

## LANGALI- A PRAGMATIC REVIEW

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### ABSTRACT

Langali, a drug of herbal origin, has been used by the Ayurvedic physicians, for the management of different disease conditions. The botanical source of the plant is *Gloriosa superba* Linn. of the family Colchicaceae. It is a climber with very attractive or glorious flowers hence the name as such. The drug Langali, has been categorized as one of the nine upavishas (semipoisonous) of Ayurvedic pharmacopoeias. In this article an attempt has been made to review on Langali from different classical texts. It is observed that the drug is effective in more than 30 disease conditions among which aparapatana (removal of placenta), mudhagarbha (dead foetus), vrana (wound), agnimandya (loss of appetite), jvara (fever), grahani (Irritable bowel syndrome), kasa (cough), hikka (hiccough), kushtha (leprosy), shvitra (leucoderma), visarpa (erysipelas), arsha (piles) etc. Useful part of the plant is tuber with a dose of 125 – 250 mg and should be administered internally after passing through various shodhana procedures. It is also an ingredient in different formulations.

**KEYWORDS:** Langali, *Gloriosa superba*, Ayurveda, upavisha

### INTRODUCTION

Langali, a well-known drug to current herbal pharmaceuticals as a remarkable muscle relaxant and antispastic drug due to its chief constituent Colchicine is a drug widely used in the management of gout. Classics have recommended its utility mainly in Garbha sangha, Apra sangha, Sukhaprasavaartha along with Kushta, Shoola, Shotha, Vrana etc. Different methods of shodhana have been mentioned in the classics to remove its toxicity. This drug has evoked curiosity to the current pharma industry in order to discover its wide utility in health sector. Hence, in this article an attempt is made to review on Langali from different classical texts.

### CHRONOLOGICAL REVIEW

1. There is mention of Langali in Rig veda. (R.G. 10/142/8).
2. In Kautilya Arthashastra, Langali is found in Madanayoga(4.1.177/17) which is a stupefying mixture<sup>1</sup>.
3. In Charaka Samhita, Langali is mentioned in Bhedaniya gana as ‘Agnimukhi’. Langali is also explained in ‘Visha chikitsa adhyaaya’ as one among the Mulaja Sthaavara visha. In ‘Kushta chikitsa adhyaaya’, Langali is found as one of the ingredients of ‘Tiktekshwaakaditailam’<sup>2</sup>.
4. In Sushruta Samhita, Langali (Vidyucchikha) is mentioned as one of the ‘Mulavisha’. In ‘Garbhiniyvaakaranam

shaareeram', Langali is prescribed for its use in expulsion of retained placenta<sup>3</sup>.

5. In Ashtanga Hrudaya, Langali is mentioned in 'Arkadi gana' as 'Vishalya'. Yoni dhoopana of langali is indicated for Garbhasangha and Aparasangha in 'Garbhaavakranti shaareeram'. Langali is also seen in 'Karnarogapratishedha adhyaaya' as one of the ingredients in a taila preparation for Tikshna Navana Nasya in Unmantha karna roga. It is also prescribed for its use in Indralupta, Apachi, Unmada, Bhagandhara, Gandamala, Sarpa visha, Arshas, Kushta, Shwitra and Vatarakta<sup>4</sup>.

6. In Bhavaprakasha Madhyakanda, 'Langali Gutika' is mentioned in Vatarakta Chikitsa. Langali is also explained in 'Yonirogaadhikara' for Shighraprasava in 'Mudhagarbha'<sup>5</sup>.

7. In Yogaratnakara, Langali is prescribed for inducing 'Prasava' and in 'Kaalaatita prasava'<sup>6</sup>.

8. In Bhaishajyaratnaavali, Langali is mentioned for inducing 'Prasava' and for 'Aparapatana'<sup>7</sup>.

9. In Chakradatta, Langali is explained in Krimikarna chikitsa, for 'Sukhaprasavaartha', 'Shighraprasavaartha' and in 'Aparaapaatana'<sup>8</sup>.

