



## Study Of The Results Of Kepok Banana Leaf Extraction (Musa Paradisiaca Linn) For Body Skin Beauty

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### ARTICLE INFO

#### Article history:

Received: 10 June 2025

Received in revised form: 12 July 2025

Accepted: 30 September 2025

Available online: 31 December 2025

#### Keywords:

SWOT analysis, culinary tourism, tour guide, Kulon Progo, development strategy

### ABSTRACT

The purpose of this research is to find out (1) the steps for extracting kepok banana leaves containing active substances that are useful for improving skin beauty; (2) to obtain the results of the content/substance test between kapok banana leaves, klutuk banana leaves and ambon banana leaves. The method used is 4D, this research is based on the fact that kepok banana leaves in Indonesia have not been optimally utilized for beauty, kepok banana leaves contain substances that are useful for health, especially skin care, namely containing the largest 0.45g flavonoids compared to klutuk banana leaves and ambon banana leaves, so that for skin beauty you can use the active ingredients of kepok banana leaves.

## 1. Introduction

The beauty of your body skin requires attention to prevent it from becoming dry, scaly, and dull. Awareness of caring for your body skin is still limited to bathing, even though a skin care routine actually includes...scrub many, massage body, and body mask. Complete body care activities can be done once a month. Our daily activities are inseparable from activities that come into contact with pollution, including pollution from stove smoke or cooking, air pollution from vehicle exhaust, hot sunlight, cigarette smoke can affect the appearance of the skin. If left continuously, the skin will become dehydrated and look unattractive/less fresh. Protecting the skin of the body is necessary to create a healthy life to be perfect. The condition of body skin that is not cared for is seen as dry skin, less supple due to loss of skin moisture, skin feels rough due to the accumulation of horny cells. Body and skin beauty cosmetics are widely available on the market and are readily available at affordable prices. As consumers, be wise in choosing cosmetics that are suitable for your skin type and contain ingredients that are safe for your skin. Some cosmetic ingredients sometimes contain harmful substances that can cause skin irritation and stinging. Current surveys indicate a preference for natural-based cosmetic products, which are safe for skin health and beauty. Indonesia's natural

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<https://doi.org/10.37934/jvars.v2i1.v2i1.2530>

resources are rich in fruits, vegetables, plants, and trees that can be used in cosmetic products. One type of tree that is utilized is the banana tree.

Banana trees grow abundantly in Indonesia, including in yards. Banana trees are known to thrive in tropical regions, thriving in temperatures ranging from 28 to 38 degrees Celsius. Banana trees are a tropical plant that thrives in lowlands and up to 1,300 meters above sea level. Banana plants can grow in almost all types of soil, especially clay soil, which increases its fertility. People easily care for this tree and like it because it produces fruit that can be used for consumption and produces banana leaves to be used as food wrappers, and folded to decorate tumpeng / other food bases, while the banana stem is used as a puppet base when the puppeteer plays the puppet characters.

#### a. Morphology of Kepok Banana (*Musa paradisiaca* Linn)

Kepok Banana Plant (*Musa paradisiaca* Linn) is a monocotyledonous plant composed of stems. The leaves are elongated, blade-shaped, between 30-40 cm long. The youngest leaves of the plant, rolled up, and continue to grow longer. Then they gradually open and widen. The leaf blades are elongated, easily torn, 1.5-3 m long, and 30-70 cm wide, the lower leaf surface is waxy, the supporting midrib is clear and accompanied by real leaf veins, arranged parallel and pinnate [6]. Ambarita and Bayu's research states that other characteristics of banana leaves are that the kepok banana leaves are shiny, both sides of the base of the leaf are rounded, and the back of the leaf is yellowish green [7].

#### b. Kepok Banana Leaf Compounds (*Musa paradisiaca* Linn)

Kepok banana leaves (*Musa paradisiaca* Linn) high content *polyphenols* [8], not only that, banana leaves also contain active compounds such as *alkaloids*, *saponins*, *tannins*, *terpenes* and *carbohydrates* [9]. Details of the content of kepok banana leaves that can be beneficial for the skin can be seen in Table 1.

**Table 1.** Content and Benefits of Kepok Banana Leaves for Body Skin

Ingredients	active substance	Benefits	Sources
Antioxidants	Flavonoid and Carotenoid	Helps fight free radicals that can damage skin cells and causes premature aging	[10]
Vitamin	Vitamin A (Beta Carotene)	Maintains healthy skin, increases skin cell	
	Vitamin C	Helps stimulate production collagen, which is needed for skin elasticity	
	Vitamin E	Helps protect the skin from damage due to UV exposure and other environmental factors	
Mineral	Potassium Manganese and Magnesium	Maintaining skin moisture and preserving electrolyte balance Helps repair skin damage and supports the cell rejuvenation process.	[11]
Compound Anti-inflammatory and Antibacterial	Allantoin Natural Antibacterial Substances	Has anti-inflammatory properties and helps in skin healing. Helps fight infections and maintain skin.	[12]
Enzymes and Amino Acids	Protein dan Azam Amino Enzim Bromelain	Supporting skin cell regeneration Helps to gently exfoliate the skin	[11]

Banana leaves are safe to use for wrapping food because they contain flavonoids, which the body needs. Flavonoids are antioxidants that the body needs to fight free radicals. Flavonoids are responsible for many health benefits and are considered a health-promoting dietary supplement and disease prevention. Flavonoids are powerful antioxidants with antiviral, antibacterial, anti-inflammatory, and anti-allergic properties. Flavonoids are also important for many pharmaceutical, medicinal, cosmetic, and other nutraceutical applications. Other important components in banana leaves are phenolic compounds, which are reducing agents, and all act as powerful antioxidants, playing a vital role through various mechanisms such as modulating antioxidant enzyme activity, chelating metal ions (Fe, Cu, and others), and anti-inflammatory reactions.

