

## The potential for banana Pseudostem to increase in value [Article ID: SIMM0329]

<sup>1</sup>Priya Rani Paul,<sup>2</sup> Mita Meher

<sup>1</sup>B.Sc. (Ag.), GIETU, Gunupur

<sup>2</sup>Ph.D. Scholar, IGKV, Raipur

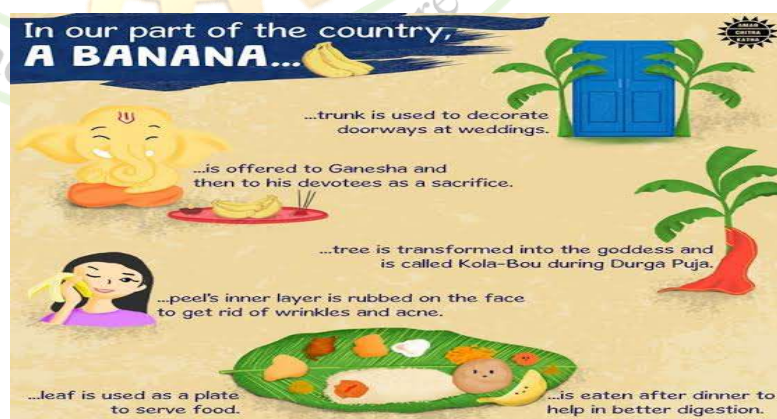
The significant tropical and subtropical fruit crop known as the banana (Order: Zingiberales; Family: Musaceae; Genus: *Musa*) is farmed all over the world. India is the world's greatest banana producer, with Maharashtra, Kerala, Tamil Nadu, Gujarat, Bihar, West Bengal, Assam, and Karnataka being the top producing states. On the Indian subcontinent, banana is referred to as Kela in general and Vazhappazham in Kerala, Vazhakkai in Tamil Nadu, Aratipandu in Andhra Pradesh, Kola in Bengali, and Kol in Assam locally. The banana plant, which can grow up to 9 metres tall and has a long pseudostem that emerges from its underground rhizomes, is a big perennial monocotyledonous herbaceous plant. Each plant produces a single inflorescence, with the leaves being oval, elongated, and dark green in colour.

The round, fleshy fruits contain tiny, black seeds.

Fruits, leaves, pseudostems, rhizomes, and inflorescence of plantain plants, as well as their other parts, are all beneficial. As a result, in India it is referred to as a "Kalpataru," a Sanskrit word that means "wish-granting tree." In some cultures, the leaves are used as a wrap during cooking, wrapping, and serving food. Many traditional dishes

contain pseudostem and flower as components. Animals are fed on rhizomes and the pseudostems outer covering. When the fruit is mature, it is most frequently used as raw fruit, in desserts, or in breakfast dishes. Unripe fruits are frequently used in curries, fried foods like chips, etc. According to reports, the banana fruit, peel, and pseudo-stem from different species are abundant in total carbs, fibre, and minerals, particularly potassium.

Plantain agriculture primarily focuses on producing fruits, furthermore the leaves, inflorescence, pseudostem, peels, and rhizomes are almost discarded. But at the moment, they have emerged as lucrative byproducts of the production of bananas. For every tonne of banana fruit collected, it is estimated that 4 tonnes of biomass wastes, such as rotting fruit, leaves, pseudostems, rhizomes, and fruit bunch stem, are created. This means that on average, 60 to 80 tonnes of pseudostem alone are present in a hectare. There are some restrictions on using them according to tradition; for instance, pseudostem and inflorescence are regarded as vegetables in some cultures, but the acceptance is quite limited in comparison to other leafy plants. A recent study found that plantains and their components are a wonderful source of



phytochemicals in addition to the medical and culinary applications of bananas. In the functional food and nutraceutical



industries, the banana pseudostem has been investigated for a number of uses. Hence this article focus on developing interesting and novel food which is fresh along with converting the waste into a value added product.

### **Using banana byproducts as a source of food and supplements:**

#### **1. Source of starch, pectin and cellulose**

Commercially produced starch is a class of carbohydrates made from plants including corn, potato, rice, wheat, and cassava. The pith of the pseudostem and the green banana that is culled during fruit selection and processing are by-products of the banana that can be turned into edible carbohydrates. Compared to modified and unmodified maize starch, banana starches have been found to be somewhat superior due to their low amylase concentration, strong resistance to heating and amylase attack, low swelling capabilities, low solubility in water, and minimal retrogradation. This might increase their market worth. Starch could be used as supplementary in low glycemic products – making of bread, bun, Cookies, cake, pasta and noodles. Modified starch could be used as supplementary in low glycemic products due to adding new functional groups to starch, it makes difference in structural and functional properties.