### VERNACULAR NAMES<sup>9</sup>:

**Table no. 8: Vernacular names.**

Bengal	Bisha, Bishalanguli, Ulatchandal
Canarese	Agnisikhe, Huliyuguru, Kolikutuma
Deccan	Natkabachhnag
English	Malbar Glory lily
Gujarathi	Dudhiovachhnag
Hindi	Kalihari, Karihari, Kulhari, Languli
Malayalam	Kantal, Mettonni
Marathi	Indai, Karianag, Nagkaria
Punjab	Kariari, Mulim
Sanskrit	Agnimukhi, Agnishikha, Halini, Langali, Vishalya
South Africa	Climbing lily, Turk's cap
Tamil	Akkinichilam, Iradi, Irumbu, Kandal
Telugu	Kalapagadda, Pottidumpa
Tulu	Balipapu, Kenkannadapu
Urdu	Kanol, Kulhar

### GANNA VARGA:

**Table no. 9: Classification according to various authors.**

Charakasamhita	Bhedaniyagana, Sthavaravisha
SushrutaSamhita	Sthavaravisha
Ashtangahridaya	Arkadigana
Saushrutanighantu	Arkadigana
Ashtanganighantu	Arkadivarga
Madanadinighantu	Dwivimshogana

Dhanwantarinighantu	Karaveeradigana
NighantuShesha	Latakanda
Shodhalanighantu	Karaveeradigana
Rasarnava and other rasa texts	Upavishavarga
AbhidanaRatnamala	Tiktakanda
Hrudayadeepikanighantu	Ekapaadavarga
Madanapalanighantu	Abhayadivarga
Raja nighantu	Shatahwadivarga
Kaiyadevanighantu	Oshaddivarga
Bhavaprakashanighantu	Guduchyadivarga
Saraswatinighantu	Latavarga
Rajavallabhanighantu	Madhyaahnikaparichheda
Priyanighantu	Shatapushpadivarga

#### VARIETIES<sup>10</sup>:

There are grossly 2 varieties of the plant:

1. Female- having round tuber
2. Male- having flat and long tuber

#### DIFFERENT SPECIES OF GLORIOSA<sup>11</sup>:



*Gloriosa superba*



*Gloriosa rothchildiana*



*Gloriosa planti*



*Gloriosa lutea*



*Gloriosa carsonii*

### RASA PANCHAKA

Langali is having Katutiktakashaya rasa, laghutikshnasaraguna and ushnaveerya.

### DOSHAGHNATA<sup>5,12,13,14,15</sup>

Langali is having Vatakaphahara and Pittakara property.

### KARMA<sup>5,12,13,14,15</sup>

Langali is having garbhapatana, arshoghna, kushtaghna, krimighna, shothahara and shulahara karma.

### ROGAGHNATA

Langali is mainly used in arshas, garbhashalya, krimikushta, shotha, shoola and vranachikitsa.

### METHODS OF SHODHANA<sup>10</sup>:

1. Pieces of tubers of Langali should be immersed in saindhavamishritatakra for 4-5 days followed by washing in hot water and drying. Every day the saindhavamishritatakra should be changed.

2. Another method is to immerse the pieces of tubers of Langali in gomutra for 24 hours.

### THERAPEUTIC USES<sup>16</sup>:

1. The root or seeds of Langali are pounded with sour gruel and the paste is applied locally for treating the boils (pitaka) caused

### YOGAS:

#### Table No. 14: Formulations:

Sl.no	Yogas	Adhikara/Phalashruti	Reference
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by poisonous or harmful insects ('dustakitasamparkajatahpitakah': Gadanigraha)

2. The oil cooked with one-fourth paste of Langali tuber and four times juice of Nirgundi (*Vitex negundo* Linn) is used as snuff (nasya) and other purposes (including external application) in treating scrofula (apaci) (Astanga Hrdaya, Uttara 30-21).

