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DEVELOPMENT AND STANDARDIZATION OF PALMYRA (BORASSUS FLABELLIFER) TUBER POWDER INCORPORATED FOOD

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ABSTRACT
The palmyra palmtuber(Borassusflabllifer) is one of less known tropical tuber. It is found to be good source of carbohydrate,lipid,fiber,moisture content. The aim of present study is to develop raw and boiled palmyra tuber powder incorporated product like nutriball. Three variations of palmyratuber powder incorporated product were prepared. All the samples were subjected to sensory evaluation to determine their acceptability, using 5 point hedonic scale rating method. Based on the scores of sensory evaluation the composition of the product was standardized.
KEY WORDS: *palmyrapalm tuber, nutriball, sensory evaluation*

1. INTRODUCTION

Borassus flabellifer L, belongs to family Arecaceae, commonly known as Palmyra palm is a native of tropical Africa but cultivated and naturalized throughout India. It is a robust tree and can live more than 100 y and reach a height of 30 metres (98 ft), with a canopy of green-bluish leaves with several dozen fronds spreading 3 m (9.8 ft) across (Nesbitt , 2005). The different parts of the plant are being used for medicinal properties like antihelminthic and diuretic. B. flabellifer is used in folk medicine for multiple purposes, such as a stimulant, anti-laprotic, diuretic, antiphlogistic. The fruits are stomachic, sedative, laxative and aphrodisiac in nature useful in hyperdipsia, dyspepsia, flatulence, skin diseases, haemorrhages, fever and general debility. The roots and juice of the plant are useful in inflammatory reactions. The ash obtained by burning the inflorescence is a good antacid antiperiodic, and is useful in heart burn, splenomegaly and in bilious fever (Kapoor et al, 2000). Palmyra sprout is also known as Palmyra Tuber. Palmyra sprouts are edible, prepared during winter season (Krishnan, 2007). The seeds grow both naturally and planted by local people for commercial sale. Its taste is sweeter and is locally called as "Tyagalu". Selling sprouts is a good commercial business for local people during peak season. The dried fruits are used as fuel source locally (Katari Bhaskar ,2017). Mature tuber is brittle and breaks off easily which is a rich source of carbohydrates. Optimum time for harvesting of tuber is

135 days after sowing. Palmyra tuber has 98% fiber which means up to 95% is starch content.

Keeping this in mind the present study designed to develop palmyra tuber powder incorporated product like nutriball.

2. OBJECTIVES

- To prepare raw andboiledpalmyra(*Borassusflabellifer*) tuber powder.
- To develop and standardize the Palmyra sprout powder incorporated nutriball.
- To find out the overall acceptability by sensory evaluation.
- To find out the nutritional composition and shelf life of palmyra tuber incorporated food.

3. METHODOLOGY

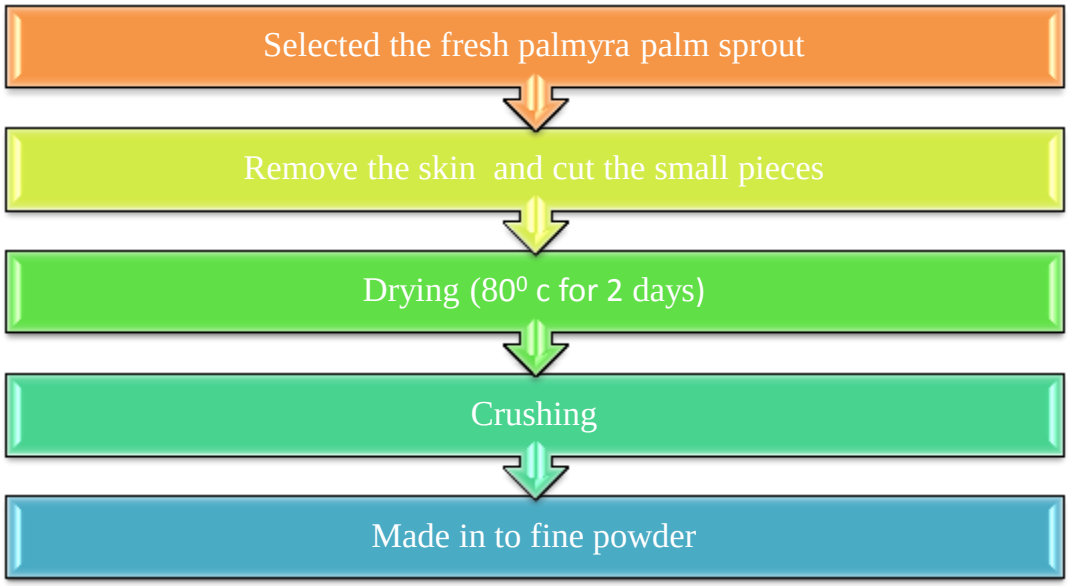
3.1 Plant Materials

Borassusflabellifer sprout flour which used as a functional ingredient should be free from microbes and contamination .Borassusflabellifer sprout were collected from garden in mamsapuram

Figure 1

Figure 2

3.2 Preparation of raw palmyra tuber powder



3.3 Development of rawpalmyra tuber powder incorporated nutriball

The three variations such as 25 %,50 %,75 % of raw palmyra tuber powder incorporated nutriball was prepared using ingredient in the table 1.

