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# Asana (*Pterocarpus marsupium* Roxb.) - A Drug Review

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## ABSTRACT

*Asana* (*Pterocarpus marsupium* Roxb.) commonly known as Honne Mara in Kannada, Bijasal in Hindi, Indian kino or Malabar kino in English, belongs to the family Fabaceae and it is widely distributed among several regions of India. It is one of the important medicinal plant of Indian traditional system of medicines and it has been used in India for several medicinal purposes. The Indian Kino is a medium to large; deciduous tree having chemical constituents like pterostilbene, (-)-epicatechin, pterosupin, marsupsin, etc. *Asana* have the pharmacological activity like antioxidant, anti-inflammatory, antibacterial, etc.

**Key words:** *Asana*, *Pterocarpus marsupium*, pterostilbene, Bijaka.

## INTRODUCTION

*Asana* (*Pterocarpus marsupium* Roxb.) tree is a medium to large, deciduous tree which can grow up to 30 meters in height. It is tree with dark brown to grey bark having swallow cracks. The bark exudes a red gummy substance called "Kino" when injured. Leaves are compound imparipinnate, Flowers are yellow in terminal panicles, Fruit is circular, flat, winged pod, Seed is convex and bony. Tree flowers and fruits in the month of March to June. Various parts of the *P. marsupium* tree have been used as traditional Ayurvedic medicine India. The medicinal utilities have been described, especially for leaf, fruit,

bark and heart wood. The gum exude 'kino', derived from this tree, is used.

*Asana* has been mentioned as *Rasayana Dravya* by many *Acharyas*. It has *Kashaya*, *Tikta Rasa*, *Ushna Veerya*, *Katu Vipaka*, *Laghu* and *Ruksha Guna* and helps to enhance *Rasayana* effect on body.<sup>[1]</sup>

## DRUG REVIEW

*Asana* is a known plant widely available in all parts of India. References regarding the drug *Asana* is available in Ayurveda classics.

## Synonyms<sup>[2]</sup>

*Asana*, *Bandhooka*, *Puspa*, *Beejaka*, *Beejavriksha*, *Jeevaka*, *Kamya*, *Karshya*, *Mahasarja*, *Alakapriya*, *Neelaka*, *Krishnasarjaka*, *Neelaniryasa*, *Peethasaara*, *Peethasaaraka*, *Suneela*, *Peethasala*, *Priya*, *Priyaka*, *Priyashaalaka*, *Pushpavriksha*, *Sarjaka*, *Shouri/Souri*, *Sugandhi*, *Syama*, *Thishya*, *Vijaysar*.

## Vernacular Names<sup>[3]</sup>

**Arabic:** Damulakhavene

**Bengal:** Pitsal; Piyashal; Pitshul

**English:** Indian kino tree, Malabar kino tree

**Gujarati:** Bia; Bibla; Biyo

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**Hindi:** Vijasara; Bija; Bijasal

**Kannada:** Honne

**Marathi:** Asan; *Asana*; Bibla; Dhorbenla

**Punjabi:** Chandanalal; Channalal

**Sanskrit:** *Asana*; vijaysara

**Tamil:** Vengaimaram; Asanam; Udiravengai; Kani; Kurinji; Pidasaralam

**Telugu:** Peddavegisa; Peddagi

**Botanical Classification**<sup>[4]</sup>

**Botanical Name:** *Pterocarpus marsupium* Roxb.

**Family Name:** Fabaceae

**Taxonomical classification of *Pterocarpus marsupium* Roxb.**

- Kingdom - Plantae
- Family - Fabaceae
- Phylum - Magnoliophyta
- Genus - *Pterocarpus*
- Species - *Pterocarpus marsupium*

**Table 1: Classification of *Asana* according to classics.**

Samhita/ Nighantu	Varga/ Gana
Charaka Samhita	Udardaprashaman Gana, Shirovirechanopayogi
Susrutha Samhita	Salasaraadi Gana
Astanga Sangraha	Asanadi Gana, Shirovirechanopayogi
Astanga Hrudaya	Asanadi Gana
Priya Nighantu	Hareethakyadi Varga
Shodhala Nighantu	Amradi Varga
Bhavaprakasha Nighantu	Vatadi Varga
Raj nighatu	Prabhadradi varga

Dhanvantari Nighantu	Amradi varga
Kaiyadeva Nighantu	Aushadhi varga
Nighantu Adarsha	Palashadi varga

**Morphological Characters of *Pterocarpus marsupium* Roxb.**

**a. Macroscopic features**<sup>[5]</sup>

- Colour - Ruby-red
- Odour - Odourless
- Taste - Astringent
- Shape - Angular grains
- External features - The pieces are angular, glistening.
- Fracture - Vitreous

A medium sized to a large deciduous tree up to 30m height.<sup>[6]</sup>

**Leaves** - 15-23cm long; compound; alternate; imparipinnate; rachis glabrous; prolonged 2-2.5 cm beyond the insertion of the upper lateral leaflet.

