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To Study Sun Drying Banana Peel Powder Nutritional Value Used As Beneficial Nutritional Juice

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ABSTRACT: Advances in food industry have opened up numerous possibilities for the large scale production. Nowadays we gave an artificial beverage which is not safe for human health. The banana peel powder is prepared naturally consisting the nutritive value which are method were investigated on their effects on the chemical composition and properties of the banana peel dietary fiber concentrate (BDFC). Banana is common crop grown in almost all tropical countries including India. There are various nutrient content can be used in various ways in India. In the present study used banana peel which is good source of dietary fiber where dietary fiber can be extracted from banana peel powder can be obtained by using sun drying method and peel powder can be used as nutritional juice which is used for medicinal purpose also.

KEYWORDS: Banana Peel, Dietary Fiber, Sun Drying.

I. INTRODUCTION

Banana is one of the most common crops grown in almost all tropical countries, including India. It is an abundant and cheap agriculture product. Banana chip and banana fig are the main products from banana flesh produced by a number of small and medium factories located nationwide. As industrial by-products, peels represent about 35-50 g/ 100 g of fruit weight. This resulted in 250 tons of waste from banana peels in India generated each day and these amounts tend to increase annually. The banana peels waste is normally disposed in municipal landfills, which contribute to the existing environmental problems. However, the problem can be recovered by utilizing its high-added value compounds, including the dietary fiber fraction that has a great potential in the preparation of functional foods. Kokum has multiple health and medicinal benefits. The fruits of kokum are an excellent source of antioxidants that prevent to free radicals thereby helps from different diseases. It is also known as cool king of India fruits.

Dietary fiber has shown beneficial effects in the prevention of several diseases, such as cardiovascular diseases, diverticulosis, constipation, irritable colon cancer, and diabetes. The fruit fiber has a better quality than other fiber sources due to its high total and soluble fiber content, water and oil holding capacities, and colonic ferment ability as well as a lower phytic acid and caloric value content. A high dietary fiber content of banana peel (about 50g/ 100 g) is indicative of a good source of dietary fiber. Cellulose, lignin, and hemicelluloses contents of banana peels, the components of the insoluble dietary fiber fractions, varied from 8 to 10 g/ 100 g, 7.4 to 9.6 g/ 100 g and 6.4 to 8.4 g/100 g respectively falling within the safety limits. These results indicated that banana peels were safe and valuable functional ingredients for human consumption.

Several technological treatment applied to the fruit residue may affect dietary fiber compositions and functional properties. At present there are no published studies on the suitable processes to produce dietary fiber from banana peel. Therefore, the overall objective of this study was to investigate the influence of different preparation methods of banana peels powder and nutrient composition of banana peel juice and its drying characteristic which used as a medicinal purpose on the chemical compositions and properties of dietary fiber concentrate used as a raw material for functional food.

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In this research paper we studied preparation banana peel powder using sun drying method and extraction of dietary fiber. The nutritional value composition of banana peel powder can be found in Krishi Vigyan Kendra Durgapur, Badnera, Amravati. Using banana peel powder we can prepare banana peel juice which is used for medicinal purposes.

II. LITERATURE SURVEY

Green banana is a food of great value recommended for several pathological conditions, including constipation and diarrhoea, due to its ability to normalize colon functions. Since it has the ability to stimulate the proliferation of beneficial acidophilus bacteria in humans, its intake is recommended in cases of colitis, ulcerative colitis, gastric ulcer, uraemia, nephritis, gout, cardiovascular disease, and celiac disease. When it is in the green stage, banana is considered to be a functional food of the prebiotic type (MASTRO et al., 2007). The most important factor for considering green bananas as a prebiotic food is its resistant starch content, characterized by the portion of the granule or its degradation products that are not digested or absorbed in the small intestine and are fermented in the large intestine (TEIXEIRA et al., 1998, ACEVEDO et al., 2012). Moreover, latest studies on bananas grown in Africa and South America have shown that relationship between yellow-to-orange flesh coloration and higher carotenoid content (Amorim et al., 2009; Newilah et al., 2008). Carotenoids-rich banana cultivars have been identified by several studies (Englberger et al., 2003, 2006, 2010; Fungo et al., 2007, 2010; Fungo and Pillay, 2011). However, there is few published information on the variability in bananas and plantains micronutrient concentrations Wall and Fungo et al. (2007).

III. MATERIALS AND METHODS

1. Materials used

Banana peels, kokum, cardamom, sugar, water.

2. Preparation of banana peel powder

Banana peel powder was prepared utilizing sun drying, the banana peel dry on sun drying at 40°C for 2 to 3 days. After roasted this material is grinded into a fine powder easier to be worked, the powder then passed through a sieve so that the particle remains same size. The material is mixed with regular water. Then kokum, cardamom, sugar is added and boil for 20 min. Then the boil juice is filtered and removed the whey and juice is cooled at room temperature and then preserved.

3. Extraction of dietary fiber

Dietary fiber from banana peel was extracted using the method of Yoshimoto et al. (2005). The banana peel powder samples were defatted for 10 hrs. using hexane as solvent (5 ml/g sample). The residue was dried at 50°C in a sun dry to assure complete removal of the solvent. The defatted peel powder was mixed with water (1:20 w/v. ratio). The pH was adjusted to 5.9 by adding 1 N HCL solution. An alpha-amylase was added (0.1 ml/g. sample). The sample was incubated at 35°C for 40 min. after cooling down to room temperature the pH was adjusted to 6.5 by adding 1 N NaOH. Nitrate was then added (10 mg/g sample) and incubated for 45 min at 35°C. After that, the pH was adjusted to 4-4.5 by using 1 N HCL solution. An amino glycosides solution was added (0.1 mg/g sample) at 35°C for 45 min. Finally, the mixture was filtered through Whatman No. 4 filter paper and dried in the sun dry at 40°C for 12 hrs. The dried samples were then testing in an Krishi Vigyan Kendra, Durgapur, Badnera, Dist. Amravati using a 1 mm sieves.

