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Development of Tapioca vermicelli infused with Dates flour

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Abstract: Tapioca vermicelli infused with Dates flour is manufactured using different variations of tapioca and dates flour. The minerals in tapioca can provide important health benefits. Tapioca contains iron, an essential mineral we need to help transport oxygen throughout the body. The vermicelli samples were made with Tapioca and Dates flour. These two are themain ingredient in the product. We made three samples proposition 50:50 for sample A and 75:25 for sample B. The best formulation was 75:25. The chemical analysis showed that the moisture content was 6.45%, protein for sample A 4.05% and sample B 4.35%. , acidity 1.80g/1000ml for sample A and acidity 1.78g/1000ml for sample B, PH 5.69 for sample A and 5.45 for sample B. The resultant vermicelli was subjected to chemical, nutritional and organoleptic properties (color, taste, flavor, taste, overall acceptability) investigation.

INTRODUCTION

Tapioca starch is obtained from the roots of cassava which is popularly known for its gluten free properties. It is a healthy option for people with gluten intolerance and consumed instead of wheat or other grains. It contains high carbohydrates, very low fiber or protein. It has many health benefits. Tapioca scientific name **Manihot esculenta.**

Tapioca belongs to South America.It is pure starch which has limited nutritional values.It is used as a gluten free alternative in cooking and baking.It is used in making gluten free bread, flat breads, puddings and desserts, thickener and binding agent.However, it is unsuitable for people with diabetes.Tapioca is a staple food for millions of people in tropical countries. It provides only carbohydrate food value, and is low in protein, vitamins and minerals. In other countries, it is used as a thickening agent in various manufactured foods.

Dates flour: Dates contain several vitamins and minerals, in addition to fiber and antioxidants. However, they are high in calories since they are dried fruit.Dates are high in fiber, which may be beneficial for preventing constipation and controlling blood sugar.Dates contain several types of antioxidants that may help prevent the development of certain chronic illnesses, such as heart disease, cancer, Alzheimer's, and diabetes.
Dates are a healthy substitute for white sugar in recipes due to their sweet taste, nutrients, fiber and antioxidants.

Vermicelli: Vermicelli is a popular instant food product. It falls under the category of extruded product and is made from wheat flour. At times tapioca flour is added. Thus, it is rich in proteins . It is basically a snack food item and at times it is also used as a table enricher. With changing lifestyles, greater awareness about health and preference for instant food items have made vermicelli very popular and an item of mass consumption.

OBJECTIVES

✓ To develop a gluten free vermicelli with tapioca flour and dates flour is used as a natural sweetener for making instant semiyakesari.

METHODOLOGY

Materials

✓ To Tapioca flour, dates flour is mixed with 25 percent of water and dough is prepared.
✓ The dough is extruded using vermicelli extruder.
✓ The threads are dried using tray drier at 55-65 degree Celsius for 1-2 hours.
✓ The vermicelli is cut into desired length and packed.

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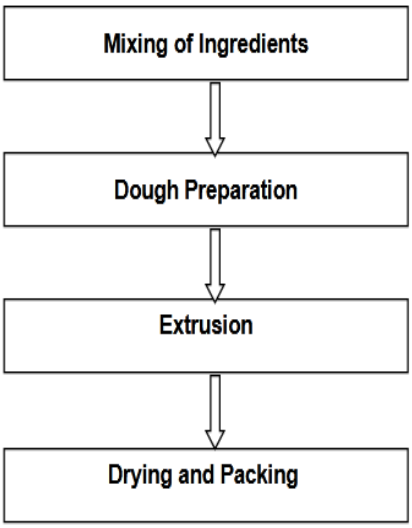