**Leaflets** - 5-7; coriaceous; 6.3-10 by 3.8-5cm; oblong; obtuse; rounded at the apex; glabrous on both surfaces; shining above; base sub-acute; petioles are round smooth and waved from leaflet to leaflet, 5-6 inches long and there are no stipules.

**Stem** - Stout and crooked stem with dark brown or grey bark having shallow cracks; exfoliating in thin flakes.

**Flowers** - Numerous, white with a small tinge of yellow. In short lateral & terminal fusco-pubescent paniculate racemes; usually shorter than the leaves. Buds curved.

**Calyx** - Tubular-campanulate with 5 short nearly equal blunt teeth, very shortly silky.

**Corolla** - Papilionaceous, petals nearly equal with a long claws, Wavy at the margins, **Stamens** - 10, filaments, the staminal tube often finally slit on both sides

**Pistil** - Small, stipulate, hairy, style pointed.

**Pods** - Indehiscent, stalked, greatly compressed, orbicular, 1/2 inch wide, falcate the style having become lateral, hard, leathery, finely silky, with a broad, crisped, veined, parchment like wing.

**Seeds** - Solitary, kidney-shaped, or two separated by a strong partition, without endosperm.

#### b. Microscopic features<sup>[7]</sup>

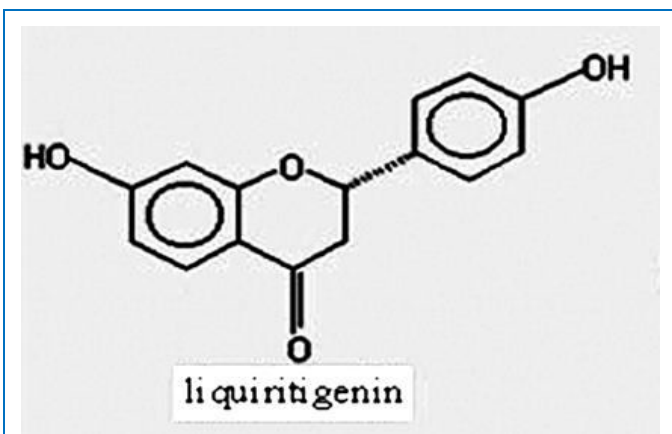
The transverse sections of the stem bark were taken, cleared with clearing agent and mounted in glycerin water. The Stem bark shows the presence of cells consisting of lysigenous cavities, present in a row just below cork. Secondary phloem is found to occupy almost two third of the thickness of bark consisting of sieve elements, phloem parenchyma. Parenchyma found collapsed towards the middle and outer regions of phloem. Phloem fibers single usually numerous in groups forming alternating bands throughout phloem region, thick-walled and lignified with a small lumen, rhomboidal crystals of calcium oxalate found scattered throughout the region, lysigenous cavities and tanniferous ducts filled with red color masses distributed throughout phloem region are also seen.

#### PHYTOCHEMISTRY<sup>[8]</sup>

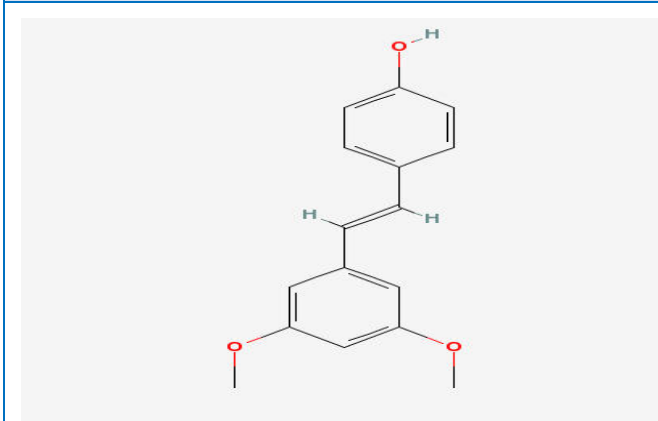
The bark contains l-epicatechin and a reddish brown colouring matter. The bark is occasionally employed for dyeing. The heartwood yields liquiritigenin, isoliquiritigenin, a neutral unidentified component, alkaloid and resin. The wood also contains a yellow colouring matter and an essential oil and a semi-drying fixed oil.

