



Medicinal and Nutritional Importance of Banana

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Abstract

The Cavendish subgroup is the most widely grown group of bananas since it includes the cultivars that dominate the international trade in bananas (e.g. Grande Naine, Williams and Valery) and as such have set the standards in terms of taste, yield and post-harvest characteristics expected of an export banana. They are also increasingly grown for domestic markets. In 2010, Cavendish cultivars accounted for about 40% of the global production of bananas, which includes the 27% produced for domestic markets and the 14% grown for export[1]. Their domination of the international trade started in the late 1950s when they were selected to replace Gros Michel, whose susceptibility to Fusarium wilt precluded its cultivation in large commercial plantations. Although Cavendish cultivars are resistant to the race 1 strains of the fungus that causes the disease, they are susceptible to tropical race 4.

Source: www.promusa.org/Cavendish+subgroup

Keywords: Banana; Medicinal; Nutritional Importance

Millions of people around the world depend on banana as a source of food and income. However, despite increasing global banana production, yields of banana – both dessert and cooking types – are far below their potential. Production is affected by: a range of pests and diseases such as Fusarium wilt, bacterial wilts, nematodes, weevils, black leaf streak and bunchy top; declining soil fertility; abiotic stress such as drought and extreme weather events brought about by climate change.

Some 500 cultivars of banana are estimated to exist. However, over 40% of all cultivars grown worldwide belong to only one genetically narrow group – the Cavendish subgroup. The tendency to replace local diversity with a single high-yielding cultivar as a monocrop is increasing every year, even in smallholder fields, sometimes resulting in complete loss of local diversity. The risks associated with relying on one or a few genetically similar cultivars of a crop are well known, as the Irish Potato Famine demonstrated in the 19th Century.

There is an urgent need to protect and further explore the diversity of banana (*Musa*), both wild and cultivated, to increase diversity in farmers' fields, for more resilient smallholder banana production systems.

Source : <https://www.biodiversityinternational.org/research-portfolio/banana-genetic-resources>.

Keywords: Banana genetic resources and management systems.

Nutrition facts and health benefits

Banana fruits are among the most important food crops in the world.

They come from a class of plants called *Musa*, that are native to Southeast Asia, and are grown in many of the warmer areas of the world.

Bananas are a healthy source of fiber, potassium, vitamin B6, vitamin C, and various antioxidants and phytonutrients.

There are many different types, and they come in many different sizes. Color usually varies from green to yellow.

Source: <https://www.healthline.com/nutrition/foods/bananas>.

Keywords: Bananas Nutrition Facts.

Evidence-based health benefits of bananas

Bananas are extremely healthy and delicious.

They contain several essential nutrients and provide benefits for digestion, heart health and weight loss.

Aside from being very nutritious, they are also a highly convenient snack food.

Here are 11 science-based health benefits of bananas.

Source : <https://www.healthline.com/nutrition/11-proven-benefits-of-bananas>

Keywords: 11 Evidence-Based Health Benefits of Bananas

In some countries, bananas used for cooking may be called "plantains", distinguishing them from dessert bananas. The fruit is variable in size, color, and firmness, but is usually elongated and curved, with soft flesh rich in starch covered with a rind, which may be green, yellow, red, purple, or brown when ripe.



Figure 1: Plantains Banana

Source: <https://en.wikipedia.org/wiki/Banana>

Keywords: Plantains

The most common type is the Cavendish, which is a type of dessert banana. Green when unripe, it yellows as it matures. Bananas contain a fair amount of fibre, as well as several antioxidants. Oct 18, 2018.

Source : <https://www.healthline.com/nutrition/11-proven-benefits-of-bananas>

Keywords: Which banana is best.

How Many Calories and Carbs Are in a Banana?

Bananas are one of the most popular fruits in the world.

They are extremely healthy and contain several important nutrients.

People generally know that bananas are very nutritious, but many wonder how many calories and carbs they actually contain.