3. The paste of langali is mixed with seeds of Sirisa (*Albizia lebbek* Benth) and the same is applied on haemorrhoids properly for eradicating piles (Gada nigraha).

4. The oil is cooked with Tulasi (*Ocimum sanctum* Linn.) and Langali (*Gloriosa superba* Linn.) and it is suggested to be used as snuff (tikshnanavana) in unmantha, an ear ailment or Karnaroga (Astanga Hrdaya, Uttara. 18-46).

5. Another recipe of Langali prescribed in ear diseases employs the juice of Langali root which is mixed with fine powder of trikatu. This recipe is applied for filling in the ear (Karna purana), particularly in Krimi karna (Gada niagraha).



1	Nirgunditaila	Galagandaroga	B.R.43/16
2	Mahavishagarbhataila	Vatavyadhi	B.R.47/414
3	Langaligitika	Vatarakta	B.P.29/83
4	Kasisaditaila	Arshoroga	B.R./32/111
6	Nasikachurna	Dushtapeenasa, shirogurava, shiroraja, nasikadourgandhya, jatroordhwaroga	Sahasrayoga/churnaprakarana/64
7	Kalakuta rasa	SannipataPrakarana, Jwara	Basavarajeeyam, SannipataPrakarana, AFI, Vol. 2 16:10
8	Brihanmarichadyataila	Kushta	B.R./ 31/25
9	Vishyandanataila	Bhagandhara	B.R./33/7
10	Karaviradyataila	Bhagandhara	B.R./33/8
11	Somarajitaila	Kushta	B.R./31 /22
12	Kachchhurakshasataila	Kushta	B.R./31/164

**TAXONOMY<sup>17</sup>****Table No.15: Taxonomical position**

Kingdom:	Plantae
(unranked):	Angiosperms
(unranked):	Monocots
Order:	Liliales
Family:	Colchicaceae
Genus:	<i>Gloriosa</i>
Species:	<i>G. superba</i>

**ETYMOLOGY:**

Etymologically the technical term for the plant signifies its characteristics: 'Gloriosa' means beauty of the flowers; 'superba' means splendid, brilliant.

**BOTANICAL DESCRIPTION<sup>9</sup>:**

**Habit:** A herbaceous tall glabrous branching climber.

**Root:** Rootstock of arched, solid, fleshy-white, cylindric tubers 15-30 by 2.5-3.8 cm, pointed at each end, bifurcately branched of V-shaped, producing a new joint at the end of each branch; roots fibrous.

**Stem:** Annual, 3-6 m long, given off from the angles of the young tubers, herbaceous.

**Leaves:** Sessile or nearly so, 7.5-1.5 by 2-4.5 cm, scattered or opposite, or sometimes ternately whorled, ovate-lanceolate, acuminate, tip ending in a tendril-like spiral, base cordate; nerves parallel.

**Flowers:** Large, axillary, solitary or subcorymbose towards the ends of the branches from the nearness of the leaves, remaining for about 7 days without withering.

**Pedicels:** 7.5-15 cm long, the tips deflexed.

**Perianth:** Segments reaching 6.3 cm by 8-13 mm, linear-lanceolate with crisply waved margins, greenish at first, then yellow, passing through orange and scarlet to crimson.

**Filaments:** 3.8-4.5 cm long, spreading; anthers nearly 13 mm long. Style reaching 5 cm long; the arms about 6 mm long.

**Fruit:** Dehiscent capsules 4.5 by 2 cm, linear-oblong. These capsules mature from dark green to black-brown, at maturity they peel apart to reveal bright to dark red globose seeds.

### **DISTRIBUTION<sup>18</sup>:**

It is found throughout India, upto an altitude of 2000 m, Khasia hills, Bihar, Orissa, West Bengal, Gujarat, Konkan and Andaman Islands. Karnataka ref

### **PHARMACOGNOSY<sup>19</sup>:**

#### **Macroscopic characters:**

Tuberous roots thick, almost cylindrical or slightly laterally flattened, occurring in pieces of 15-30 cm long and 2.5 - 3.8 cm thick, often bifurcated with tapering ends, resembling a plough-shape, one arm generally more than double the length of the other; brownish externally and yellowish internally; fracture short; taste acrid and bitter.