Table 1
Ingredients used for the preparation of raw palmyra tuber powder incorporated nutriball

Ingredient	Control	Sample A	Sample B	Sample C
Raw sprout flour	-	25g	50g	75g
Composite powder (Ragi ,bajra,jower mixed flour)	100g	75g	50g	25g
Jaggery syrup	50g	50g	50g	50g

3.4 Sensory evoluation of palmyra tuber powder incorporated nutriball

For evaluating the sensory characteristics, the three different formulation of palmyra tuber powder incorporated nutriballs were assessed by 10 panal members. The panelists were asked to determine the sensory attributes on the basic of 5 point hedonic scale and they were scored on basis of sensory qualities such as appearance, colour, texture, taste and odour. The overall acceptability was evaluated by the mean score of all the attributes.

3.5 Nutrient analysis palmyratuber powder incorporated nutri ball

The biochemical composition of product was analysed by AOAC (1995) method.

3.6 Analysis of microbial load of palmyra tuber powder incorporated nutri ball

The microbial load was carried out to find out the shelf life of nutriballs. The microbial load was determined for 15 days at 30days interval using standard plate count method.

4. RESULTS AND DISCUSSION

4.1 Sensory evaluation of palmyra tuber powder incorporated nutriball

The developed products were subjected to sensory evaluation by panel members and then mean score were obtained from sensory evaluation was given in the table 2.

Table 2
Sensory evaluation of palmyra tuber powder incorporated nutriball

Characteristics	Control	SampleA 25%	Sample B 50%	Sample C 75%,
Color	3.2±0.3	4.9±0.1	4.0±0.2	4.8±0.7
Flavor	3.5±0.2	4.8±0.4	4.1±0.3	4.6±0.8
Texture	3.1±0.7	4.5±0.6	4.0±0.7	4.5±0.3
Taste	3.2±0.3	4.8±0.5	4.2±0.7	4.5±0.3
Overall acceptability	3.1±0.8	4.5±0.7	4.2±0.6	4.3±0.4

From the sensory evaluation, it was found that overall acceptability of Sample A, Sample B and Sample A C got the overall acceptability of 4.5. , 4.2 and 4.3 respectively. Therefore 25% of the rawpalmyra tuber powder incorporated nutriball was selected.

4.2 Nutrient analysis of palmyra tuberpowder incorporated nutri ball

The nutrient content of palmyratuber powder incorporated nutriball was given in the table 3.

Table 3
Nutrient composition of raw palmyra tuber powder and palmyra tuber powder incorporated nutria ball

Nutrients	Control	Palmyra tuber powder incorporated nutriball
Carbohydrate(g)	77.5	85.45
Protein(g)	6.78	8.6
Fiber(g)	4.49	9.3
Moisture (%)	10.66	11.9
Ash(%)	0. 02	0. 07
Iron(mg)	18.4	21.5
Phosphorous(mg)	21.43	26.5

4.3 Microbial analysis of palmyratuber powder incorporated nutriball

The microbial load was analysed for the selected palmyra tuber powder incorporated nutriball. The results are shown in table 4.

Table 4
Storage studies palmyratuber incorporated nutriball

Sample	Microbes	Microbial load at room temperature(cfu/ml)			Microbial load at Refrigeration temperature(cfu/ml)		
		Initial	15th day	30th day	Initial	15th day	30th day
Raw palmyra tuber powder	Bacteria	TFTC	TFTC	TFTC	TFTC	TFTC	TFTC
palmyra tuber powder incorporated ready to mix	Bacteria	TFTC	TFTC	TFTC	TFTC	TFTC	TFTC

*TFTC-Too Few To Count

On storage of these powder showed some changes in flavour that was seen in fourth week of storage. Thus it can be concluded that the palmyra tuber powder incorporated nutriball can be stored up to 30 days without any deterioration.

5. CONCLUSION

The results prove that Palmyra palm tuber has potential to be used in value added products. It recommended that further research into the toxicity levels in these products should be under taken to increase the marketability of the product

BIBLIOGRAPHY

1. *Nesbitt M. "The cultural history of plants". Taylor Francis; 2005. p. 173.*
2. *Kapoor LD. "Handbook of Ayurvedic medicinal plants: Herbal reference library". CRC Press. Florida 2000; 82.*
3. *Alice Kurian, Peter K. V. "Commercial Crops Technology". New India publishing Agency, New delhi 2007.*
4. *Krishnan, M.K., "Glory of Palm Trees", Kerala calling, pp.42, 2007.*
5. *Katari Bhaskar. Borassus flabellifer L. "A tree behind the forest with multiple uses in rural areas: A case study from Nellore district, Andhra Pradesh, India." Imperial Journal of Interdisciplinary Research (IJIR) Vol-3, Issue-5,pp 1486-1493.*
6. *AOAC, 1995. "Official Methods of Analysis of the Association of official Analytical Chemistry", Washington.*