This article answers those questions.

How Many Calories Are in Various Sizes of Bananas?

A medium-sized banana contains 105 calories, on average.

However, different sizes of bananas contain varying amounts of calories.

Below are the calorie contents of standard banana sizes (1):

- Extra small (less than 6 inches, 81 grams): 72 calories.
- Small (6–7 inches, 101 grams): 90 calories.
- Medium (7–8 inches, 118 grams): 105 calories.
- Large (8–9 inches, 136 grams): 121 calories.
- Extra-large (9 inches or longer, 152 grams): 135 calories.
- Sliced (1 cup, 150 grams): 134 calories.
- Mashed (1 cup, 225 grams): 200 calories.

If you're unsure about the size of your banana, you can estimate that an average-sized banana contains about 100 calories.

93% of a banana's calories come from carbs, 4% from protein and 3% from fat.

Source : <https://www.healthline.com/nutrition/bananas-calories-carbs#section1>.

Keywords: The calorie contents of bananas range from 72–135 calories. An average-sized banana contains about 100 calories.

Bananas are a major dietary source of potassium. One medium-sized banana contains around 0.4 grams of potassium, or 9% of the RDI. Potassium is an important mineral that many people aren't getting enough of. It plays a crucial role in blood pressure control and kidney function (24).

Keywords: <https://www.healthline.com/nutrition/bananas-good-or-bad>.

Keywords: Bananas good or bad.



Figure 2: Banana based flower (Thokku) and stem pickles.



Figure 3: Banana flower pickle (thokku).



Figure 4: Banana central core stem pickle.

BANANA FLOWER PICKLE (THOKKU) AND STEM PICKLE (K. N. Shiva, C. K. Narayana, M. Mayil Vaganan and N. Marimuthu) Preamble The banana male bud and central core stem are materials produced in banana crop production with less economic value. It

is converted into a high value added products by making flower (thokku) and stem pickles. The process of flower pickle involves removal of pistil, blanching, grinding and addition of spices and oil while the steps of preparing central core stem pickle comprises extraction of stem from pseudostem, slicing and cutting into small pieces, removal of fiber, blanching, and addition of spices and oil for central core stem pickle making. The products are tasty and stable for a year at room temperature. The technology can be adoptable to banana growing regions of the country. The product is suitable for all the age groups. Adoptable to Micro, Small and Medium Enterprise levels, the training and transfer of technology for the product is available at ICAR –National Research Centre for Banana, Thogamalai Road, Thayanur Post, Tiruchirappalli –620 102, Tamil Nadu. The product is highly suitable Self-Help Group for women (SHGs). Being delicious and tasty, the product is suitable for consumption to all age groups. Advantages

- Rich in dietary fibre (6g in 100g).
- Creation of wealth from waste (cheaply available waste male bud is used as raw materials).
- High cost benefit ratio (1:2.1).
- Flower thokku can be ideal choice with idly, dosa, chappatti and even with rice items.
- Employment generation to rural enterprise, particularly for womenfolk.

Impact of banana based flower and stem pickles NRCB has commercialized the technology to 16 entrepreneurs till date. There is an overwhelming response for the banana flower pickle in the domestic market. Domestic and export markets are showing keen interest in this technology as well. Mr. N. Karthikumar from Mohanur, Namakkal District, Tamil Nadu received training from ICAR –NRCB and he operates the business of both banana flower and stem pickles under the brand name of 'KRL Foods' in all the districts of Tamil Nadu and some parts of Karnataka, Kerala, Gujarat and Maharashtra (Mumbai) states too by employing more than 50 distributors and a few SHGs/NGOs. Also exporting the products to Malaysia and Australia through sub-buyers. Both the products have been spread to all the districts of Tamil Nadu and to neighboring and far away states like Karnataka, Kerala, Gujarat and Maharashtra through the company makes a turnover of 20 million per year. Recognizing his contribution to the society and for the food

industry, he was awarded with ‘Young Entrepreneur Award’ from NRC Banana, Tiruchirappalli on August 21st,2011 and Agrinnovate India Pvt. Ltd, award from New Delhi in2013.Banana flower pickle (thokku)Banana central core stem pickle.

