



## ZIZIPHUS MAURITIANA LAM.: A COMPREHENSIVE REVIEW

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### ABSTRACT

*Ziziphus mauritiana* Lam. (Badar), commonly known as Ber or Indian Jujube, is an important plant in Ayurveda. Ancient texts mention it for gastrointestinal, respiratory, gynecological, and skin conditions.<sup>[2-9]</sup> Its rasapanchaka describes madhura rasa, sheeta veerya, madhura vipaka and vatapittashamaka action.<sup>[2-4]</sup> Classical references include Atisara (diarrhea), Pravahika (bloody diarrhea), Kasa (cough), Shwasa (asthma), Jwara (fever), Raktapradara (menorrhagia), Arati (fatigue), Splenomegaly, and Masurika (pox).<sup>[2-8]</sup> Modern pharmacology supports these claims, highlighting antioxidant, antimicrobial, antidiabetic, analgesic, anti-inflammatory, sedative, hepatoprotective, and cytotoxic activities.<sup>[11-16]</sup>

**KEYWORDS:** *Ziziphus mauritiana*, Badar, Ayurveda, Pharmacology.

### INTRODUCTION

Ayurveda, the ancient science of life, emphasizes plant-based remedies for health and disease management.<sup>[1]</sup> *Ziziphus mauritiana* Lam. (Badar), belonging to the family Rhamnaceae, is widely distributed across tropical and subtropical regions.<sup>[2]</sup> It is both a nutritional and medicinal plant, used in diet and therapy since Vedic times.<sup>[3]</sup> Classical texts such as Charaka, Sushruta, and Ashtanga Hridaya describe *Badar* in the management of *Atisara*, *Kasa*, *Jwara* and other conditions<sup>[1-3]</sup>, while Nighantus like *Bhavaprakasha*, *Raja Nighantu*, *Madanpala Nighantu*, and *Dhanwantari Nighantu* further classify its varieties and therapeutic uses.<sup>[4-9]</sup>

Recent pharmacological studies confirm its antioxidant, antidiabetic, antimicrobial, and cytotoxic properties.<sup>[11-16]</sup> Globally known as “Indian jujube,” it is often compared with *Ziziphus jujuba* (Chinese jujube), but *Z. mauritiana* is more suited to hot climates and produces fruits with higher vitamin C content. Its integration into Ayurveda is not only medicinal but also nutritional, as the fruits are consumed fresh, in pickles, and fermented preparations. This dual role highlights its significance as a dietary medicine or *Pathya Ahara*, aligning with Ayurvedic principles of “food as medicine.”

## MATERIALS AND METHODS

The present work is a narrative and critical review of *Ziziphus mauritiana* Lam. (Badar). Classical Ayurvedic texts including Charaka Samhita, Sushruta Samhita, Ashtanga Hridaya, Bhavaprakasha Nighantu, Raja Nighantu, Madanapala Nighantu, Kaiyadeva Nighantu, and Dhanvantari Nighantu were consulted for descriptions on nomenclature, Rasapanchaka, Gana/Varga classification, varieties, and therapeutic uses.

For modern aspects, scientific databases including PubMed, Google Scholar, Scopus, and AYUSH Research Portal were searched using keywords: *Ziziphus mauritiana*, Badar, Indian Jujube, Ayurveda, pharmacology, phytochemistry.