The primary chemical components of *P. marsupium* are pterosupin, pterostilbene, isoliquiritigenin, liquiritigenin, epicatechin, kinotannic acid, kinoin, kino-red beta-eudesmol, marsupol, carpusin and marsupinol,.

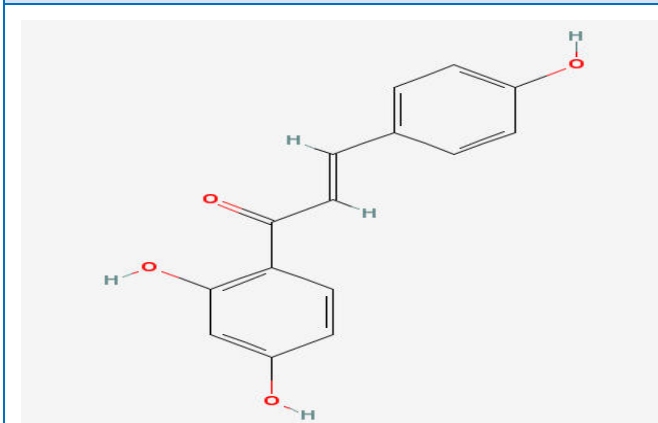
Some new flavonoid C-glycosides: 6-hydroxy-2-(4-hydroxybenzyl)-benzofuran-7-C-beta-D-glucopyranoside, 3-(alpha-methoxy-4-hydroxybenzylidene)-6-hydroxybenzo-2(3H)-furanone-7-C-beta-D-glucopyranoside, are present.



Liquiritigenin



Pterostilbene



Isoliquiritigenin

#### PHARMACOLOGICAL ACTIVITY<sup>[9]</sup>

##### Anti-diabetic and antioxidant activity

*P. marsupium* demonstrates unique pharmacological properties, which include beta cell protective and

regenerative properties as well as blood glucose lowering activity.

### ANTI-INFLAMMATORY ACTIVITY

*P. marsupium* has also shown strong potential for its anti-inflammatory activity. In this study, an extract of *P. marsupium* containing pterostilbene has been evaluated for its PGE2- inhibitory activity in LPS-stimulated PBMC. In addition, the COX-1/2 selective inhibitory activity of *P. marsupium* extract was investigated.

### CARDIOTONIC ACTIVITY

Cardiotonic activity was reported of the aqueous extract of heartwood of *P. marsupium*. This plant species contains 2-4 tetrahydroxy isoflavone 6-6 glucoside which are potent antioxidants and are believed to prevent cardiovascular diseases.

### ANTIBACTERIAL ACTIVITY

Antimicrobial activity of bark and leaf extracts from *P. marsupium*. Hexane, ethyl acetate and methanol extracts were tested against four selected Gram positive and Gram negative bacteria, it has been showed that ethanol extracts of *P. marsupium* exhibited significant anti-ulcer and antioxidant properties.

### ANALGESIC ACTIVITY

The better analgesic effects of ethyl acetate and methanol extracts may be due to the presence of polyphenols in them.

### ANTIDIABETIC ACTIVITY

Marsupsin and pterostilbene significantly lowered blood glucose in hyperglycemic rats.

### Parts Used<sup>[10]</sup>

Heartwood, Leaves, Flowers, Gum

### Posology<sup>[11]</sup>

- Powder : 3-6gm
- Decoction : 50-100ml
- Gum : 1-3gms

### Propagation and Cultivation<sup>[12-13]</sup>

Natural reproduction is through seeds; the early development of seedlings is favoured by shelter from the sun and loose soil clear of weeds.

Artificial reproduction is through seeds. Whole pods are sown and germination can be hastened by cutting across their ends and then soaking them in water for a few days prior to sowing. Stump planting of one year old plants raised in the nursery is said to give good results. Seedlings may also be raised in bamboo baskets for planting out direct sowings are also successful.

### Controversial Studies<sup>[14]</sup>

Some controversies are there in between the two words *Asana* and *Beejaka*. Some vaidyas consider *Asana* as *Terminalia tomentosa*. Some consider *Bridelia Montana* (EUPHORBIACEAE) as *Asana*. Prof. Singh says that "real *Beejaka* or *Asana* is *Pterocarpus marsupium* and *terminalia tomentosa* might be used in its place as a substitute ". In the shirovirechana *Asana* has been mentioned amongst the niryasa for shirovirechana. *Terminalia tomentosa* and *Bridelia Montana* have no gums. It is only from *Beejaka* (*Pterocarpus marsupium*) the gum (niryasa) is available. So it is confirmed that *Asana* and *Beejaka* are only the synonyms, of one tree only. *Asana* tree being rare and *Terminalia tomentosa* being profuse everywhere, it is probable that people might have taken *Terminalia tomentosa* for its easy availability as *Asana*.