Source : <https://nrcb.res.in/successstory/11-banana-flower-pickle.pdf>

Keywords: Banana flower pickle (thokku)

Harvest and Post Harvest Technology

- The dwarf bananas are ready for harvest within 11-14 months after planting, while tall cultivars take about 14-16 months to harvest.
- A bunch usually takes90-120 days to mature after shooting.
- The maturity of banana is indicated by drying of top leaves, change in colour of fruits from dark green to light green and tendency of the floral end of the fruit to fall by slightest touch by hand.
- The mature fruit becomes plumpy and all the angles are filled in completely. When tapped the fruit gives metallic sound.

| VARIETIES | YIELD |
|---|-------------------|
| Basrai, Rasthali | 40-50 tonnes/ha |
| Shrimanti | 70 tonnes/ha |
| Grand Naine | 65 tonnes/ha |
| Ardhapuri , Mearyham | 55 tones/ha |
| Hirsal, Safed Velchi, Red banana, Lal Velchi | 45 tonnes/ha |
| Poovan | 45 – 50 tonnes/ha |
| Monthan | 30 – 40 tonnes/ha |
| Dwarf Cavendish , Robusta Champa & Chini desi | 50 – 60 tonnes/ha |
| Nendran | 30 – 35 tonnes/ha |

Figure 5: Yield of Banana.

Source: <https://agritech.tnau.ac.in/export-system/banana/harvest&post.html>

Keywords: Expert systems for Banana.

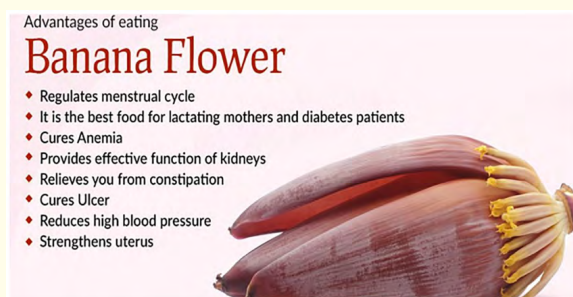


Figure 6: Source: <https://banana+flower+based+product&tbm>

Keywords: Banana Flower

Value added products from banana



Figure 7: Banana chips

Other products



Figure 8

Source: <https://www.researchgate.net/figure/Banana-value-added-products>

Functional properties and postharvest utilization of commercial and noncommercial banana cultivars

Banana (*Musa* spp.) is one of the world's most important crops cultivated in tropical and subtropical regions of the world. Banana is a major source of macro-elements, especially potassium, and contains health-beneficial ingredients such as resistant starch, total dietary fibers, rapidly digestible starch, and slowly digestible starch. Oligosaccharides (fructooligosaccharides and inulin) and polyphenols ((+)-catechin, (-)-epicatechin, (-)-epigallocatechin, and gallic acid) are other ingredients present in bananas that have found application in the prevention of muscular contractions, regulation of blood pressure, prevention of colon cancer and diabetes, and in the cure of intestinal disorders when unripe. This review identifies the different commercial and noncommercial banana cultivars and their utilization. Commercial cultivars include Williams (*M. acuminata* cv. Williams), Dwarf Cavendish (*M. acuminata* cv. Petite Nain), Chinese Cavendish (*M. acuminata* cv. Chinese Cavendish), Grand Nain (*M. acuminata* cv. Grand Nain), and Goldfinger (*M. acuminata* cv. Goldfinger), with Mabounde and Luvhele identified as noncommercial varieties. Banana postharvest utilization includes its use as functional foods, prebiotics, probiotics, nutraceuticals, and processing into value-added products.

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