

Musa Paradisiaca: Super Food With Splendid Benefits

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Abstract

Musa paradisiaca (Banana blossom) is a nature's gift to mankind and is widely known for its huge nutritional and health benefits. It has potential to be regarded as a functional food or superfood due to its high nutrient content like fibre, protein, vitamin A, C, E, phosphorus, potassium, calcium, iron, magnesium. Banana flower has a high therapeutic value and it promotes lactation, reduces menstrual bleeding, helps to control diabetes, anemia, reduce anxiety, ulcer, helpful in weight loss and good for gastrointestinal health. In spite of being such a super food it is still undervalued in most part of the world, except in south-east Asian countries. Further research studies are required to record the health benefits of banana blossom.

Keywords: Banana blossom; Nutrients; Therapeutic value; Functional food.

INTRODUCTION

Banana plant (Musa species) is one of the world's leading fruit crops in developing countries, after staple cereals such as rice, wheat, and maize, with nearly 90% of the crops being grown for small-scale consumption and local trade.¹ FAO database stated that 103 million tonnes of bananas were produced every year. Musa Paradisiaca [Banana blossom] is a highly nutritious edible flower and it is rich in nutrients and antioxidants with

several health benefits. The whole banana flower constitutes several parts such as bract, bell, tepals, and stigma which has been studied for its health benefits. Banana flower bract is consumed by South East Asian countries and was found as the prime origin of anthocyanin and natural colorant.² In banana plantations the producers usually throw away the banana blossoms which are considered as agricultural by-products and it is getting more attention from many researchers and food manufacturers as a food source.³

Biological Description of Banana blossom

Banana blossoms are finger-shaped which are extended under by large fleshy, reddish or purple coloured scales, which fall off as the fruit matures. The banana flowers are unisexual and it contains both male and female flowers. On the banana plant, first female flowers appear in which the ovaries develop into seedless fruit without being pollinated. The female flowers after it turns into fruits, their inflorescence extend the length and produces a cluster of male flowers within the brackets of the bud. When the male flowers die the bud slowly becomes smaller and only one inflorescence

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develops per plant. From the underground rhizome the flowering stalk has been developed, that pushes up through the pseudostem of the plant and emerges at the apex. Finally, when the weight of the developing fruit increases, the flowering stalk curves downwards. During development, the elongated structure continues to elongate which results in older fruits being positioned downwards flowers and younger fruits being closer to the elongated tip.⁴

Nutritional Value of Banana blossom

Banana flowers, well known as banana hearts is a treasure trove of nutrients including fibre, potassium, calcium, copper, phosphorus, iron, magnesium and vitamin E for several body function. It could be incorporated into the regular diet in the form of salads, soups, stir-fries, vada and herbal concoctions.⁵

According to the African Journal of Biotechnology, 100g of banana flower offers the below mentioned nutrition:

Nutrients	Quantity
Energy	51 Kcal
Protein	1.6 g
Fat	0.6 g
Carbohydrate	9.9 g
Fibre	5.7 g
Calcium	56 mg
Phosphorous	73.3 mg
Iron	56.4 mg
Copper	13 mg
Potassium	553.3 g
Magnesium	48.7 mg
Vitamin E	1.07 mg

FUNCTIONAL PROPERTIES OF BANANA BLOSSOM

Banana blossom has lot of health benefits. The few health benefits provided by banana blossoms is discussed below.

Rich in Antioxidants and Phytochemicals

Banana flowers are rich in phytochemicals like vitamins, flavonoids, and protein that will be used for the treatment of bronchitis, constipation and peptic ulcer.⁶ Polyphenols are the secondary metabolites which has health benefits such as glucose homeostasis, obesity, type II diabetes, systemic inflammation or lipid metabolism and also used as a natural preservative.⁷ Recent

research reported that banana blossom extracts has been used for various industrial application of its high phenolic contents and flavonoids.⁸ The banana blossoms also have important antibacterial and antioxidant properties. It has been shown that glucose transporters in Ehrlich ascites tumor cells was provoked by banana flower and pseudo stem extract.⁹

Helpful in Diabetes

It has been proved that the consumption of banana blossoms regularly for about a month helps to reduce the blood sugar level because of high fibre. Recent research showed that the whole edible parts of the banana flower especially the bract and bell are good source of anti-hyperglycemic potentials and fused tepals as pancreatic-lipase inhibitors.¹⁰ Marikkar et.al., (2016)¹¹ indicated that banana blossoms also act as an enzyme inhibitor and is very useful to treat diabetes. Ramith et. al., (2014)¹² reported that the ethanol extract of the banana flower contains high amounts of umbelliferone and lupeol, which could have an anti-hyperglycemic activity by inhibiting polyphenol pathway, protein glycosylation and α glucosidase. Jayamuthuganai and Elaveniya (2014),¹³ stated that banana blossom contains 5.74g/100g rich dietary fiber which protects our body from lower blood cholesterol levels, obesity, normalizes blood glucose and insulin level.