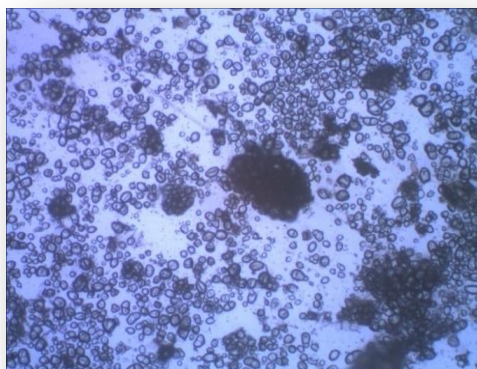
#### **Microscopic characters:**

1. Tuberous root shows single layered epidermis, externally cuticularised, consisting of rectangular cells, followed by ground parenchyma, with scattered small vascular bundles.
2. Parenchyma cells large, thin-walled, polygonal to circular, having conspicuous intercellular spaces, most of the cells specially of the outer layers filled with starch grains, simple, round to oblong, or

polyhedral, measuring 8-33  $\mu$  in dia., showing clear hilum and concentric striations, occasionally compound with 2-3 components, measuring 24-36  $\mu$  in dia.

3. Vascular bundles collateral, numerous, scattered throughout ground tissue, consisting of xylem and phloem; each vascular bundle enclosed by sclerenchymatous sheath, xylem composed of vessels, tracheids and parenchyma; vessels having mostly reticulate thickening, smaller ones having spiral thickening, tracheids with reticulate thickening; xylem parenchyma cells usually rectangular; phloem consisting of sieve tubes, companion cells and phloem parenchyma; phloem parenchyma cells very small and thin-walled. (bold starch grains)

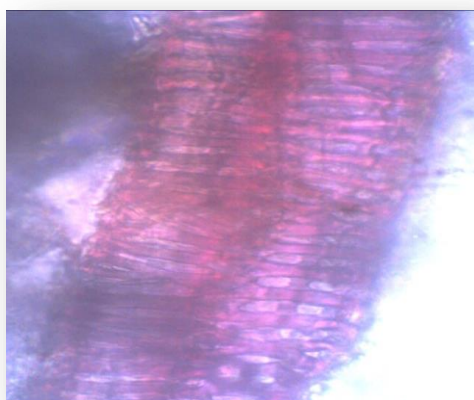
**Powder microscopy** - Brown; shows fragments of parenchyma cells, simple starch grains, round to oblong or polyhedral measuring 8-33  $\mu$  dia. showing clear hilum and concentric striations, occasionally compound with 2-3 components, measuring 24-36  $\mu$  in dia., sclerenchymatous cells, a few xylem vessels and tracheids.



*Abundantly present simple and compound starch grains*



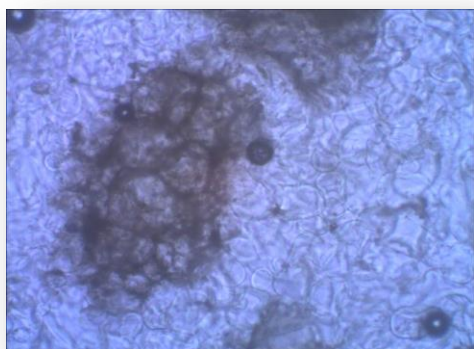
*Oval shaped starch grains with prominent hilum grains*



