

## Indian garden medicine *Bryophyllum Pinnatum*

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### Abstract

*Bryophyllum pinnatum*, commonly known as the "Air Plant" or "Patharchatta," is a succulent plant widely recognized in traditional medicine and increasingly valued in homeopathic practice. Native to Madagascar and now found globally, this plant exhibits remarkable regenerative properties and is traditionally used for treating urinary disorders, wounds, fractures, and inflammatory conditions. This article presents a comprehensive overview of its botanical characteristics, phytochemical properties, medicinal applications, and analytical evaluations including IR spectroscopy, UV-Vis, XRPD, and DSC studies. The findings support its anti-inflammatory, hemostatic, anti-ulcer, and wound-healing actions. Additionally, the article addresses its toxicity profile and homeopathic preparation methodology, emphasizing its therapeutic potential when used with caution.

**Keywords:** *Bryophyllum pinnatum*, homeopathy, mother tincture, phytochemistry, traditional medicine, anti-inflammatory, herbal toxicity

### Introduction

The word meaning of *Bryophyllum* the words coming from the Greek language, Bryon / Bryein means sprout & phyllon means leaf. *Pinnatum* "It licks away the stone" OR Patthar Tod ("It breaks the stone"). The plant is popular in India for its use in folk medicine. There are about 20–30 species in the group from Madagascar, which provide us with 'Air Plants' and 'Mother of Thousands'. They are originally native to South Africa, Madagascar, and Asia, and are found throughout India.

### Description

The plants are growing all types of weather. It is cultivated originally for their attractiveness and interesting reproduction.

1. It grows to a height of 1-3 feet (0.3-0.9m) having numerous soft stems.
2. Leaves: It is Sessile, smooth and somewhat serrate. When pressed between fingers, leaves yield aromatic juice. Young shoots grow from ripe leaves.

### Properties

It is greenish in color. The solution is Aromatic. It is slightly sour and bland tasting.

### Species and Varieties

1. *Bryophyllum beauverdii* (Sotre-Sotry)
2. *Bryophyllum jueli* synonym of (Sotre-Sotry)
3. *Bryophyllum scandens* synonym of (Sotre-Sotry)
4. *Bryophyllum daigremontianum* (Mother of Thousands)
5. *Bryophyllum fedtschenkoi* (*Kalanchoe* Stonecrop, Lavender-Scallops)
6. *Bryophyllum proliferum* (Blooming Boxes)
7. *Bryophyllum tubiflorum* (Chandelier plant)
8. *Bryophyllum uniflorum*
9. *Bryophyllum costantinii*
10. *Bryophyllum delagoense* synonym of (Chandelier plant)

11. *Bryophyllum gastonis-bonnierii* synonym of *Kalanchoe gastonis bonnierii*
12. *Bryophyllum Pinnatum* synonym of *Kalanchoe pinnata* (Air Plant)

### Image



### Scientific Classification

- Kingdom:** Plantae
- Division:** Magnoliophyta
- Class:** Magnoliopsida
- Order:** Saxifragales
- Family:** Crassulaceae
- Genus:** Kalanchoe

### Common Names

Different countries.

**USA:** Mother of Thousands, Air Plant,

**Dominica:** Herbe Mal Tete,

**Trinidad:** Never Dead, Parvu, Wonder-Of-The-World,

**Bolivia:** Hoja Del Aire,

**German:** Brutblatt,

**India:** Pathar Chat.

### Medical Uses

Some species are toxic. They contain plant acids, alkaloids, calcium oxalate, etc. Bufadienolides, which are cardiac glycosides, can cause dyspepsia, diarrhea, and cardiomyopathy. It is useful in Traumatic injury – fractures, Strains, sprains, bruises, swellings, Mash leaves and apply externally to lesion, Urinary: Leaves decocted to clean the bladder. Anti-inflammatory, haemostatic; reduces swelling, promotes healing

### Toxic Effect

**Veterinary:** Toxic to cattle

Two adult cattle died within 48 h of being fed a large amount of *Bryophyllum pinnatum* plants collected from a house garden. Clinical signs became apparent the day after feeding and increased salivation, ataxia, severe cardiac arrhythmia and labored respiration. The main necropsy findings were acute ruminates, reduction of bronchiolar lumens and emphysema.

