

**MYSTERIES OF HERB PARNABEEJA – KALANCHOE PINNATAPERSAN ADD ON TO AYURVEDA****Bani Shashikala B<sup>1\*</sup>, Mallya Suma V<sup>2</sup>**

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**Article Received:**03/09/2021 - **Peer Reviewed:**18/11/2021 - **Accepted for Publication:**19/11/2021**ABSTRACT**

Plants have always been the focus of mankind. They are the source of food, shelter and even medicine. The Ayurveda claims the medicinal values of the plant along with animals and mineral sources. The quest for the addition of the plants as new medicine never ends. *Kalanchoe pinnata* Pers previously known as *Bryophyllum pinnatum* of *Crassulaceae* family is the addition to Ayurveda named as *Parnabeeja* recognizing the medicinal efficacy. The vision of researchers attracted towards this ornamental plant recently, to explore the mysterious therapeutic efficacies and provide the evidence.

**Keywords:** *Parnabeeja, Kalanchoe pinnata* Pers Medicinal efficacy

## INTRODUCTION



Ayurveda is the ancient science of Life, aimed at longevity using natural resources. Herbs are the only solutions to cure several health-related problems and diseases. Our ancestors conducted a thorough study about the same, experimented to arrive at accurate conclusions about the efficacy of different herbs that have medicinal value. These herbs that have medicinal quality provide rational means for the treatment of many internal diseases, which are otherwise considered difficult to cure. Thereby Ayurveda claims that everything in the universe is medicine. Continuous exploring the treasure of plants kingdom added many plants as the source of medicine considering their rich resources of ingredients. Ayurveda accepted the several sources' plants to its treasure from time to time. The plants which are imported from another country widely grown in India take their identity and placement in the Ayurveda science.

**Parnabeeja- Kalanchoe pinnata** Pers is an ornamental garden plant grown widely in India belongs to the *Crassulaceae* family. Traditional practitioners in various parts of the world use this plant in numerous conditions like hypertension, skin disorders, asthma, cold, insect stings, abscesses etc. It is used as a source plant for *Pashanabheda* [*Berginia ligulata* wall.] in Bengal regions, where the plant is locally known as *Patharkuchi* which is widely used in urinary stones in place of the source of *Pashanabheda*. Most of the traditional practitioners in Bengal, Unani and Ayurveda physicians use this plant in conditions like *Raktasrava* (Bleeding disorders), *Ashmari* (Renal

calculi), *Vrana* (Ulcers), *Atisara* (Diarrhoea). As the plant is known for its ethnobotanical importance, there are also many research works carried out to validate the traditional medicine in different parts of the world which have proved many pharmacological activities of the plant known and unknown like Anti-Diabetic activity, Wound healing property, Antilithogenic activity, Hepato-protective activity, Anticancer property etc. The species of these are thought to be poisonous to livestock, as it contains cardiac glycosides

Vd. Bapalal quoted was the first reference in "Adarsh Nighantu" in 1968. He mentioned vernacular names and by his own experience has emphasized to keep always this plant in the home as emergency medicine. Later Prof. Daljitsingh in 1972 has given the same voice regarding this plant in "Unani Dravyagunadarsh." He claims that it is the best medicine for acute bleeding from any site of the body. Afterwards, Dr P. V. Sharma and Vd. P. S. Varier described this plant comprehensively in "Dravya Guna Vijnan" and "Indian Medicinal Plants" respectively. Both have described the plant in Sanskrit contextual.

**Synonyms:** *Bryophyllum calycinum* Salisb,

*Cotyledon pinnata* Lam.,

*Sedum madagascariense* Clus

### **Vernacular names**

Sanskrit: *Parnabeeja*, *Asthibhaksha*

English: Air plant

Hindi: *Zakhmhaiyat*, *Pathharchoor*

Kannada: *Gandukalinga*, *Kadubasale*

Malayalam: *Elamarunga*

Tamil: *Malaikalli*, *Ranakalli*

Telugu: *Ranapala*

Marathi: *Gayamari*

Bengali: *Koppatha*, *Patharkuchi*.

### **Taxonomical classification**

*Kingdom:* *Plantae* – Plants

*Subkingdom:* *Tracheobionta* – Vascular plants

*Division:* *Spermatophyta* – Seed plants

*Subdivision:* *Magnoliophyta* – Flowering plants

**Class:** Magnoliopsida – Dicotyledons

**Subclass:** Rosidae

**Order:** Rosales

**Family:** Crassulaceae – Stone crop

**Genus:** Kalanchoe

**Species:** Kalanchoe pinnata

**Common names:** Cathedral bells, Curtain plant, Flop Pers, Good luck leaf, green mother of millions, Leaf of life, Mexican love plant, Miracle leaf, Resurrection plant, Sprouting leaf.