*Spiral xylem vessels*



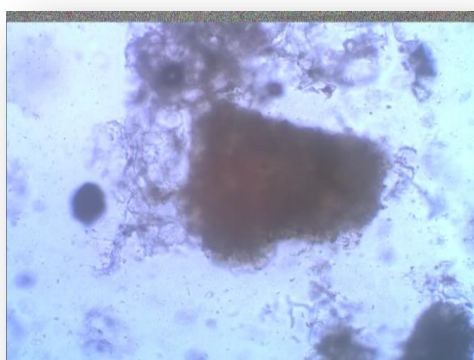
*Xylem fibre*



*Parenchyma cells*



*Bundle of xylem fibres*



*Tannin containing cell*



*Oil globule*

## CULTIVATION AND PROPAGATION<sup>18</sup>:

Gloriosa can be grown on almost all types of soil, but thrives best on sandy loams. Seeds or tubers are sown in the last week of June till mid-July. The tubers are planted by

splitting into two from their V shaped joints or placed as such at the distance of 20×20 cm and 5-6 cm deep. The plant flowers during July-August and the capsules containing ripe seeds can be harvested at the end of September. Usually the creeper takes

about 2-3 months to mature. The tubers are collected in November/ December. The average yield is about 40 to 50 quintals of tubers and 10 quintals of seeds/ hectare.

Seed propagation: If the plant is propagated by seeds, they are sown in lines at the distance of 4 to 6 cm. They germinate within 15 to 20 days. Tubers formed by seed germination are very small in size and they take about 3 to 4 years to grow to full size.

#### CHEMICAL CONSTITUENTS<sup>18</sup>:

**Table No. 16: Chemical constituents:**

Part	Chemical constituents
<b>Tubers</b>	Sitosterol, glucoside, $\beta$ & $\gamma$ - lumicolchicines, 2- hydroxy-6-methoxybenzoic acid, colchicine.
<b>Seeds</b>	Colchicine, isoperlolyrine, cornigerine,, floramultine (bechuanine), 1, 12-dihydroxy- 2,10,11- trimethoxhomoaporphine, colchicamide, 2-demethylcolchifoline, 3- demethylcolchifoline, colchicoside.
<b>Flowers</b>	luteoline, glucoside, N-formyl-deacetylcolchicine, $\beta$ & $\gamma$ - lumicolchicine, 3-demethylcolchicine, its glucoside, 2- demethylcolchicine, colchicines.

#### SUBSTITUTION AND ADULTERATION<sup>18</sup>:

Rhizomes of *Costusspeciosus* (Koen.) Sm., known as 'Kebuka' in Ayurveda are sometimes sold in the market under the name 'Langali'. The tubers of *Gloriosa* are used as adulterant to Aconite. They are reported to be a good substitute to Meadow saffron (*Colchicum autumnale* Linn.) which is used in medicine and as a narcotic.

**PART USED:** Tuber

**DOSE:** 125-250 mg of purified drug

#### RESEARCH ACTIVITY:

Analgesic and Anti-Inflammatory Activity, Anti-anxiety activity, Anti Arthritic activity, Anti-implantation activity, Abortifacient activity etc.

#### IDENTITY, PURITY AND STRENGTH<sup>19</sup>:

Foreign matter not more than 2 Percent

Total ash not more than 6 Percent

Acid-insoluble ash not more than 1 Percent

Alcohol-soluble extractive not less than 5 Percent

Water-soluble extractive not less than 15 Percent

#### DISCUSSION & CONCLUSION

Langali(*Gloriosa superba*) is found throughout India and its description can be traced since Vedic period. Classical texts of Ayurveda, except Samhita, describes it under upavisha varga and recommends various shodhana procedures before its internal use. Langali is attributed with pharmacological properties i.e katu, tikta, kashaya rasa; katu vipaka and ushna virya; and useful to combat various disease conditions such as various skin diseases, piles, worm infestation and inducing labour etc. Langali though being a toxic drug finds its indication in many conditions. Hence, different studies have to be undertaken in order to understand the impact of different shodhana methods on the drug. Also pharmacological studies have to be taken up



to rediscover the wide utility of the drug mentioned in classics to fulfil the need of today's health sector.

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