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4. Chemical Analysis

In chemical analysis we used two types of banana peels and found nutrient composition at krishi vigyan Kendra Durgapur, Badnera, Amravati. This will be given in following table below.

Table 1: Nutrients composition for types of banana

Nutrient composition	Types of banana peels	
	Almost Ripe	Ripe
Dry matter (%)	92.38	95.66
Crude proteins (%)	6.61	4.77
Ether extract (%)	14.20	14.56
Crude fiber(%)	11.10	10.95
Ash (%)	14.27	14.53
Calcium (%)	0.38	0.36
Phosphorus (%)	0.29	0.23
Tannin (%)	4.97	4.69
Gross energy (kcal/kg)	4692	4592

IV. HEALTH BENEFITS OF BANANA PEEL

The sweet flesh of a medium size banana peel contains significant percentage of your Daily recommend intake of various nutrients such as:

- 12% of your daily fiber, which helps with digestion and may help to lower your risk of diabetes.
- 17% of your vitamins C which is important for your immune systems as well as growth and development.
- 12 % of your potassium, which helps in development of cells, tissues & Organs throughout the body.

V. RESULT AND DISCUSSION

The Nutritional Composition of banana peel powder shown in graphical representation way and comparative way below

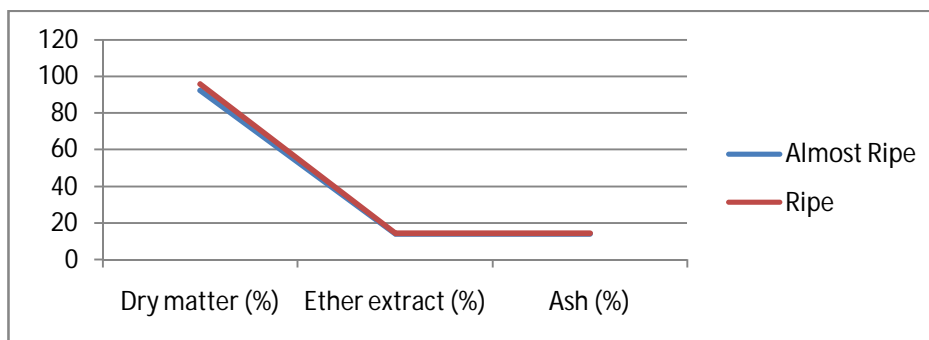


Fig 1: Nutritional composition of banana powder

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From the above graph we can see the dry matter, ether extract, ash percentage are more for ripe banana peel than the almost banana peel powder. So it is concluded that the nutritive value of ripe banana peel was slightly better than almost ripe peel.

As we can see the gross energy of ripe banana peel is more than the almost ripe peel, it is better to use ripe banana powder for juice so that get more calorific energy value.

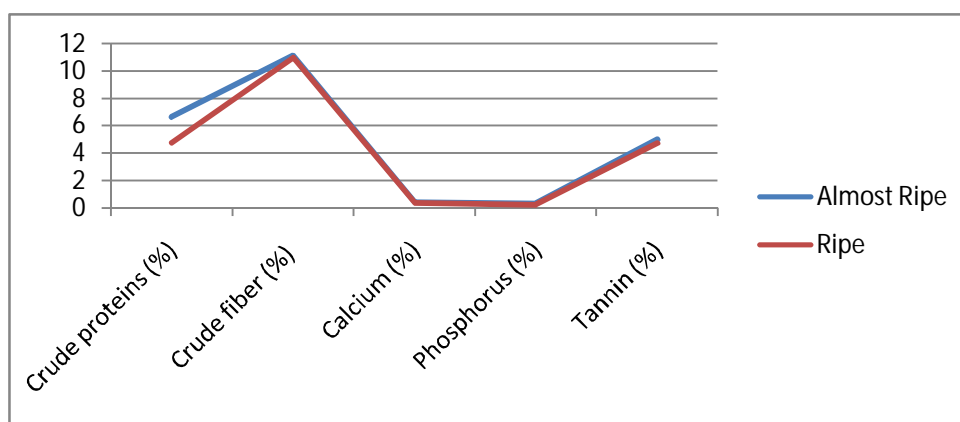


Fig 2: Chemical content comparison of ripe banana peel

From the above graph we can see the crude proteins, crude fiber, calcium, phosphorus, tannin percentage are less for ripe banana peel than the almost banana peel powder. It is better to use ripe banana powder.

VI. CONCLUSION

Banana peel is a good source of dietary fiber exhibiting 50 g/100 a dry matter. The sun drying preparation method had an influence on the properties of banana peel dietary fiber concentrate obtained subsequently after removal of fat, protein, and starch fraction. Sun drying process yielded the banana dietary fiber concentrates with significantly higher fat, protein, and starch residue, resulting in the lower dietary fiber concentration. These results indicated that this treatment was the most effective method to provide an opportunity to enhance the functionality of dietary fiber concentrate and hence to use the banana peel dietary fiber concentrate as a low-caloric functional ingredient for fiber enrichment, although the incorporation of them within the food system may slightly affect the color of the final product. Banana peel is a good source of nutritional benefits in our daily life.

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