



**INTERNATIONAL JOURNAL OF
PHARMACEUTICAL SCIENCES**
[ISSN: 0975-4725; CODEN(USA): IJPS00]
Journal Homepage: <https://www.ijpsjournal.com>



Review Article

A Review on Parts of SHIRISH (*Albizia lebbeck* (L. Benth.) used as Ayurvedic Drugs

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ARTICLE INFO

Published: 18 May 2026

Keywords:

Shirish, *Albizia lebbeck*, anti-infective, wound healing, Ayurveda, phytoconstituents, medicinal plant.

DOI:

10.5281/zenodo.20272257

ABSTRACT

Albizia lebbeck (commonly known as Shirish or Siris) is an important medicinal plant belonging to the Fabaceae family. It has been extensively used in Ayurveda for centuries in the management of respiratory, allergic, and skin disorders, as well as for detoxification against poisons. Rich in flavonoids, tannins, and saponins, it exhibits a wide range of pharmacological activities such as anti-inflammatory, anti-asthmatic, antioxidants, antimicrobial, wound healing, and immunomodulatory effects. The bark, leaves, seeds, flowers, and pods are employed in multiple dosage forms including decoctions, powders, and avaleha. Special emphasis is placed on its anti-infective and wound-healing potential, which makes it highly valuable for modern drug development. This review highlights its taxonomy, synonyms, phytochemical composition, medicinal uses, and therapeutic prospects.

INTRODUCTION

Medicinal plants have played a vital role in the prevention and treatment of human diseases since ancient times. The World Health Organization (WHO) estimates that nearly 80% of the World's population relies on herbal medicine for primary healthcare needs. India, with its rich biodiversity and heritage of Ayurveda, Siddha, and Unani systems of medicine, possesses a vast repository of medicinal plants that continue to be a cornerstone

of both traditional and modern therapeutic practices.

Among these valuable plants, *Albizia lebbeck* (L.) Benth., commonly known as Shirish, occupies a unique place due to its versatile medicinal applications. Belonging to the family Fabaceae, Shirish is a large deciduous tree widely distributed in the Indian subcontinent, tropical Asia, and Africa. In Ayurvedic texts such as the Charaka Samhita and Sushruta Samhita, Shirish is described as a potent "Vishaghna" (antitoxic herb)

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Relevant conflicts of interest/financial disclosures: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.



and is included in the category of Dashamoola (ten important roots used in classical formulations). It has been used in the management of poisoning, respiratory disorders, fever, and skin diseases for centuries.



Figure 1. Shirish Plant

The plant has gained significant attention in modern pharmacological studies, which have validated many of its traditional claims. Phytochemical investigations reveal the presence of flavonoids, saponin, tannins, alkaloids, and terpenoids, all of which contribute to its wide spectrum of biological activities. These bioactive compounds are responsible for anti-inflammatory, antioxidant, antimicrobial, anti-allergic, immunomodulatory, wound healing, and hepatoprotective effects.

Of particular importance are its anti-infective and wound healing properties. The extracts of bark and seeds exhibit strong activity against bacterial and fungal pathogens such as *Staphylococcus aureus*, *Escherichia coli*, and *Candida albicans*. Simultaneously, its wound-healing ability is supported by enhanced collagen synthesis, granulation tissue formation, and epithelialization, which promote faster recovery and reduce infection risks. This makes Shirish not only a preventive but also a curative herb for both systemic and localized conditions.

In addition to its therapeutic significance, *Albizia lebbek* also has ecological value. It is used as a shade tree, soil enricher due to nitrogen-fixing ability, and for timber and fodder. However, its primary importance lies in its medicinal role, where it bridges the gap between ancient Ayurvedic wisdom and modern evidence-based pharmacology.

The current review aims to provide a comprehensive account of Shirish, covering its taxonomy, synonyms, phytochemical profile, medicinal properties, anti-infective and wound-healing potential, traditional uses, dosage forms, and future prospects. By integrating classical references with modern scientific findings, this article highlights Shirish as a promising candidate for the development of novel herbal formulations in combating infectious diseases and promoting wound management in an era of rising antimicrobial resistance.

Taxonomy

Table 1 : Taxonomical Classification of *Albizia lebbek*

Rank	Classification
Kingdom	Plantae (Plants)
Subkingdom	Tracheobionta (Vascular plants)
Superdivision	Spermatophyta (Seed plants)
Division	Magnoliophyta (Angiosperms)
Class	Magnoliopsida (Dicotyledons / Eudicots)
Subclass	Rosidae
Order	Fabales
Family	Fabaceae (Leguminosae)
Subfamily	Mimosoideae
Tribe	Ingeae
Genus	<i>Albizia</i> Durazz
Species	<i>Albizia lebbek</i> (L.) Benth



Figure 2. Shirish Plant Seeds



Figure 3. Shirish plant flower and leaves

➤ Synonyms

- [1] **Sanskrit:** Shirish, Phalgu, Dirghapatra
- [2] **Hindi:** Siris
- [3] **English:** Lebbeck tree, Woman's tongue tree, Frywood
- [4] **Other regional names:** Kakad Siras, Vaka

➤ Phytoconstituents

- [5] **Flavonoids:** Quercetin, Kaempferol
- [6] **Saponins:** Albiziasaponins A, B
- [7] **Alkaloids:** Albizine
- [8] **Tannins:** Condensed tannins, Gallic acid
- [9] **Terpenoids:** Oleanolic acid, Betulinic acid
- [10] **Others:** Fixed oils, proteins, phenolic compounds

➤ Collection of Shirish

1. Plant Parts Used

Different parts of the plant for medicinal and economic purposes:

- Bark (most commonly used in medicine)
- Leaves
- Flowers
- Seeds

2. Time of Collection

Bark: Best collected during the dormant season when metabolic activity is low.

