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BANANA FOOD PROCESSING - AN OPPORTUNITIES FOR COTTAGE INDUSTRIES & ENTREPRENEURSHIP

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Abstract:

In the international agricultural market, India is one of the major players and about 120 nations cultivate banana. India is the world's leading producer of bananas. In terms of area and productivity, bananas are the third-largest fruit crop in India. It makes up 13% of the entire area and 33% of the fruit production. The majority of the bananas produced in the world, 90%, are consumed in India as fresh fruit and only 5% of the crop is consumed in processed form, offering plenty of room for processing in the future. Maharashtra is the second largest producer of banana fruits. It ranks first in productivity and second in terms of area under banana fruits. It accounts for 37% of total banana fruit production. Jalgaon is the highest banana producing district in the Maharashtra with around 70% of the state production. Banana is a rich source of vitamins B and carbohydrate. Additionally, it is a good source supplier of potassium, phosphorus, calcium, and magnesium. The fruit is simple to digest with cholesterol and fat-free. Banana fruit crop is fully utilized in the form of fruits, stems and leaves. From Banana fruit crop providing lots of opportunities to cottage industries and private entrepreneurs to make various items from fruits, stems and leaves with small resources machinery and investment.

Key Words: Banana processing, Banana fruits, Banana stems, Banana Leaf, Opportunities, Cottage industries, Entrepreneurs, Maharashtra.

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INTRODUCTION

India is one of the important players in the global agricultural industry. Agriculture is the primary source of income for 58% of Indian population. India is the second-largest producer of wheat, rice, cotton, sugar, farmed fish, fruit, vegetables, tea, and vegetables. About half of the Indian population employed in agriculture directly or indirectly. It has second-largest agricultural land area in the world. Due to large agricultural land Indian farmers play an important role in the food industries. (India Brand Equity Foundation, 2023). Indian agriculture and food processing have advanced significantly during the past three decades. Due to Indian farmers' ability to match domestic demand, produce surpluses, and boost yields while overcoming structural obstacles, the nation was able to succeed. Even though India is now the third-largest producer of agricultural goods in the world by value, it still has a long way to go before it reaches its full potential, providing a vast opportunity for value addition in agriculture (Confederation of Indian Industry, 2023).

Indian Banana Production status:

About 120 nations cultivate banana and plantains. 86 million tons of fruits are thought to be produced globally each year. With an annual output of roughly 14.2 million tons, India is the world's leading producer of bananas. Brazil, Ecuador, China, Mexico, Thailand, Colombia, the Philippines, Indonesia, Costa Rica, and Ecuador are some other major producers. With a production of 36.66 million tons, India contributes 2% of the global agricultural GDP and accounts for 22.5% of all banana production (National Horticulture Board, 2023).

In terms of area and productivity, bananas are the third-largest fruit crop in India. It makes up 13% of the entire area and 33% of the fruit production. The state with the biggest production is Andhra Pradesh followed by Maharashtra, Gujarat, Tamil Nadu and Karnataka with significant banana production. Due to its inexpensive cost and excellent nutritional value, bananas are a highly well-liked fruit. Both the mature and unripe fruit varieties are eaten fresh or cooked (NHB, 2023). The majority of the bananas produced in the world, 90%, are consumed in India as fresh fruit. India is the world's greatest producer of bananas. Only 5% of the crop is consumed in processed form, offering plenty of room for processing in the future. The remainder is processed as an ingredient in other foods, with only 2.5% being processed solely as banana goods. Bananas are relatively perishable by nature, thus adding value through the addition of bananas to figs, flour, powder, banana chips, and energy drinks could help meet the changing preferences and growing need for value-added ready-to-eat

items. The nutritional value of bananas can assist meet a variety of nutritional needs with different levels of processing including drying or frying procedures (CII, 2023).