Lowers Menstrual Bleeding

Banana blossoms has been used to treat the excessive blood loss during the menstrual cycle. It has the ability to regulate the progesterone level which helps to lower the muscle cramps that in turn reduce the painful bleeding. Apart from that it also contains magnesium that can reduce anxiety during that period. The banana blossoms is also believed to cure the polycystic ovarian syndrome.⁵

Increase the Milk Production in Lactating Mothers

Banana flower act as galactagogues vegetable which improves the breast milk secretion for the lactating mothers, support the uterus and reduces post-delivery bleeding. Therefore, it will be a blessing for new mothers who have problem in nursing their new-born baby.⁴

Good for Gastrointestinal Health

Banana blossom being a rich source of both soluble and insoluble dietary fibre, it provides a great help for people who is suffering from irritable bowel syndrome (IBS) and diarrhoea. The soluble fibre

dissolves in water and forms a gel, which allows food to pass easily through the digestive tract. But the insoluble fibres in blossom does not dissolve in water and helps to provide bulk of undigested waste products. Therefore, the individuals suffering from constipation are advised to increase their intake of banana blossoms. Both the types of dietary fibres [soluble and insoluble fibre] present in banana blossom helps for proper digestion and absorption of food in the gastrointestinal tract.¹⁰

Helpful in Ulcers

Banana blossoms are enriched with vitamin C and will be helpful in neutralizing the gastric juices and reduce ulcer irritation. Kumar et. al., (2012)¹⁴ reported that the banana blossoms can be used to treat dysentery, ulcer and many more. It is believed that vitamin C plays an important role in promoting tissue repair and wound healing.

Helpful in Infection Treatment

Banana flower extracts are very useful for treating the infection in natural way. Jahan et.al., (2010)¹⁵ studied antimicrobial activity of banana blossom extract in which certain bioactive compounds such as malic acid has shown antibacterial activity against *Escherichia coli*, *Bacillus cereus* and *Bacillus subtilis*. The juice of banana blossom was very useful in healing wounds particularly in children and it also prevents the malarial parasite, *Plasmodium falciparum* from growing and developing in the human body.

Keeps Mood Elevated and Reduces Anxiety

Banana blossom helps in improving the mood in every individual particularly in kids who have mood swings and are anxious by nature. It also act as remedy for mentally imbalanced kids who suffer from bouts of anxiety as it lowers the feelings of anxiety. The magnesium present in banana blossom act as anti-depressant which has anxiety reducing property.⁴

Helpful in Cardiovascular Disease and Cancer

Banana flower contains phenolic acids, tannins, flavonoids and various other antioxidants which neutralize free radicals, reduces the risk of heart diseases cancer and prevent oxidative damage. Banana flowers are a good source of flavonoids and in recent studies it has been proved that higher flavonoids (5.27 to 5.90 mg/100 g) exist in banana flowers than in banana peel. Flavonoids are very effective in controlling the risk of cardiovascular

diseases by reducing the oxidation of LDL as well as preventing other degenerative diseases.¹⁶

Helpful in Weight Loss

As banana blossoms are rich in fibre, it provides a sated feeling for longer period, so it was very useful for kids and adults who are overweight or obese. Incorporating the banana blossom in one's meal in the form of soup, salad, curry or any other form, will help in weight loss.¹⁴

Reduces Anemia

Banana blossoms are rich in iron, that improves the symptoms associated with anemia such as fatigue, tiredness, irregular heartbeat, pale skin, cold feet and hands. Regular addition of banana flower in the meal increases the levels of red blood cells and combats iron deficiency anemia.⁴

CONCLUSION

Banana blossoms represents as a superfood, especially for women to keep their uterus healthy, lowers Menstrual bleeding, act as lactating agent, reduce anxiety and improves mood. It can be reviewed as a food loaded with lots of nutrients like high dietary fibre, good quality protein, potassium, calcium, copper, phosphorus, iron, magnesium, vitamin E, A and C along with various antioxidants and total flavonoid concentrations. The therapeutic power packed banana flower can be used in various cuisines all over the world.