#### **2. Banana central core stem pickle**

Varieties such as Karpuravalli, Poovan, are best Suited for central stem. It is converted into a high value-added product by making central Core stem pickle. The steps in the procedure include removing the centre core from the pseudo-stem, slicing and chopping it into little pieces, removing the fibre, blanching it, and adding spices and oil. A self-help group for women would benefit greatly from this product (SHGs).The food

is suitable for eaten by all age groups as it is high in fibre and potassium. At room temperature, the product is palatable and stable for a year.

#### **3. Preparation of candies and cookies**

The core stem part is used for preparing candy, which is sweet in taste and rich is fiber & Potassium. By splitting the core stem and steeping it in sugar syrup, you may turn it into a candy that has a sweet flavour and is high in fibre. Ginger candy with a banana central core stem base can be made by combining syrup and ginger in an 8:2 ratio. Slices or sections of the central core stem are steeped in the syrup-ginger extract solution before being dried in a hot air oven for an extended period of time. The products can be stored up to three months safely without any spoilage.

#### **4. Biscuits/ Cookies/ Muffins from Centre Core Stem & Peel of Banana**

Banana peel and central stem is rich in dietary fiber, protein & essential amino acids.

They possess good antioxidant compounds Like polyphenols, and catecholamine. It is used in food, pharmaceutical and medical drugs. Banana peel powder could be used as a functional replacement in the variety of bakery products Like cookies, biscuits, muffin, health foods etc. The procedure include removing the outer sheath, using the stem in the middle, slicing, drying, and pulverising the material, as well as adding sugar, oil, and baking powder. The overall nutritional content of muffins will be increased by substituting 10–20% of all-purpose white flour (Maida) with banana peel flour, without sacrificing any sensory appeal. Converting central stem into a value added product will boost the income



of the farmers by incorporating various flavors and multigrain biscuits.

### **5. Banana pseudostem fiber- and natural-binding-based decorative wall panels**

Using banana fibres, ICAR-CIRCOT has created inventive beautiful wall panels. These panels offer a green substitute for the typical interior panel boards. The production procedure is extremely straightforward and uses the compression moulding method. Banana fibres are coloured using novel colouring technologies for aesthetic purposes. Banana growers, interior designers, and architects are potential participants. It looks beautiful and has excellent acoustics. It possesses excellent workability, making it simple to cut into any shapes and sizes.

### **CONCLUSION**

Numerous well-known cultivars and variants of the banana have been studied, and their byproducts, including pseudostems, rhizomes, leaves, fruit stalks, and peels, have some promise as raw materials for both the food and non-food industries, depending on the application. The world's population is growing at an exponential rate, and there is a trend towards using eco-friendly and practical agricultural waste products, which provides a stable foundation for the continued development of products from banana waste and byproducts, turning bananas into a commodity that generates sustainable income. One strategy for preserving the environment for future generations is to generate profit from waste, like the byproducts of the banana industry.

### **REFERENCE**

<https://www.google.com/url?sa=t&source=web&rct=j&url=https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4252442/&ved=2ahUKEwju6t-Nz-39AhX0S2wGHfzbByMQFnoECCcQAQ&usg=AOvVaw3awokeIJIYh6stb26xNd7t>

[https://www.google.com/url?sa=t&source=web&rct=j&url=https://abhinavakrishi.com/blog/2021/04/28/future-aspects-in-value-addition-of-banana-pseudostem/&ved=2ahUKEwjZxZibz39AhVqSWwGHZZBA7I4ChAWegQIBxAB&usg=AOvVaw1\\_FFVDv6HGrYgzUNwXCAuD](https://www.google.com/url?sa=t&source=web&rct=j&url=https://abhinavakrishi.com/blog/2021/04/28/future-aspects-in-value-addition-of-banana-pseudostem/&ved=2ahUKEwjZxZibz39AhVqSWwGHZZBA7I4ChAWegQIBxAB&usg=AOvVaw1_FFVDv6HGrYgzUNwXCAuD)

<https://www.google.com/url?sa=t&source=web&rct=j&url=https://icar.org.in/sites/default/files/Creating-Wealth-From-Agricultural-Waste.pdf&ved=2ahUKEwjhwPXRz-39AhUkSmwGHWP5Bq0QFnoECBAQAQ&usg=AOvVaw1pvEoZsFUBuJgv1VnePFok>