Indian Production of Banana -2021 - 22			
Sr No.	State	Production	Share(%)
1	Andhra Pradesh	5,838.88	17.99
2	Maharashtra	4,628.04	14.26
3	Gujarat	3,907.21	12.04
4	Tamil Nadu	3,895.64	12.00
5	Karnataka	3,713.79	11.44
6	Uttar Pradesh	3,391.01	10.45
7	Bihar	1,968.21	6.06
8	West Bengal	1,147.79	3.54
9	Assam	1,108.00	3.41
10	Chattisgarh	585.52	1.80
11	Assam	909.83	2.75
12	Chattisgarh	585.71	1.77
13	Orissa	502.83	1.52
14	Mizoram	140.50	0.42
15	Tripura	111.11	0.34
16	Telangana	100.11	0.30
17	Meghalaya	95.01	0.29
18	Manipur	88.50	0.27
19	Nagaland	87.28	0.26
20	Jharkhand	32.87	0.10
21	Arunachal Pradesh	14.03	0.04
22	Punjab	9.05	0.03
23	Sikkim	5.53	0.02
24	Rajasthan	0.41	0.00

25	Himachal Pradesh	0.12	0.00
26	Others	51.63	0.16

Source: National Horticulture Board, 2023.

In 2021 post pandemic the consumer expenditure in India would grow by 6.6%. This creates enormous opportunities for value added products, particularly in the food processing industry. The Indian food industry is focusing on major expansion and will be increasing their contribution to the global food trade. Food processing sector of India contributes 32% of the nation's total food market and is rated fifth in terms of production, consumption, export, and expected growth (India Brand Equity Foundation, 2023).

Maharashtra is the second largest producer of banana fruits. It ranks first in productivity and second in terms of area under banana fruits. It accounts for 37% of total banana fruit production.

Jalgaon is the highest banana producing district in the Maharashtra with around 70% of the state production. The district, which is nearly 300 km from the west coast and is on the northern edge of the Deccan plateau, only gets 750 millimetres of rain on average each year, and all of the bananas are grown by independent growers.

Objectives of the Study:

1. To study the various possibilities for banana fruit & crop processing
2. To study the opportunities for Cottage industries from banana processing.
3. To study the opportunities by value addition in banana processing for Entrepreneurship.

Research Methodology:

The present study is exploratory and analytical in nature, so the data has been collected from various sources such as books, publications in National and International journals, reports, articles and websites. The collected data is reviewed and analysed to arrive at conclusion.

Literature Review:

VelekarLaxmikandChandrakant (2022), highlighted the situation by saying the most significant aspect of our life is food. But the food we consume is frequently processed in a number of ways to increase its value and make it digestible. For the food business to continue growing, all stakeholders must seize competitive advantages. Everyone has to understand the

challenges of running a corporation in our modern era. This is mostly caused by the processing industry's lack of value addition. The situation needs to be rectified, and the money should be returned to the farms in accordance with their value contribution. The key issues in the food processing sectors are an inadequate relationship between manufacturing and processing.

Article published on Rashtriya Krishi Vikas Yojana under success stories explained the banana pseudo-stem processing at Jalgaon district of Maharashtra state (2018). The Jalgaon district alone has 55000–60000 hectares of banana plantations each year, with the greatest average banana yield of 55–60 MT/hectare, making Maharashtra the second-largest banana grower in the nation. Banana farming, harvesting, handling, and shipping provide a living for close to 300,000–325,000 people. Each year, the Jalgaon district alone produces over 38,50,000 MT of biomass from banana pseudo-stem. After banana bunches are harvested, which produce about 70–80 MT per hectare, the pseudo-stem is typically burned after drying because it is not economically feasible to transport the pseudo-stem over long distances. However, it is possible to process the pseudo-stem economically and extract the fibre, sap, and other essential products from it. For this purpose, Tapti Valley Banana processing and products cooperative Society Ltd. Faizpur has established 20 Cottage Industrial Units.

Dietmar Stoian and other (2018), in their research article explained that Bananas have the ability to generate significant value as a multipurpose crop through product differentiation and processing into a variety of foods and other goods. Due to outdated equipment, little investment in agro-processing, a lack of commercial and technical skills, and a lack of focus on the demands of various consumer groups, bananas are offered as fresh food.

S. Uma (2022), in her research article highlighted the opportunities and scope available for entrepreneurship in banana processing. Economic growth depends heavily on the service sector. As a result, there are more job openings in the service industry, which is concentrated in cities and ignores the employment chances for rural troops. Due to this circumstance, the rural population moves to the cities. To keep people engaged in agriculture and related industries, employment opportunities must be created in rural areas. From unripe and ripe bananas as well as biomass waste such pseudo-stem sheath, central core stem, flower, bracts, etc., more than 30 processed products are being developed. Bananas' outer sheath contains fibres that can be utilized to create a variety of crafts and even possibly textiles. With this background, the potential for entrepreneurship in the banana industry is revealed.

