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REVIEW ARTICLE

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## EXPLORING THE POTENTIAL HEALTH BENEFITS AND NATURAL REMEDY FOR SKIN DISORDER: A REVIEW ON MUSA PARADAISSICA (BANANA PEEL)

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### ABSTRACT

Guava, also known as *Psidium guajava*, is a significant food crop and medicinal plant. Tropical and subtropical areas are home to it. The leaves, fruits, and seeds of the guava plant are all utilized for their therapeutic qualities. Guava has been used traditionally for digestive health, antimicrobial, anti-inflammatory, antioxidant, anti-allergy, and antidiabetic purposes. Important phytoconstituents found in it include beta sitosterol, quercetin, ellagic acid, amritoside, oleanolic acid, ursolic acid, tannins, triterpenes, saponins, carotenoids, and flavonoids. It suggests a broad range of clinical uses for management of diabetes, diarrhea, and infantile rotaviral enteritis. This analysis is an attempt to gather all of the information available regarding the pharmacological, phytochemical, and ethanobotanical activities of this plant.

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## INTRODUCTION

A banana is an elongated, edible fruit that are produced by various species of large herbaceous flowering plants within the *Musa* genus. Bananas, renowned for their soft, sweet and crusty nature, particularly the peel exhibit higher antioxidant capacity than the pulp, featuring over 40 phenolic compounds. In certain regions, bananas intended for cooking purpose might be referred to as "plantains". Typically curved and elongated, these fruits exhibit variability in size, colour, and firmness. Their soft, starchy flesh is enveloped by a rind which transition in colour from green to yellow, red, purple, or brown as the fruit ripens. Clusters of banana grow upward near the apex of the plant. Extensive research, including studies by Nagarajaiah and Prakash, has explored banana peels chemical components, nutritional contents, and antioxidant activity. It may contain flavonoid, carbohydrates, reducing sugar, tannins, saponins, anthroquinones, steroids, phenols, terpenoids etc. were detected from those extract. Most products are made from chemical compounds. Banana peel have recently found diversified industrial applications, including bio-fuel production, bio-sorbents, pulp and paper production, cosmetics, energy- related activities, organic fertilizers, environmental cleanup and biotechnology process. Compared to its pulp, the banana peel is richer in phytochemical compound. Its antifungal and antibiotic properties are harnessed effectively. Additionally, banana peel is utilized as a home remedy for treating various skin problems such as allergies and skin irritations. However, the disposal of banana peel waste in municipal landfills exacerbates existing environmental issues.

For cosmetic use, plants part should possess diverse properties such as antioxidant, anti-inflammatory, antiseptic, softening, and antibacterial activities. Skin ageing, characterized by wrinkles, uneven pigmentation, darkening, thinning, sagging, and roughening, results from intrinsic or extrinsic mechanism.

**The advantages of peeling Bananas:** Banana peels aid in moisturizing the skin, reducing puffiness and redness. By providing hair with moisture and shine, as well as fighting dental infections to reduce pimples caused by acne, it also promotes healthier skin. Besides, it can help to eliminate wrinkles caused by acne. They contain antioxidants such as polyphenols, carotenoids, and other compounds that can combat cancer-causing free radicals in our body. The skin-friendly benefits of bananas include antioxidants such as vitamin C, vitamins B and K, magnesium (vitamin A and potassium), and calcium. Moisture, brightness, and elasticity can be achieved by adding lutein to the skin's interior.

**Ideal properties of banana peel:** The high water retention, oil retention and swelling properties of these substances make them suitable for various applications. The antioxidant and antimicrobial activities of catecholamine's, along with phenolic compounds, alkaloids, flavonoids like tannins as well as other natural antioxidants such as cellulose, are found in banana peels.

**Applications:** Antiallergic, antiseptic, skin softening, smoothing, moisturizing, cooling, Antiacne, Antifungal, Germicide, Antiaging, antiwrinkle, fairness etc.

**Plant profile*****Musa paradisiaca* (Banana peel)****Pharmaceutical activities**

Antioxidant  
Antimicrobial  
Anticancer

**Anti- Nutrient composition**

Phytate  
Alkaloid  
Oxalate  
Glucosides

**Food applications**

Food product  
Food ingredients  
Food packaging

**Nutritional composition**

Chemical composition  
Fatty acids  
Amino acids  
Dietary fibre

**Synonyms:** *Musa sapientum*, Japanese banana.

**Biological source:** It is rich source of many bioactive compounds like carotenoids, biogenic amines, polyphenols, phytosterols and antioxidant.

**Chemical constituent:** phenolic compound, alkaloids, flavonoids, tannins, saponins, glycosides, carotenoids, sterols, triterpenes, and catecholamines.

**Family:** Musaceae.

**Uses:** antioxidant, anti-inflammatory, antibacterial, antifungal or astringent activity etc.

The two primary species of edible banana fruits are *Musa acuminata* Colla and *Musa balbisiana* Colla. *Musa paradisiaca* L., a hybrid of these two species, is also commercially available. All edible banana fruits are seedless. The countries of Asia, particularly Malaysia, South America, Central and North America, Africa, and Europe are the ones where bananas are most frequently farmed.