## BOTANICAL & ECOLOGICAL PROFILE

- Botanical Name: *Ziziphus mauritiana* Lam.
- Family: Rhamnaceae
- Genus: *Ziziphus*
- Common Names: Badar, Ber, Indian Jujube, Chinese Date
- Parts Used: Fruits, leaves, bark, seeds, roots
- Morphology: A thorny tree, 5–15 m tall, with shiny green ovate leaves<sup>2</sup>. **Flowers** are small, greenish yellow, in axillary clusters. **Fruits** are edible, variable in shape (round, oval, oblong), 3–5 cm in size. The pulp of the fruit is mealy to juicy depending on the variety, with taste ranging from sweet to slightly acidic. Each fruit contains a single hard stone with two seeds.
- Flowering/Fruiting: November–December.<sup>[2]</sup>
- Ecology: Thrives in arid/semi-arid regions; tolerates drought and saline soils. Grows across South Asia, Africa, and Australia<sup>2</sup>. In India, it is grown commercially particularly

in Rajasthan, Madhya Pradesh, Maharashtra, and Gujarat. Ecologically, it is used in agroforestry and soil stabilization programs.<sup>[10]</sup>

- Images:

plant/tree of *Ziziphus mauritiana lam.*

Leaves & flowers.

Fruit clusters and fruit seed



### AYURVEDIC PERSPECTIVE

#### RASAPANCHAK<sup>[2-4]</sup>

Parameter	Description
Rasa	Madhura
Guna	Guru, Snigdha
Veerya	Sheeta
Vipaka	Madhura
Doshagnata	Vatapittashamaka (Charaka, Sushruta); Pittakaphashamaka (Nighantu Adarsha)

#### GANNA/ VARGA<sup>[4-9]</sup>

Nighantu	Classification
Kaiyadeva Nighantu	Aushadhi Varga
Raja Nighantu	Amradivarga
Bhavaprakasha	Amradiphalavarga
Madanpal Nighantu	Phaladivarga
Dhanwantari Nighantu	Amradivarga
Nighantu Adarsha	Badaradi Varga

#### VARITIES OF BADAR<sup>[4-9]</sup>

Nighantu	Varieties
Bhavaprakasha <sup>[3]</sup>	Sauveera, Kola, Karkandhu
Raja Nighantu <sup>[3]</sup>	Badara, Rajabadara, Bhubadara, Laghubadara
Dhanwantari Nighantu <sup>[3]</sup>	Sauveera, Kola, Karkandhu
Madanpal Nighantu <sup>[3]</sup>	Sauveera, Kola, Karkandhu
Kaiyadeva Nighantu <sup>[5]</sup>	Badara, Kola, Karkandhu, Sauveera, Sinchitaka

**KARMAS (ACTIONS)<sup>[2-8]</sup>**

The classical texts attribute multiple actions to Badar, such as: Deepana, Shramhara, Vrishya, Brimhana, Shukral, Bhedana, Dahashamana, Vranaghna, Kandughna, Sangrahi, Vishtambha, Ruchya, Balya, Hridya, Swedya, Virechya, Pachana, Kshaya, Trishna, Klama, Jwara, Atisara, Shosha, Arati, Kushta, Kshawathu, Vibandha, Shwasa, Kasa, Chhardi, Hikka.<sup>[2-8]</sup>

**THERAPEUTIC USES IN AYURVEDA**

Condition	Shloka	Translation & Use	Reference
Burning Sensation	“बदरीनिबोपोदिकाफेनं दाहे प्रशस्यते ॥”	Foam of Badari, Nimba, and Upodika cures burning.	Charaka Chikitsa 24.160
Diarrhea (Atisara)	“मूलं बदरीपलं वा मधुना सह पिबेत्।”	Root of Badari with honey useful in diarrhea.	Sushruta Uttara 40.96
Pravahika (Bloody stool)	“तिलबदरीमूलपिष्टं क्षीरमधुसंयुक्तं पिबेत्।”	Paste of Badari root + sesame + honey + milk.	Sharangdhara Samhita 2.5.20
Cough & Hoarseness	“घृतसिद्धं मरीचं वा बदरीपत्रं लवणेन च।”	Badari leaves fried in ghee with salt cures cough.	Charaka Chikitsa 18.180
Vomiting (Chhardi)	“आम्लबदरजम्बूनि पिबेत्।”	Sour Badara with Jambu checks vomiting.	Charaka Chikitsa 20.38
Splenomegaly	“बदरिपत्रलेपं तैलयुतं प्रयुञ्जीत।”	Badari leaf paste with oil applied locally.	Ashtanga Hridaya 15.90
Pox (Masurika)	“बदरचूर्णं गुडेन सह सेवनं सर्वेषु मसूरिकासु हितम्।”	Powder of Badara fruit with jaggery in pox.	Vrinda Madhava 56.27
Raktapradara	“बदरचूर्णं गुडेन सह, क्षीरलाक्षाघृतं च।”	Badara powder with jaggery, or Laksha with ghee.	Vrinda Madhava 63.12
Headache	“पिप्पलीबदरीपत्रलेपं शिरसि स्थापयेत्।”	Paste of Badari leaves + Pippali applied on head.	Gadanigraha 3.1.131
Obesity (Sthaulya)	“बदरपेयां कन्यायुक्तां स्थौल्ये हितं विद्यात्।”	Decoction of Badari leaves with Kanji in obesity.	Chakradatta 36.16