P. Suresh Kumar & K.N. Shiva (2022), A major factor in fostering and maintaining the growing momentum in India's rural areas would be the development of entrepreneurship in the agricultural sector. The spread of the banana business was hampered by the lack of technical experts and the absence of incubators, which is one of the causes of the enormous amount of banana waste and underutilization of its components. For a variety of uses, plant fibres have been a major source of dependence for mankind. The synthetic fibers don't degrade and are a major source of pollution. According to studies, natural fibers are increasingly being used because to their inexpensive cost, convenient availability, great mechanical properties, high specific strength, non-abrasiveness, eco-friendliness, and biodegradability. It is essential for the growth and promotion of handcraft using banana fiber given its enormous potential for availability.

C. Karpagam and others (2022), explained that when the name "Start-up" was used, agriculture gained new momentum. In addition to transforming the agribusiness environment in India, it is also affecting the environment of the region where the startup is developed. The government of India seeks to increase the number of Micro, Small, and Medium Enterprises by creating a number of government programmes for new and small enterprises that are designed to give them access to greater funding and a platform for further expansion. The success of the AtmaNirbhar mission and Make In India goal will depend on the success of startups, which will increase jobs and raise living standards for millions of Indians.

P. Suresh Kumar and others (2022), in their research work described the numerous value-added products made from banana. They described the goods made from ripe banana, green or unripe banana, and other portions of banana plants.

Banana Utility:

Banana is a rich source of vitamins B and carbohydrate. Additionally, it is a good supplier of potassium, phosphorus, calcium, and magnesium. The fruit is cholesterol- and fat-free, and it is simple to digest. The first baby meal is made from banana powder. When used frequently, it lowers the risk of heart disease and is advised for people with high blood pressure, kidney problems, arthritis, ulcers, and gastroenteritis. The fruit can be used to make processed goods such chips, banana puree, jam, jelly, juice, wine, and halwa. By removing the leaf sheaths from the harvested pseudo stem, the sensitive stem that contains the inflorescence is retrieved and used as a vegetable. Plantains or cooking bananas are high in starch and resemble potatoes chemically (NHB, 2023)

Opportunities in Banana Processing:

Raw and ripe bananas, as well as biomass waste such pseudo-stem sheaths, central core stems, flowers, bracts, and more, are being used to create more than 30 processed goods. Bananas' outer sheath contains fibres that can be utilised to create a variety of crafts and even possibly textiles. It shows that there is a good opportunities and scope available for cottage industries and entrepreneurship in banana processing. The market's most popular banana item is "fried chips and candy," which accounts for about 31% of overall sales. The other goods, including banana puree, use 9% of the total, banana powder, 6%, and banana pulp, beer, and wafers, 3% each. With this background, there are opportunities and scope available for cottage industries and entrepreneurship in banana processing.

Opportunities to make various food items from Green Banana and Ripe Banana fruits:

1. Banana Chips:

Banana chips or crisps are made by deep-frying of raw banana slices in a suitable cooking medium. The fibre content of banana chips is one of their main advantages. Iron is another crucial mineral found in banana chips that is good for your health. Myoglobin and haemoglobin, two proteins that deliver oxygen-rich blood to tissues, are made possible by iron. Like full bananas, banana chips increase your intake of potassium. Since most people like to consume snacks, there is a high demand for banana chips.

2. Banana Juice:

To alter the flavour, you can blend it with other strong flavours. It provides quick energy when served chilled and is a fantastic thirst quencher. You can use it by itself or with lime, mango, and pineapple.

3. Banana fig:

Banana fig is a dried fruit made from ripe banana fruits. The product is delectable, wholesome, and stable at room temperature for up to three months. By giving all the elements of a banana in a concentrated form. The figs are very nutritious and aid in ensuring nutritional security.

4. Flower pickle:

The male banana bud is a crop production by product that has no commercial use. By creating pickles, it is transformed into a product with a high added value. The procedure includes taking off the pistil, blanching, grinding, and adding oil and spices.

5. Banana flour:

Unripe bananas can be cut into slices, dried in an air oven, and then ground into flour to make banana flour. used to make a variety of items, such as baby food, health drinks, soup mix.

6. Soup mix:

Green banana flour combined with other elements including maize flour, spices and dried veggies. It can be prepared quickly and sold.

7. Starch:

Green banana starch can be extracted by blending banana pulp with water and sifting the mixture to remove sugar, fat, and protein. Separated and dried in an air oven was the white precipitate. applied to the textural qualities of different food products.