### **c. Utilization of Kepok Banana Leaves (*Musa paradisiaca* Linn)**

Kepok banana leaves (*Musa paradisiaca* Linn) Local communities often use banana leaves to process food, such as wrapping rice or traditional cakes, animal feed, and even traditional medicine. But more than that, banana leaves are also used as a substitute for traditional medicine (*Musa paradisiaca* Linn) can be used as body care or cosmetics. Cosmetics are substances or preparations intended for external use that are used to clean, perfume, protect or preserve the body to keep it healthy. Kepok banana leaves (*Musa paradisiaca* Linn) can overcome the problems of dry skin, acne, dark spots, brighten the skin and prevent premature aging [2]. This underlies the development of cosmetics with natural ingredients, which are safe for the skin and have minimal side effects. It also utilizes Kepok banana leaves (*Musa paradisiaca* Linn) in order to have a higher selling value.

## **2. Method**

Types of 4D research

Define: dry skin needs antioxidants, banana leaves have not been used for skin beauty, skin protection is needed. Design: banana leaves are kapok, banana leaves klutuk, Ambon banana leaves (growing abundantly in Indonesia). Development: doing Extraction of three types banana leaves to test their content. Disseminate: produces lab test data on the three banana leaves that are best for skin beauty.

## **3. Results and Discussion**

Based on the results of the content test of three banana leaves, it can be concluded that Kepok Banana Leaves have the highest flavonoid content and the best antioxidant activity, as well as a more significant potential for inhibiting the tyrosinase and elastase enzymes compared to other banana leaves. Klutuk Banana leaves have a higher tannin content, but their activity is lower. antioxidants and enzyme inhibition are slightly lower than kepok and ambon. Extract leave is a process concentrated preparation obtained by extracting the active substance from plant or animal simple drugs using a suitable solvent. This method of extracting the active substance is a compound separation in which the soluble components of a mixture are separated from the insoluble components with a suitable solvent, while the process of mass transfer of the active substance that was originally in the cell that is drawn by the solvent liquid so that the active substance is obtained dissolved in the solvent is called extraction.

The purpose of making the extract is so that the active substance contained in the simple drug is in a form that has a high content and this makes it easier for the active substance to be regulated

in terms of dosage. Basically, there are several types of extraction methods, including maceration (soaking), percolation, digestion, infusion, and detoxification. Cosmetics for skin beauty should contain essential substances, and as society becomes more sophisticated, cosmetic choices favour natural ingredients. Active ingredients obtained from natural ingredients can be extracted. Extraction is the process of separating a substance from a mixture using a solvent. Maceration is an extraction method using a still solvent or stirring several times at room temperature. This method involves soaking the material with occasional stirring. Typically, the soaking is done for 24 hours, after which the solvent is replaced with fresh solvent. Maceration can also be done with continuous stirring (kinetic maceration).

The advantages of this method are that it is effective for heat-sensitive compounds (degraded by heat), and the equipment used is relatively simple, inexpensive, and readily available. Fresh kepok banana leaves are cleaned of dust, wiped dry, then cut into small pieces, placed in a container, and placed in a cabinet dryer at 70 degrees for 4 hours, resulting in dry leaves that remain green. The dried banana leaves are then placed in a grinder to produce a fine powder (simplicia) and then sieved through a 40-mesh sieve. Ambon banana leaves show fairly balanced figures in all parameters, but not as high as kepok banana leaves.

**Table 2.** Content and Benefits of Kepok Banana Leaves for Body Skin

Contain	Kepok Banana Leaves	Klutuk Banana Leaves	Ambon Banana Leaves
Flavonoid (mg/g)	0.45	0.38	0.42
Tanin (mg/g)	1.20	1.35	1.10
Saponin (mg/g)	0.15	0.18	0.13
Antioksidan (mg/g)	78.50	85.00	80.25
Tirosinase (mg/g)	60.5	55.8	58.2
Elastase (mg/g)	52.3	50.7	51.1

#### 4. Conclusions

Contents of banana leaves Kepok contains more flavonoids and tannin shigh, provides effective antioxidant benefits to protect the skin from damage caused by free radicals, The ability of kepok banana leaves to inhibit the enzymes tyrosinase and elastase makes it ideal for the formulation of skin care products that focus on brightening and preventing aging. The content in kepok banana leaves helps protect the skin from damage, relieves irritation, and accelerates cell regeneration, making it ideal for the formulation of skin care products.

#### Conflict of interest

The authors declare no conflict of interest.

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