### Part Used

leaves or whole plant

### Pharmaceutical Name

Western Functions: Anti-inflammatory, hemostatic; reduces swelling, promotes healing Energetic Functions: Clears heat and toxin, clears heat and cools the blood, invigorates blood.

### Caution:

- \* Contraindicated in cases of impaired digestive function.
  - \* Topical treatment may produce severe skin blisters
- Preparation: Collect all year round. Use fresh and squeeze the juice, or prepare as decoction.

**Dosage:** 5-10drops of mother tincture

### Notes:

- \*Anti-ulcer
- \* Anti-bacterial.

### Material and method

**Preparation:** Collect fresh and squeeze the juice, and prepare mother tincture by Hahnemannian old method. Procedure was the same as for alcohol soluble extractive using water instead of ethanol.

Solvent: Evaporation by Magnetic dryer.

Potentiation: By Succussion method.

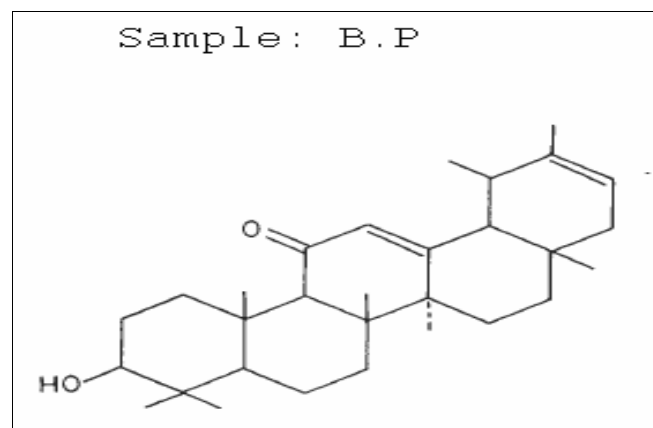
### Determination of water-soluble extractive

Procedure was the same as for alcohol soluble extractive using water instead of ethanol.

### Determination of sodium, potassium and calcium

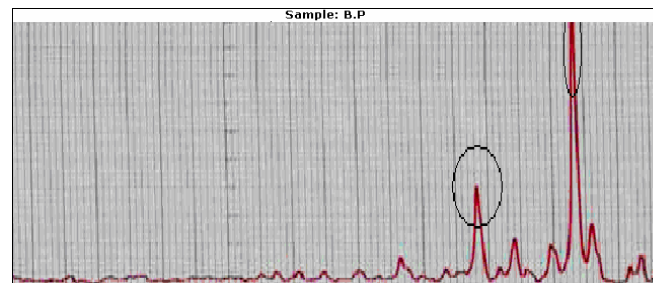
An accurately weighed amount of the ash of the plant was digested with 5 mL of 10% HCl and filtered through Whatmann No. 41 filter paper. The residue was washed with hot water, cooled and made to volume

### Structure Activity and Relationship



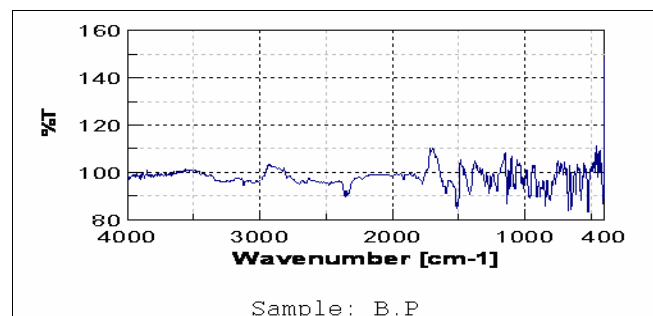
Groups present in your compound were shown in IR spectrum.

### Xrpd (X-Ray Powder Diffraction Study)



Intense sharp peak indicating that powder drug is crystalline in nature.

