



# PHARMACOLOGICAL REVIEW ON FLOWERS OF *MUSA x PARADISIACA* (PLANTAIN)

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## ABSTRACT

*Musa paradisiaca* is a popular Indian medicinal plant belonging to the Musaceae family. This plant commonly known as plantain or banana is highly eating nutritious fruit over the world. A wide range of phytochemical constituents have been isolated from *Musa paradisiaca* flowers. It has long been used in traditional Ayurvedic Indian medicine for various diseases. This flower is pharmacologically studied for analgesic activity, antidiarrhoeal activity, antiulcerative activity, antimicrobial activity, antidiabetic activity, antioxidant activity, antihypertensive activity, Antimalarial activity, Hepatoprotective activity, Hair growth promoting activity, Wound healing activity, Bioabsorptive activity and Tablet disintegrant activity and many other activities. A comprehensive account of the morphology, phytochemical constituents, traditional uses, and pharmacological activities reported are included in view of the many recent findings of importance on this plant.

## INTRODUCTION

The flower of *Musa x paradisiaca*, commonly known as plantain or cooking banana, is typically a tear-shaped, purplish-maroon flower hanging at the end of the banana bunch. These flowers are a part of the pseudostem, the false trunk of the plant, which develops from overlapping leaf sheaths. After flowering, the pseudostem dies, but new shoots emerge from the roots, forming new pseudostems. The flower is a teardrop shape, often a mix of maroon and purple. It emerges from the center of the pseudostem, where the leaves meet. The pseudostem, including the flowering stem, has a limited lifespan. It dies after fruiting, but new shoots emerge from the roots. The pseudostem is a key part of the plant, formed by the overlapping bases of the leaves. The flowers themselves are also edible and can be cooked as a vegetable. *Musa x paradisiaca* is pollinated by birds and bats.

## CHEMICAL CONSTITUENTS

The flower of the plantain banana (*Musa paradisiaca* or related *Musa* species) contains a variety of bioactive compounds and nutrients such as macronutrients like carbohydrates, Dietary fiber (notably insoluble fiber), sugars (in small amounts), Proteins which contains essential amino acids (like lysine and leucine) and Fats which are very low; contains trace amounts of fatty acids. They contain minerals like Potassium (high levels), Calcium, Magnesium, Phosphorus, Iron, Zinc. They contain vitamins like vitamin C, vitamin A (beta-carotene), B-complex vitamins (notably niacin, riboflavin). They are rich in Phytochemicals and Bioactive Compounds such as Flavonoids (quercetin, myricetin, kaempferol), Tannins (with antioxidant and astringent properties), Phenolic compounds (gallic acid, ferulic acid, catechins), Sterols (such as stigmasterol and  $\beta$ -sitosterol), Saponins, Alkaloids (minor amounts). They are rich in Antioxidants and Other Constituents like Dietary fibers (lignin, cellulose, hemicellulose) and Glycosides (in trace amounts). These constituents contribute to the banana flower's traditional medicinal uses (like in diabetes management, anti-inflammatory, and antimicrobial applications) and nutritional benefits.

## HEALTH BENEFITS

Plantain (*Musa x paradisiaca*) flowers offer several potential health benefits, including helping to regulate blood sugar levels, acting as an antioxidant, and potentially aiding in wound healing and menstrual cycle regulation. Additionally, they are a good source of carbohydrates, protein, and micronutrients. Healthians and International Journal of Biology Research suggest that extracts from banana flowers can help to lower blood glucose levels and balance blood sugar. International Journal of Biology Research notes that extracts of banana flowers possess antioxidant activity, which can neutralize free radicals and potentially reduce the risk of diseases like cancer and heart disease. Banana blossoms may help to balance hormones and increase progesterone levels in women, potentially leading to a more consistent menstrual cycle. ScienceDirect.com and ResearchGate mention that banana leaves and other parts of the plant, including the flowers, have been traditionally used for wound healing. Banana flowers are a good source of carbohydrates, protein, and micronutrients. Research suggests that banana flowers may also have anti-inflammatory, anti-diabetic, and anti-ulcer properties. In traditional medicine, plantain flowers have been used to treat various ailments, including bronchitis, dysentery, menorrhagia, and ulcers. Cooked banana flowers are sometimes given to people with diabetes. The plant's sap has been used for conditions like hysteria, epilepsy, and fevers.

## LITERATURE REVIEW

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Effectiveness of banana flower beverage on breast milk production among mothers of preterm neonates

In Thailand, banana flower is a popular galactagogue used for insufficient breast milk among lactating mothers, especially mothers with preterm neonates. A randomized controlled trial was conducted among mothers with preterm neonates who were recruited and randomized into treatment group ( $n_t = 20$ ) who consumed banana flower beverage and control group ( $n_c = 21$ ) who received only plain water. The amount of expressed breast milk during three days postpartum was recorded and compared between the two groups. The results showed that mothers in the treatment group had higher milk production than those in control group on Day 2 ( $48 \pm 2$  h) and Day 3 ( $72 \pm 2$  h) of postpartum. No adverse effects were reported. Banana flower is a promising galactagogue in augmenting breast milk in mothers with preterm neonates with no adverse effects.

## RESULTS

*Musa × paradisiaca*, commonly known as plantain, exhibits a wide range of pharmacological activities, including antioxidant, anti-diabetic, and wound-healing properties, supported by both traditional uses and scientific research. *paradisiaca* inhibits in vitro cholesterol crystallization

## CONCLUSION

*Musa paradisiaca* is widely distributed throughout various tropical regions described here. The plant appears to have a broad spectrum of activity on several ailments. *Musa paradisiaca* flower have been explored for antidiarrhoeal activity, antiulcerative activity, antimicrobial activity, antidiabetic activity, antioxidant activity, antilipidemic activity, antihypertensive activity, antiatherosclerotic activity, cytotoxic activity, Thrombolytic activity, Antimalarial activity, Hair growth promoting activity, Wound healing activity, Tablet disintegrant activity and many other activities. It is reported to contain carbohydrates, proteins, flavonoids, sterol glycoside, vitamins, minerals and catecholamines. With the availability of primary information, further studies can be carried out such as clinical evaluation, phyto-analytical studies, toxicity evaluation. The plant is pre-clinically evaluated to some extent; if these claims are scientifically and clinically evaluated then it can provide good remedies and help mankind in various ailments.

## REFERENCES

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