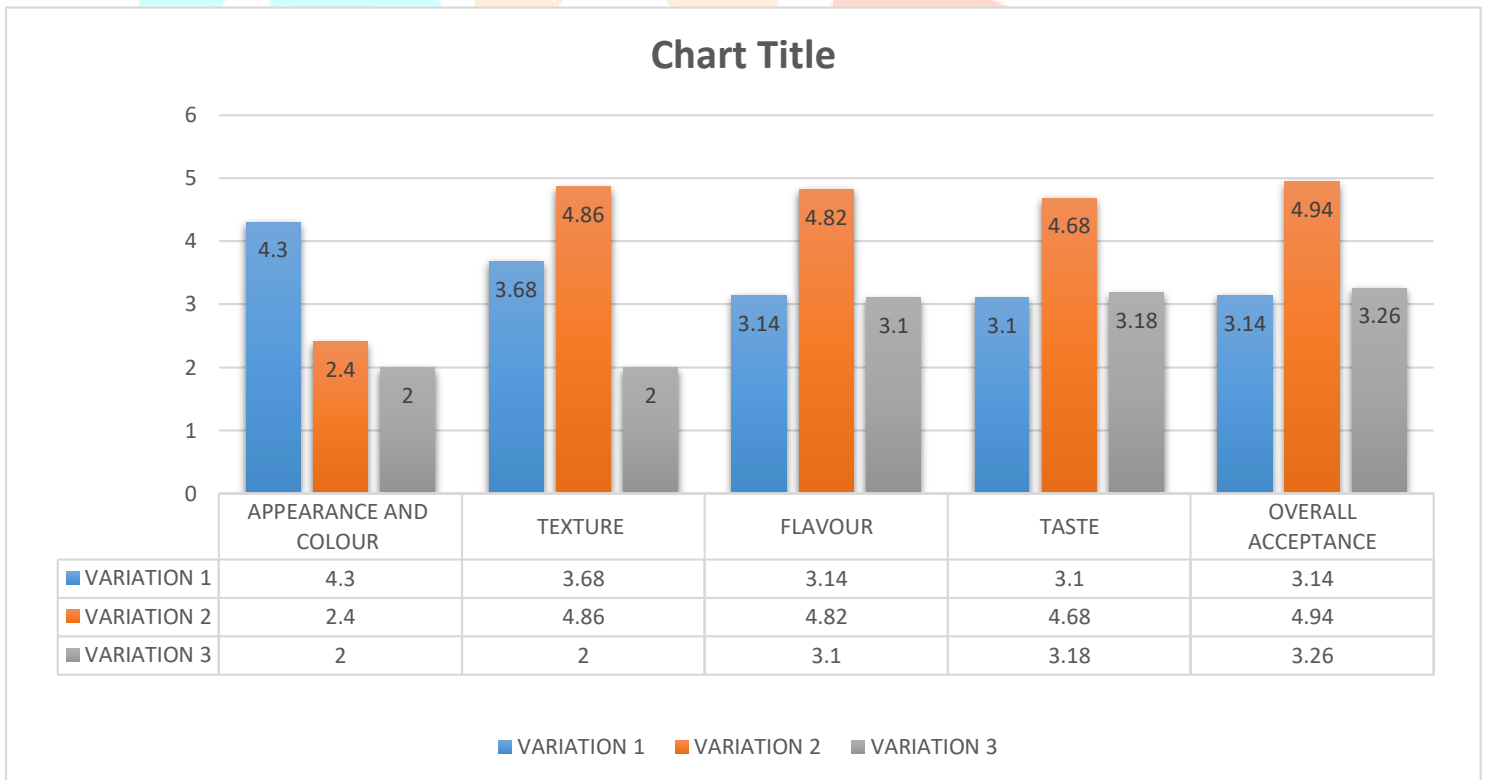
Fair – 2

Poor – 1

TABLE II

CRITERIA	VARIATION		
	I	II	III
APPEARANCE AND COLOUR	3.68±0.793	4.86 ± 0.350	3.54 ± 0.787
TEXTURE	3.38 ±0.725	4.78 ± 0.418	3.24± 0.822
FLAVOUR	3.14± 0.782	4.82 ± 0.388	3.1± 0.762
TASTE	3.1± 0.863	4.68± 0.471	3.18 ± 0.774
OVERALL ACCEPTANCE	3.14 ± 0.756	4.94 ±0.239	3.26± 0.828

FIGURE IV



PHYSIO – CHEMICAL ANALYSIS:**TABLE III**

S NO	NUTRIENTS	QUANTITY /100g
1	Moisture	49.6
2	Ash	2.36

NUTRIENT ANALYSIS:**TABLE IV**

S NO	PARAMETER	CONTROL	V -II
1	ENERGY	411 Kcal	138.6Kcal
2	CARBOHYDRATES	9.6 g	15.1g
3	FIBRE	0.1g	2.62g
4	FAT	6.8g	6.22g
5	TOTAL PROTEIN	12.90g	5.44g
6	CALCIUM	613mg	359mg
7	POTASSIUM	41mg	5.02mg
8	IRON	0.3mg	0.37mg
9	SODIUM	0.0mg	1.03mg
10	PHOSPHOROUS	92.8mg	22.3mg
11	VITAMIN B2	0.1mg	0.07mg
12	VITAMIN B3	0.2mg	0.67mg
13	VITAMIN B9	20mg	20.1mg

COST OF PRODUCTION OF BANANA STEM (*MUSA ACUMINITA*) INCORPORATED PEDA:

The cost of banana stem incorporated peda was worked out by considering the prevailing cost of ingredients only . the data are presented in table v

TABLE V

S NO	INGREDIENTS	QUANTITY	COST (Rs)
1	Milk	70 ml	3.4
2	Milk powder	15ml	4.5
3	Banana stem powder	15ml	3
	Total		11.9

Over head cost = $11.9 \times 40 / 100$

Total cost = Rs.11.9 + 4.76

= Rs.16.66

- Therefore, the total cost of banana stem powder peda = Rs.17.00

CONCLUSION:

The Peda has been developed using banana stem (*Musa Acuminata*) and its nutritive value analysis, quality analysis and cost calculations were done. Banana stem powder is not much used in cooking, but it is easily available in our country, we can ensure meaningful utilisation of herbal food products which increase the shelf life of the product and health status of people. it also minimizes the wastage and increase in profit ability.

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