### Ir Spectrum



3450 (OH- group: carboxylic group)

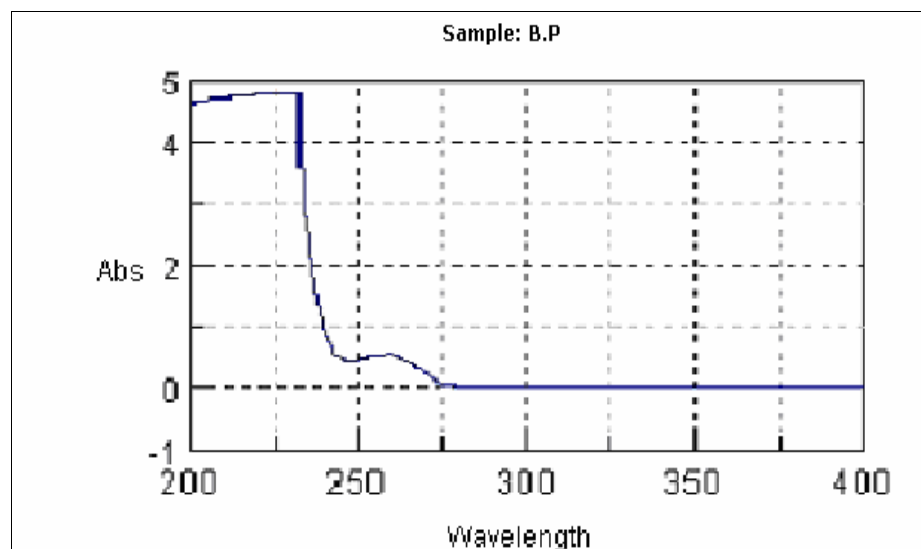
Carbonyl function group

2860 (CH Stretching)

1720 (C=O Group)

3030-4000 (Aromatic ring)

## Uv- Vis Spectroscopy

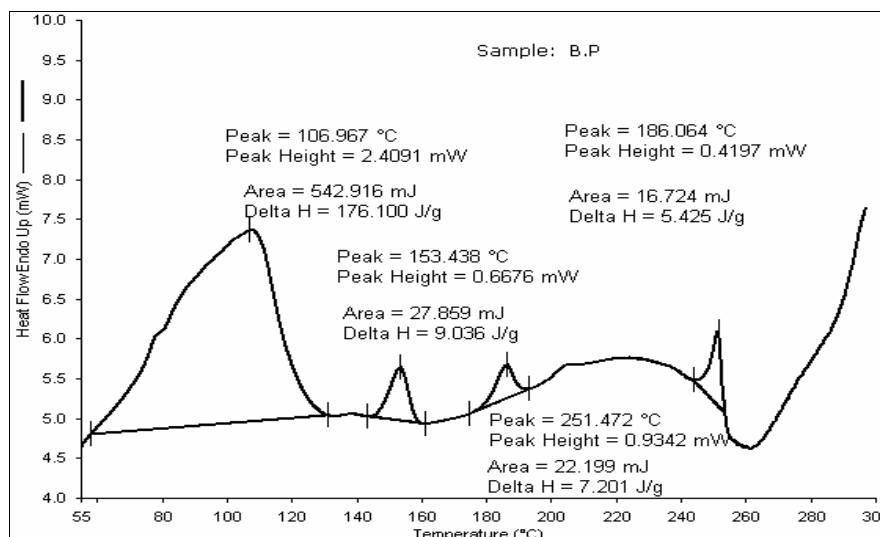


$\lambda$  max = B.P Is 230 nm

## DSC

Various indications of peaks are following depending up on the nature of drug.

Groups present in your compound were shown in IR spectrum. (DSC are done by analytical lab "SAYAN")

**Determination of sodium, potassium and calcium**

An accurately weighed amount of the ash of the plant was digested with 5 ml of 10% HCl and filtered through Whatmann No. 41 filter paper. The residue was washed with hot water, cooled.

**Result and discussion**

*Bryophyllum pinnatum* showed promising therapeutic properties confirmed through analytical studies. IR spectroscopy revealed functional groups like OH and C=O, indicating the presence of flavonoids and acids. UV-VIS analysis showed  $\lambda$  max at 230 nm, supporting its antioxidant nature. XRPD confirmed a crystalline structure, and DSC revealed multiple thermal peaks, indicating diverse active constituents.

This integrative evaluation blending traditional knowledge with modern analytical validation demonstrates that *Bryophyllum pinnatum* holds substantial therapeutic value, especially in homeopathic. The data strongly support its

anti-ulcer, anti-inflammatory, hemostatic, and wound-healing effects.

**Conclusion**

*Bryophyllum pinnatum* stands as a valuable herb in homeopathy and traditional medicine. Its anti-inflammatory, anti-ulcer, and wound-healing effects are supported by both phytochemical constituents and modern analytical studies. However, caution is advised due to its toxic effects in larger doses or in veterinary contexts.

**Reference**

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