### Substitutes and Adulterants<sup>[15]</sup>

- *Terminalia tomentosa* is used as substitute in certain areas of the country.
- Dried juice of *Butea monosperma* Taub. Trunk called Bengal kinno is used as a substitute and adulterant of Indian kino.

### Properties<sup>[16]</sup>

#### Rasapanchaka

- Rasa - Kashaya, tikta
- Guna - Laghu rooksha

- Virya - Ushna
- Vipaka - Katu
- Doshaghanta - Kapha Pitta hara

#### Karma of Asana

*Keshya, Krimighna, Kushtaghna, Medohara, Pachana, Raktavikara Hara, Rasayana, Shoolaghna, Sthambhana, Twachya* these are karma of Asana.

#### Rogaghanta of Asana

*Jwara, Gala Dosha, Krimi, Kushta, Pandu, Prameha, Raktapitta Hara, Switra, Visarpa, Raktamandal Nashaka* these are Rogaghanta of Asana.

#### Asana Prayoga

1. Raktapitta- Kshara of Asana with madhuka are useful. (C.S.Ci.4)
2. Prameha- In pittaj prameha the kwath of Asana, ashwatha and patha is used. (C.S.Chi.6/32)
3. Kushta- In pitta kapha kushta the kwath of Asana, khadir and daruharidra is used. (C.S.Chi.7/101)
4. Kanthagat rakta- the kshara yoga of Asana is used. (A.S.Chi.4/30)
5. Shwitra- the kashaya of Asana, priyangu,shatpushpa is used. (A.H.Chi.20/5)
6. Sthouly- Decoction of heart-wood of Asana should be taken in the morning with honey. (V.M.)
7. Bhagandar- the kashaya of Asana, khadir, makshik is used in prameh, kushta, pitika and bhangandhar.(A.H.Utt.28/42)
8. Keshya- the kashaya of Asana, loha, sarpi, madhu, is used for bala and Krishna kasha. (A.H.Utt.39/150)
9. Rasayan- Triphala soaked and macerated in kashaya of Asana & khadira is taken with madhu&ghrita is a rasayana. (A.H.Utt.39/152)
10. Urusthambha- the kashaya prepared with Asana, vamsha, nktamal, murva, katurhini, tarkari, saptaparni and triphala is used. (B.S.Chi.14/1-3)

#### Bahya Prayoga

1. The chandanadi taila is used for Pradeh, Avagaha, parishekarth in jwar vaydhi. (C.S.Chi3/258)
2. In Urusthambha the lepa prepared with Asana, shonyak, khadir, bilva, kantakari is used. (C.S.Chi.27/56)
3. In kushta the kwath of Asana, lodhra nimba, kutaj, saptaparni and arishta is used for snan. (S.C.9/50)
4. The taila prepared with Asana and other drugs like saireyak,jambu, amra, gambhari,punarnava is used for keshya. And also this taila is used as nasya for keshya.
5. In jeerna jwar tha abhyanga is done with taila prepared by Asana and vatadipanch shirivrukhsa is used (S.Ut.39/257)
6. In timirpratished adhyay nasya of taila prepared with til taila, Asana, bhrungraj swaras is used. (A.H.Utt.13/46)
7. In urusthambha tha lepa prepared with Asana, karanj,surasa, bilva, devadaru, vaca, arjuna, tarkari and mesasingi is used.(B.S.Chi.14/8-10)
8. In shleshma visrapa the sechana is done by the kashaya prepared by Asana, palash, shonyaka, khadir and vetas.(B.S.Chi 15/31)
9. In arochaka chikitsa the kaval is given by kashaya of Asana, patol, naktamal, shirish and khadir. (B.S.Chi.21/44)
10. Taila prepared out of Asana, rasna, haridra, laksha and murva are used as karnapoorana in Raktthaja karna roga. (B.S.Chi.21/68)

#### Asana Yogas

**Table 2: Formulations of Asana and their indications**

SN	Name of the Yoga	Indication	Reference
1.	Baladi Rasayan	Rasayan	C.S.Chi.1.2/12
2.	Chandanadi Tail	Jwar	C.S.Chi 3/158
3.	Mahakhadir Ghrit	Kushta	C.S.Chi.7/152

4.	Ayaskruti	Mahakushta	S.C.10/11
5.	Vasishta rasayana	Kasa	A.H.Chi.3/133-140
6.	Somraji yoga	Rasayana	A.H.Chi.39/107
7.	Narasimha rasayana	Rasayana	A.H.Utt.39/169
8.	Loharishta	Prameha	A.S.Chi.14/16
9.	Naarsimha grita	Rasayana	A.S.Utt.49/216
10.	Vajraka ghrita	Kushta	Chakradatta 50/122-123