REFERENCES

1. Vishal Sharma, Dr.Kavita Varma Shukla, Pradeep Golani. "Traditional and medicinal effect of banana blossom". International Journal of Science & Engineering Development Research. 2019; 4(5): 377 – 381.
2. Suresh Kumar, Sujithra & Manikkandan, T.R. "Extraction of Anthocyanin from Banana (*Musa paradisiaca*) Flower Bract and Analysis of Phytochemicals, Antioxidant Activities and Anthocyanin Content". Journal of Chemical and Pharmaceutical Sciences. 2019; 12(3): 102-104.
3. Wobiwo, Florent. "Nutritive Value of three varieties of banana and plantain from Cameroon". Greener Journal of Agricultural Sciences. 2015; 5(2): 52-61.
4. Shilpi Singh. "Banana blossom-an understated food with high functional benefits". International Journal of Current Research. 2017; 9(1): 44516-44519.

5. Sheng, Zhan-Wu & Ma, Wei-Hong & Jin, Zhi-Qiang & Bi, Yang & Sun, Zhi-Gao & Dou, Hua-Ting & Gao, Jin-He & Li, Jingyang & Han, Li-Na. "Investigation of dietary fiber, protein, vitamin E and other nutritional compounds of banana flower of two cultivars grown in China". *African Journal of Biotechnology*. 2010; 925(25) : 3888-3895.
6. Nadumane, V. K., and B. Timsina. "Anti-Cancer Potential of Banana Flower Extract: An in Vitro Study" *Bangladesh Journal of Pharmacology*. 2014;9(4); 628-35.
7. Lau, Beng Fye & Kong, Kin Weng & Leong, Kok & Sun, Jian & He, Xuemei & Wang, Zhenxing & Mustafa, Mohammad & Ling, Tau & Ismail, Amin. Banana inflorescence: Its bio-prospects as an ingredient for functional foods. *Trends in Food Science & Technology*. 2019:97.
8. Schmidt, Michele & Prestes Dornelles, Rosa & Kubota, Ernesto & Scapin, Gabrielle & Mazutti, Marcio. Evaluation of antioxidant activity of extracts of banana inflorescences (*Musa cavendishii*). *Journal of Food*. 2015; 13: 1-8.
9. Bhaskar, Jamuna & S, Mahadevamma & Chilkunda, Nandini & Salimath, Veeresh. "Banana (*Musa sp* var. elakki bale) Flower and Pseudostem: Dietary Fiber and associated Antioxidant Capacity". *Journal of agricultural and food chemistry*. 2011; 60: 427-432.
10. Ajay Anand, Dommati Anand Kumar, Srishti Shukla, Amtul Zehra and Ashok Kumar Tiwari. "Banana flower as potential source of antidiabetic and antioxidant activities". *Journal of Biotechnology and Biomaterials*. 2015;ISSN: 2155-952X.
11. Marikkar, Nazrim & Tan, S.J. & Salleh, A. & Azlan, Azrina & Shukri, M.A.M. Evaluation of banana (*Musa sp.*) flowers of selected varieties for their antioxidative and anti-hyperglycemic potentials. 2016; 23:1988-1995.
12. Ramu, Ramith & Shirahatti, Prithvi & Zameer, Farhan & Ranganatha, Lakshmi & Prasad M N, Nagendra. "Inhibitory effect of banana (*Musa sp.* var. Nanjangud rasa bale) flower extract and its constituents Umbelliferone and Lupeol on α -glucosidase, aldose reductase and glycation at multiple stages". *South African Journal of Botany*. 2014; 95: 54-63.
13. Jayamuthuganai, J. & Elaveniya, E. Functional, Physicochemical and Antioxidant Properties of Dehydrated Banana Blossom Powder and its Incorporation in Biscuits. *International Journal of Chemtech Research*. 2014; 6(9):4446-4454.
14. Kumar, K.P.S. & Bhowmik, Debjit & S, Duraivel & Manivannan, Umadevi. . "Traditional and medicinal uses of banana". *Journal of Pharmacognosy and Phytochemistry*. 2012;1: 51-63.
15. Jahan, Mumtaz & Warsi, Mohiuddin & Khatoon, Fehmeeda. "Concentration influence on antimicrobial activity of banana blossom extract-incorporated chitosan-polyethylene glycol (CS-PEG) blended film". *Journal of Chemical and Pharmaceutical Research*. 2010; 2: 373-378.
16. Pierini R, Gee JM, Belshaw NJ, Johnson IT . Flavonoids and intestinal cancers. *Br. J. Nutr.* 2008; 99: 53-59.