**PHYTOCHEMISTRY**

- Leaves: Flavonoids, alkaloids, glycosides, saponins, tannins, phenols.<sup>[11]</sup>
- Fruits: Vitamin C (20–50 mg/100g), carotene, sugars (sucrose, glucose, fructose), calcium, phosphorus.<sup>[11]</sup>
- Seeds: Spinosin, cyclopeptide alkaloids, beta-sitosterol, fatty acids.<sup>[12]</sup>
- Roots & Bark: riterpenes (oleanolic acid, ursolic acid, betulinic acid), tannins.<sup>[13]</sup>

Over 30 bioactive compounds have been reported. Flavonoids like quercetin and kaempferol provide antioxidant properties. Saponins contribute to expectorant activity. Spinosin, a unique flavonoid glycoside, is linked to sedative and anxiolytic effects.<sup>[14]</sup> Betulinic acid and oleanolic acid show anticancer and hepatoprotective activity.<sup>[15]</sup> Seeds contain cyclopeptide alkaloids that contribute to antimicrobial and cytotoxic potential.<sup>[16]</sup>

## PHARMACOLOGICAL ACTIVITIES

Activity	Model	Result	Ref
Antioxidant	DPPH, animal model	Strong free radical scavenging	11
Antimicrobial	In vitro	Active vs <i>E. coli</i> , <i>S. aureus</i> , <i>Candida</i>	12
Antidiabetic	Swiss mice	Reduced blood sugar by 44% in 3 hrs	13
Sedative/Anticonvuls.	Mice	Prolonged sleep, reduced seizures	14
Analgesic/Anti-inflam	Writhing model	Reduced pain and swelling	15
Hepatoprotective	Animal model	Protected liver from toxins	15
Thrombolytic	In vitro	Dissolved 34% blood clots	15
Cytotoxic	Brine shrimp assay	Strong anticancer potential (LC <sub>50</sub> =1.46 µg)	16

## DISCUSSION

\**Ziziphus mauritiana*\* has been described in Ayurveda as a multipurpose drug effective in digestive, respiratory, gynecological, skin, and systemic diseases.<sup>[2-8]</sup> Its properties like Deepana, Brimhana, Shukral, Vrishya, Balya and Vranaghna justify its wide usage. Modern research validates its antioxidant, antimicrobial, hypoglycemic, analgesic, anti-inflammatory, sedative, and cytotoxic actions.<sup>[11-16]</sup>

## CONCLUSION

*Ziziphus mauritiana* (Badar) is widely mentioned in Ayurvedic texts for disorders like diarrhea, cough, splenomegaly, and bleeding conditions. Modern research confirms its antioxidant, antimicrobial, antidiabetic, and anti-inflammatory activities, supporting these classical claims. Its nutritional value and rich phytochemistry add to its importance. With proper standardization and clinical validation, Badar has strong potential for safe and effective use in modern healthcare.

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