## CONCLUSION

*Asana* (*Pterocarpus marsupium*) is available potent medicinal plant used in disorders of different systems. It is used in *Kashaya*, *Ghrita*, *Taila* and in *Vati* formulations. It is widely known drug for the *Prameha Chikitsa*. It is used for *Prameha*, *Kushta*, *Kasa*, *Keshya*, *Pandu*, *Jwara*, *Krimi* and *gala Gat Dosha*. It is reported to contain iso-flavonoids, terpenoids and related phenolic compounds,  $\beta$ -sitosterol, lupenol, epicatechin, and aurone glycosides. Extracts of *Asana* (*Pterocarpus marsupim*) be found in various herbal preparations that are in market today. The pharmacological properties and its uses reported in this present review confirms the therapeutic value of *Asana* (*Pterocarpus marsupium*) in Ayurveda medicines.

## REFERENCES

1. Tripathi I. Rajnighantu of Pandit Narhari edited with Dravyaguna prakashika hindi commentary. 5th ed. Varanasi: Chowkhamba Krishnadas Academy; 2010, prabhadradi varga, pp.291, shloka no-133s
2. Bapalal.G.Vaidya. Nighantu Adarsha, Vol-1, Chaukhamba Bharathi Academy, Varanasi, Reprint 2007, Palasadi Varga, ,Pg no-381-384, Pp No-919.
3. P.C.Sharma, M.B.Yelne, T.J.Dennis. Data base on Medicinal Plants Used in Ayurveda, Vol-1,Central council for research in Ayurveda and Siddha,Reprint-2002, Pg no-32-42, Pp No-528.
4. Kritkar K.R & Basu B.D. Indian Medicinal Plants, Vol-1, International Book Distributors Dehradun, Edition-2008, Pg no- 686,825,828, Pp No-838.
5. Kokate, C. and Purohit, a. (2018). PHARMACOGNOSY. 5th ed. PUNE: Nirali prakashan, pp.10.4.
6. Sharma.P.C,Yelne.M.B,Dennis.T.J. Data base on Medicinal Plants Used in Ayurveda, Vol-1,Central council for research in Ayurveda and Siddha,Reprint-2002, Pg no-33, Pp No-528.
7. Mukharjee, M. and Gupta, S. (2015). *Pterocarpus marsupium*: A phytopharmacognostic study. International journal of current advanced research, 4(10), pp.461-464.
8. Badkhane, Y. and lone, S. (2010). *Perocarpus marsupium*: biological activities and medicinal properties. International journal of research in pharmaceutical science, 1(1), pp.350-357
9. Badkhane, Y. and lone, S. (2010). *Perocarpus marsupium*: biological activities and medicinal properties. International journal of research in pharmaceutical science, 1(1), pp.350-357
10. Vaidyaratnam P.S.Varrier. Indian Medicinal Plants a compendium of 500 species, Vol 4, Orient Longman, Reprint 2002, Pg no-381-383, Pp No-444.
11. Sharma.P.C,Yelne.M.B,Dennis.T.J. Data base on Medicinal Plants Used in Ayurveda, Vol-1,Central council for research in Ayurveda and Siddha,Reprint-2002, Pg no-33, Pp No-528.
12. P.C.Sharma, M.B.Yelne, T.J.Dennis. Data base on Medicinal Plants Used in Ayurveda, Vol-1,Central council for research in Ayurveda and Siddha,Reprint-2002, Pg no-32-42, Pp No-528.
13. Anonymous: Wealth Of India, A dictionary of Indian Raw materials & Industrial products Raw materials, Vol VIII ;Ph-Re, National Institute of Science Communication & Information Resources, Council of Scientific & Industrial Research, NewDelhi, India.Reprint-2005, Pg no-303-306, Pp No-394.
14. Dr. Bapalal Vaidya. Some Controversial Drugs in Indian Medicine, Chaukhamba Orientalia Varanasi, 3<sup>rd</sup> edition 2010, Pg no-153-155, Pp No-571
15. Dubey, R. and Sawant, S. (2015). Current Scenario of adultration and sustitute of medicinal plants: a

review. Journal of pharmaceutical and scientific innovation, 4(5), p.248

16. Bapalal.G.Vaidya. Nighantu Adarsha, Vol-1, Chaukambha Bharathi Academy, Varanasi, Reprint 2007, Palasadi Varga, ,Pg no-381-384, Pp No-919.

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