8. Baby food:

Green banana flour is fortified with sugar, milk, and other nutrient-rich sources to create baby food. It is nourishing and very energising.

9. Health Drink:

By adding appropriate natural sources of proteins, minerals, lipids, and vitamins to banana flour, a very nutritious health drink formula has been created.

10. Banana Powder:

Banana powder processing is a traditional practise in India that offers cottage industries and entrepreneurs good opportunity to sell their products directly in markets or through collaboration with firms that produce infant food.

Banana powder can be used to create high-value goods like biscuits that have a higher nutritional content and relatively less fat. In addition to having numerous medical benefits, banana powder is a significant source of dietary fibre and potassium. It is a food ingredient that can be used, infant foods, nutritional supplements, and confections.

11. Green Banana Flour:

Green banana flour with a high resistant starch content can be produced by simply drying raw banana slices in a hot air oven and grinding them.

The use of green banana flour in baby foods, pasta, bread, spaghetti, cookies, and other baked goods could be considered perfect.

12. Banana Jam:

A wonderful jam can be made from bananas that have a sweet flavour, fine texture, and fine flavour. The product is processed in a manner that is basically the same as other fruit jams. To create a jam with a clear and fine texture, special attention should be paid to the ratio of banana puree, sugar, pectin, and citric acid used in the processing of banana jam. Banana jam remains well for a long time.

13 Banana Sauce:

An already prepared sauce is banana sauce. It enhances the flavour of meals and serves as a garnish to provide moisture. The sauce is a dull yellow-red tint with a pronounced banana flavour. When kept in bottles, it has a one-year shelf life.

Opportunities to make items from Banana Stem:

1. Stem pickle:

The stem of the banana is a crop waste that has little commercial value. By turning it into central core stem pickles, it is transformed into a product with great value added. The removal of the pistil, blanching, grinding, and addition of spices and oil are all steps in the preparation of flower pickles.

2. Central core Stem candy:

Sweet banana stem candy can be made by first drying the sliced, fragile central core stem in a sugar solution.

3. Pseudo stem Fibre:

Pseudo stem waste has a lot of potential for being used to make a variety of items, including naval cordages, high-quality paper cardstock, tea bags, string thread, and high-quality fabric material.

Opportunities to make items from Banana Leaf:

Banana Leaf:

The serving of food on banana leaves is a tradition in India. For rituals, weddings, and other important occasions, Hindus and Buddhists mostly utilise banana leaves as a decorative plant. In India, people feel that food served on banana leaves has a unique taste.

Banana leaf provides good opportunity for cottage industries and entrepreneurs to make biodegradable dining plates from banana leaves.

The important contribution of the present work -

1. The work is focused on entrepreneurship and opportunities for small business in the rural area of banana producing region by utilizing the whole banana plants.
2. The various products will be made from banana fruits and other parts of plants by small value addition. Those value added products are rich in nutrition and healthy for human body. These products may be produced with very small investment by family members of the farmers, which will create additional source of income to the poor farmers from locally available material.
3. Banana plants provide large opportunities of the entrepreneurship for Individual youth in the rural parts of Banana growing region. Unripe or green Banana fruits are cheaply available in this region which may be utilized in production of various products. Pseudo stems are waste for the banana producing farmers, which is easily and freely available for entrepreneur for producing fibers. This will provide a good scope and opportunities for reducing the unemployment and migration of rural youth towards urban area.

Conclusion:

India is the world's leading producer of banana and banana fruit is the third-largest fruit crop in India. Maharashtra state is the second largest producers of Banana in India. Jalgaon district of Maharashtra is the highest banana producing district in the state with around 70% of the state production. But overall only 5% banana fruits are consumed in processed form. Due to the perishable nature of banana fruits it needs to be processed locally in the production area to avoid losses. Jalgaon district of Maharashtra state has a great opportunity to process banana fruits, stems and leaves by cottage industries and private entrepreneurs.

Banana food products are in demand due to their health benefits and taste. There is a big gap between demand and supply of banana products such as powder, puree, juices and snacks items. The industry that produces bakery/confectionery goods, as well as companies that produce baby food, are the ones that have the most demand for banana powder, according to many manufacturers and exporters of the product.

The processing of banana fruits, Stems and Leaves required very less technology and financial support, so small value addition to banana crop will create large opportunities for entrepreneurship.

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