Mixture of Tapioca flour& Dates flour

Dough

Variation 1

Variation 2

Variation 3

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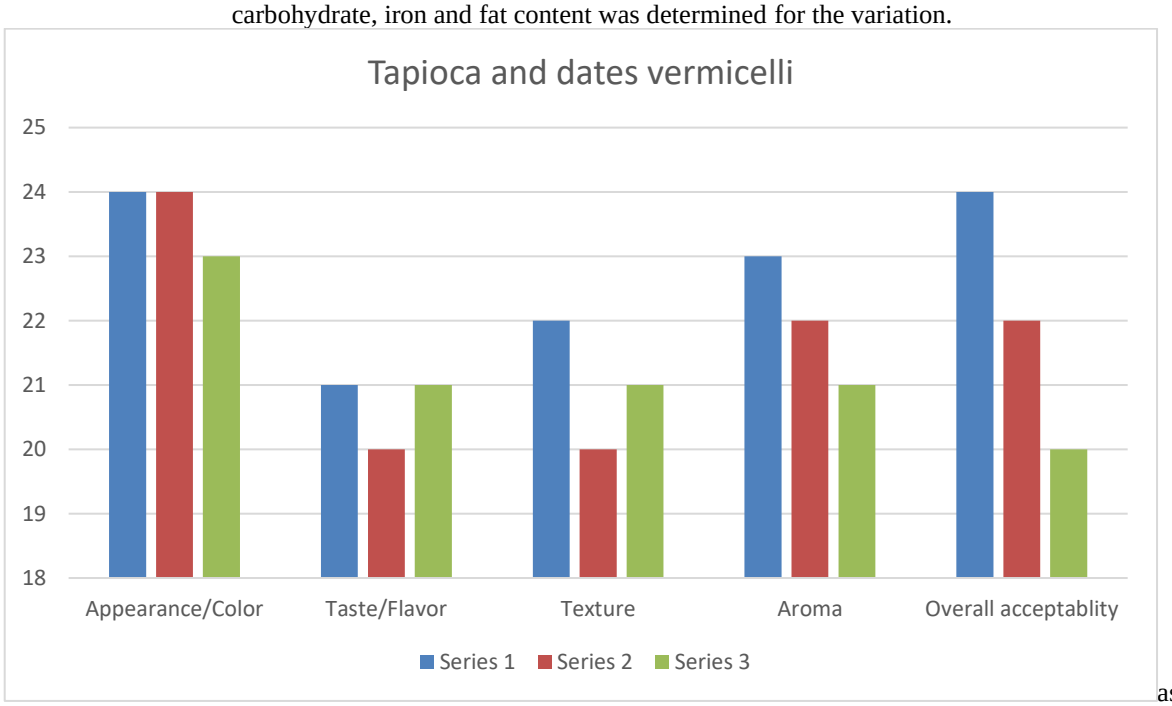
Table 1:Tapioca vermicelli infused with Dates flour

Sample	Tapioca flour(%)	Dates flour(%)
Control		
A	50	50
B	60	40
C	70	30

Sensory analysis

Sensory analysis was done and v1 was found to be the best among three variations and pH, moisture, ash, protein, carbohydrate, iron and fat content was determined for the variation.



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PROXIMATE ANALYSIS

The samples were analysed for the determination of Moisture, Ash, protein, PH, Carbohydrate, Fat and Iron.

Determination of Protein–

About 5-8 g of the flour was weighed and transferred to the Kjeldahl flasktaking care to see that no portion of the sample clings to the neck of the flask and 0.5g of coppersulphate, 15g of potassium sulphate and 40 ml of concentrated sulphuric acid w added. The flask was placed in an inclined position on the stand in the digestion chamber and the sample flour was digested. The flask is gently heated at low flame until the initial frothing ceases and the mixture was boiled steadily at a moderate rate.

PH

PH meter is brought to neutral 7 using the buffer and the tip is washed with double distilled water. Again, the pH is brought to 4 using the buffer and the tip is washed with double distilled water. The tip is then immersed in the sample flour and the pH is noted.

Determination of Iron:

The iron content of the given sample was obtained using ferrous ammonium sulphate (Mohr's salt). 0.5 ml of sample

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solution was taken in the test tube. To this, 1ml of potassium persulphate, 2ml of potassium thiocyanate was added and diluted to 15ml with distilled water. The absorbance was measured at 480 nm using a colorimeter.

Determination of moisture:

5g of sample weighed in a tared empty dish and placed in an hot air oven thermostatically controlled at 100-150℃. Heated for 2 hours, cooled in a desiccator for half an hour and weighed until three successive weights obtained were constant.

Determination of Ash:

The weight of three crucibles were recorded. 5g of sample was weighed in a tared empty crucible and ignited on the bunsen burner. The material was ashed at not more than 525℃ for 4 to 6hour in a muffle furnace and cooled. The difference in the weight before and after ashing was recorded in triplicates, which provides the total ash content of the sample.

Determination of Fat :

An empty timble was taken and 5g of sample was transferred to the timble. The soxhlet apparatus was set and the sample was placed in an extractor with petroleum ether. The water condenser was fixed over the extractor and set for 4 hours. After the end of extraction, the flask was removed and cooled.the weight of the flask was noted, which provides the amount of fat content in the sample.

RESULTS AND DISCUSSION

Tests were conducted. The values were obtained in triplicates and the average value is mentioned below.

pH	Moisture	Ash	Protein	Carbohydrate	Antioxidant	iron
7.623	87.479%	3.20	5.56	42.857	1176.2mg	4.95mg

DISCUSSION

Tapioca flour and dates flour was combined to make this vermicelli. The proximate analysis done to the product showed that it contains a high amount of carbohydrates and iron and tapioca contains carbohydrates and dates is rich in iron. The moisture, pH was also analyzed. The antioxidants were found to be 1176.8 mg.

CONCLUSION

The tapioca and dates flour vermicelli was found to be rich in carbohydrates and iron. The sensory analysis showed that the first variation was more palatable and acceptable. This vermicelli could be a better alternative to the people who look for gluten free option.

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