**Taxonomical classification of banana**

Kingdom	:	Plantae
Division	:	Magnoliophyta
Class	:	Liliopsida
Order	:	Zingiberales
Family	:	Musaceae
Genus	:	Musa
Species	:	<i>Musa paradisiaca</i>

**Vernacular Names:**

English	:	Plantain or banana
Sanskrit	:	Vanalaxmi, kadali, Rambha
Hindi	:	Kela
Marathi	:	Kela
Gujarati	:	Keda
Sindhi	:	Kewiro
Telugu	:	Kadalamu, Ariti
Tamil	:	Kadali

**Active constituents**

**Carbohydrates:** starch, sugar, fibre, cellulose.

**Minerals:** calcium, copper, zinc, magnesium, potassium, manganese, phosphorus, sodium.

**Vitamins:** vitamin B1 (thiamine), vitamin B2 (riboflavin), vitamin B3 (niacin), vitamin B6 (pyridoxine), vitamin B7, vitamin B9, vitamin B12, vitamin C (ascorbic acid), vitamin D (calciferol), vitamin E (tocopherol and tocotrienols), vitamin K.

**Flavonoids:**

1. Anthocyanins- Delphinidin, pelargonidin, malvidin.
2. Isoflavonoids- 2'- Hydroxyformononetin
3. Flavanols- (+)-Galocatechin 3-O- gallate
4. Flavones- Apigenin 7-O-apiosyl-glucoside Chrysoeriol 7-O-glucoside
5. Flavanones- Neoeiocitrin
6. Flavonols- 7-O-rhamnoside, glucuronid
7. Other polyphenols Hydroxycoumarins- Scopoletin, Urolithin A, Umbelliferone.

**Phenolic compound:** Gallic acid, catechin, tannins, epicatechin, anthocyanins, galocatechin, salicylic, sinapic, ferulic, gallic, epigallocatechin, quercetin, p-hydroxybenzoic, vanillic etc.

**Protein and amino acids:** starch phosphorylase, malate dehydrogenase, dopamine, linoleic acid etc.

**Phytochemical constituents:** The growing portion of the plants contains tannin and gallic acid. Along with carbohydrates, the fruit also contains 2.2% sugar, 4.8% aluminoids, 1.0% fat, and 6.8% to 13.3% non-nitrogenous extractives. In addition to a tiny amount of vitamin B, it contains vitamin C. The peel and pulp of bananas have been shown to contain a variety of flavonols and phenolic acids, such as hydroxycinnamic acid, quercetin-deoxyhexose, epicatechin, rutin, ferulic acid, sinapic acid, ferulic acid-hexoside, caffeic acid-hexoside, and many other unknown combinations that are thought to have health-promoting qualities. Fruits are very nutrient-dense, both at the macro and micro levels. Unripe fruit has a higher concentration of calcium and selenium, while ripe fruit has higher levels of manganese and phosphorus. Aspartic acid, glutamic acid, and leucine are the three main amino acids found in ripe fruit. Ripe fruit husks contain silica from limes, potassium and soda carbonates, potassium chloride, and alkaline phosphates. Plantains that are green have a high tannin content. Potash, sodalime, magnesia, alumina, chlorides, sulphuric anhydride, phosphoric anhydride, silica, and carbon anhydride are the ingredients of plantain flower stem juice.

**Pharmacological activities of Banana:** The pharmacological effects of bananas are varied, and the entire fruit has both traditional therapeutic uses and nutritional benefits. Several in vitro animal model studies and clinical trials have demonstrated the medicinal potential of various components of bananas in the treatment of conditions like ulcers, diabetes, cancer, diarrhea, and infections. The subsequent sections address significant concerns pertaining to treatment.

**Anti-Diuretic activity:** The banana fruit has numerous pharmacological properties and is used in traditional medicine and nutrition in all portions of the fruit. When compared to the study's standard saline administration, the ethanol extract from the peel of *M. sapientum* showed a diuretic effect, increasing the excretion of potassium and other electrolytes as well as urine volume.

**Antioxidant activities:** When it came to antioxidant activity, the ethanol extract outperformed the ethyl acetate extract. Furthermore, phenolic components, flavonoids, and tannins were present in greater amounts in the ethanol extract than in the ethyl acetate extract.

Therefore, the ethanol extract of bananas has a stronger antioxidant activity than the ethyl acetate extract.

**Antilipidemic activity:** Flavonoids found in bananas (*Musa paradisiaca*) when taken orally offer a number of health advantages. The male rat's effective dose of flavonoids extracted from banana fruit is 1 mg/100g body weight/day, which significantly reduces cholesterol. Triglycerides, free fatty acids, cholesterol, phospholipids, and other constituents are slightly reduced in the serum, liver, kidney, and brain of experimental animals. Greater quantities of hepatic and fecal bile acid, as well as fecal neutral sterols, together with increased activity of lipoprotein lipase and LCAT suggested a greater rate of cholesterol breakdown. The hypolipidemic impact of flavonoids showed that the rate at which cholesterol is broken down is faster than it is synthesised.

**Hair growth promoting activities:** In rats given vehicle control, 2% minoxidil, and extract, the study measured hair length and examined follicles under a microscope to see whether unripe *Musa paradisiaca* fruit extract may promote hair development. The outcome implied that *Musa paradisiaca*'s unripe could be able to encourage hair growth.

## CONCLUSION

Linn's *Musa paradisiaca*. It can be found widely throughout many tropical climates. *Musa paradisiaca* Linn. fruit. It is among the most expensive and extensively consumed foods on the planet. This fruit seems to have wide anti-microbial pharmacological action. The fruit's potential as an antioxidant, antilipidemic, antidiuretic, hair-growth-promoting, and for many other purposes has been studied. Proteins, amino acids, carbohydrates, minerals, vitamins, phenolic compounds, carotenoids, flavonoids, and so forth. How much preclinical testing has been done on the plant.

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