**Habitat:** It's a native of Madagascar and southern Africa, Naturalised throughout the tropics of the world.

**Morphology:** *Kalanchoe pinnata* Persis a succulent glabrous herb 0.3-1.2 m high. Stems obtusely four-angled, the older one is light coloured & younger ones are reddishly speckled with white. Leaves are variable & decussate lower are usually simple/ compound, upper ones are 3-5/7 foliolate with long petiole. Petioles are united by a ridge around the stem. Leaflets are ovate/ elliptic with crenate/ serrate margin. Flowers are pendant, in large spreading panicles with opposite stout branches, pedicels slender. Sepals are red striated, green at the base & pale green above. Petals are reddish-purple, swollen & octagonal at the base, lobes triangular. Filaments green at the base, pinkish below the anthers. Anthers are hastate, black. Styles green. Fruits are enclosed in a Persistent papery calyx & corolla. Seeds are small, oblong-ellipsoid, smooth.

#### **Ethno-botanical importance**

- In Odisha, the plant is identified as *Basampatri*, its leaves are used in flatulence.
- *Thukotali* is the local name in *Poojapura* (Kerala), people use crushed leaves externally to apply over the burn wound.
- Similarly in West Bengal & Andhra Pradesh the matured leaves are made warm and are placed over the wounds and tied.
- In Konkan, the leaf juice is used in dysentery with ghee.
- Two teaspoons of leaf juice was given in renal calculi

- In Chota Nagpur the steamed leaf juice is used in cough along with ghee/ garlic. The leaves are treated with palm oil & used externally in sore eyes

#### **Ayurvedic properties:**

**Rasa:** Kashaya, Amla

**Guna:** Laghu

**Virya:** Sheeta

**Vipaka:** Madhura

**Doshaghnata:** Vatakaphahara

**Karma:** Ashmarighna, Vranaropaka, Mootrala, Shonitasthapana, Raktastambaka, Grahi.

**Rogaghnata:** Ashmari, Atisara, Raktasrava, Visuchika.

**Part used:** Patra (Leaves)

**Dosage:** Leaves powder 2.5-5g

#### **Pharmacognosy**

#### **Microscopic features of leaf:**

Fragments of upper & lower epidermis in surface view embedded with cyclocytic stomata, where stomata are guarded by three cells forming a griddle around it, the cells of the upper epidermis are bigger with slightly wavy anticline wall sun like the cells, which is a bit wavier Transversely cut fragments of lamina showing thick cuticle, over two layered upper epidermis, a hypodermal layer embedded with anthocyanin pigments & a layer of palisade underneath it. Longitudinal cut fragments of the petiole with prismatic crystals of calcium oxalate embedded in the parenchymatus cells. Longitudinally cut fragments of spiral vessels from the meristele.

#### **Phyto-chemical constituents:**

It contains Alkaloids, Saponins, Flavonoids and Tannins. The active principle through NMR and HPTLC study revealed that one of the cardiac glycosides that converges infraction

#### **Reproduction & Cultivation:**

Reproduction is by seed & plantlets. The leaf sections of were used as explants, the various plant hormones (TDZ, BAP, BAP & NAA) with different concentrations (2.5, 5.0, 10.0, 15.0, 20.0 µM) were used. TDZ 10µM gave better results for shoot proliferation and elongation in both varieties. The regeneration frequency and the number of shoots per explants were

also enhanced on these concentrations. Only shoots were produced from leaf sections in lower concentrations of BAP (1 µM). The best survival rate was 91% in 75% sand with 25% coco peat.

### **Pharmacological activities**

This plant grabbed the attraction of researchers and many of the studies are conducted to evaluate the efficacy. The studies like antimicrobial activity, Antibacterial activity, Antileishmanial activity, Hepatoprotective & Nephroprotective activity, Neuropharmacological activities, Antimutagenic activity, Anti-ulceractivity, Antihypertensive activity, Analgesic, Anti-inflammatory and Wound Healing activity. Uterine Contractility, Antiobesity, antidysentery & antiemetic activity were carried out and promising results were observed. Not only this, but it is also kindling the researcher interest to explore the hidden mysteries about the herb.

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**Source of Support: Nil**

**Conflict of Interest: None Declared**

How to cite this URL: *Bani Shashikala B & Mallya Suma V: Mysteries Of Herb Parnabeeja – Kalanchoe pinnatapersan Add On To Ayurveda*. International Ayurvedic Medical Journal {online} 2021 {cited November 2021} Available from:

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