Leaves and flowers: Collected during the flowering phase for maximum potency.

Seeds: Harvested when pods become dry and mature, typically in late winter.

3. Collection Techniques

Bark should be removed in strips without damaging the entire circumference of the tree to avoid plant death.

Pods are handpicked or collected after natural drying.

Collected materials must be cleaned and dried under shade to preserve their active constituents.

4. Sustainable Practices

Avoid overharvesting from a single tree.

Ensure regeneration by leaving sufficient plant material.

Promote cultivation to reduce pressure on wild populations.

➤ Cultivation of Shirish



1. Climate Requirements

Shirish grows well in:

Tropical and subtropical climates.

Regions with moderate rainfall.

Areas experiencing both dry and humid conditions

It is highly tolerant to drought and can survive in harsh environmental conditions.

2. Soil Requirements

Can grow in a wide variety of soils including poor and degraded soils.

Prefers well – drained sandy loam soils for optimal growth.

Capable of improving soil fertility due to nitrogen fixation.

3. Land Preparation

The land should be ploughed thoroughly to loosen the soil.

Pits of moderate size are prepared and filled with organic manure.

Proper spacing should be maintained to allow canopy development.

4. Planting Method

Seedlings raised in nurseries are transplanted into the field.

Transplantation is done when seedlings reach adequate height and strength.

Planting is generally carried out at the beginning of the rainy season.

5. Irrigation

Young plants require regular watering for proper establishment.

Mature trees can tolerate dry conditions and require minimal irrigation.

6. Nutrient Management

Organic manure such as farmyard manure is sufficient.

Chemical fertilizers are rarely needed due to the plant's nitrogen-fixing ability.

7. Weed and Pest Control

Regular weeding is necessary during early growth stages.

The plant is relatively resistant to pests and diseases.

➤ Propagation of Shirish

1. Seed Propagation

This is the most common and reliable method.

Seed Characteristics

Seeds have a hard coat, which causes dormancy.

Pre-treatment Methods

Soaking seeds in hot water or mechanically scarifying them helps improve germination.

Pre-treated seeds germinate faster and more uniformly.

Sowing

Seeds are sown in nursery beds or containers.



Germination usually occurs within 1–2 weeks under favorable conditions.

2. Vegetative Propagation

Includes methods like stem cuttings and grafting.

Less commonly used but helpful for maintaining genetic uniformity.

➤ Harvesting of Shirish

1. Maturity and Harvesting Time

Trees become suitable for harvesting after several years of growth.

The timing depends on the plant part required.

2. Harvesting Methods

Bark: Carefully removed in limited portions to prevent damage.

Leaves and flowers: Collected manually during their respective seasons.

Pods and seeds: Gathered after drying on the tree.

3. Post-Harvest Processing

Plant materials are dried in shade to prevent degradation

Stored in dry, well-ventilated conditions

Protection from moisture and pests is essential for maintaining quality

➤ Medicinal Uses

1. **Respiratory Disorders** – Asthma, bronchitis, allergic rhinitis.

2. **Skin Diseases** – Eczema, itching, microbial skin infections.

3. **Antitoxic Effects** – Antidote for insect, plant, and snake poisoning.

4. **Fever & Infections** – Used in malarial and infectious fevers.

5. **Antioxidant & Immunomodulatory** – Protects from oxidative stress and enhances immunity.

6. **Gastrointestinal Disorders** – Helpful in diarrhea, piles, abdominal pain.

7. **Neuroprotective** – Reduces stress, anxiety, and depression.

8. **Anti-infective** – Active against bacteria (*Staphylococcus aureus*, *E. coli*), fungi (*Candida albicans*), and parasites.

9. **Wound Healing** – Promotes wound contraction, epithelialization, and collagen deposition.

➤ Anti-Infective Potential

Antibacterial: Extracts of bark and seeds show activity against Gram-positive and Gram-negative bacteria such as *Staphylococcus aureus*, *Escherichia coli*, and *Pseudomonas aeruginosa*.

Antifungal: Seed oil and bark extracts inhibit the growth of *Candida albicans* and dermatophytes causing skin infections.

Antiparasitic: Used traditionally against intestinal worms and protozoan infections.

Mechanism: Antimicrobial activity is attributed to flavonoids, tannins and saponins, which disrupt microbial cell walls, inhibit enzymes, and neutralize toxins.

Wound Healing Potential



Traditional Use: Decoctions of bark and paste of leaves are applied externally for wounds, ulcers, and skin infections.

Pharmacological Evidence:

- Ethanolic extracts accelerate wound contraction in animal models.
- Increased collagen synthesis and granulation tissue formation observed.
- Antioxidant activity aids in faster epithelialization and reduces inflammation.

Active Constituents: Flavonoids and triterpenoids contribute to tissue regeneration, while tannins provide astringent and antimicrobial actions.

Parts of Plant Used & Dosage Preparation:

Bark: Decoction for cough, fevers, and wound wash.

Seeds: Powder for skin diseases, respiratory illness, and microbial infections.

Leaves: Paste for wounds, ulcers, and topical allergies.

Flowers: Used in formulations for skin and respiratory disorders.

Pods: Sometimes given in digestive disorders.

Common Ayurvedic Preparations:

- Shirisha Avaleha (for asthma and allergies)
- Panchshirish Agada (for poisoning)
- Bark decoction (for infections and wound cleansing)

CONCLUSION

Albizia lebbbeck (Shirish) is a remarkable medicinal plant extensively valued in both traditional Ayurvedic medicine and modern phytotherapy. From ancient texts such as Charaka Samhita and Sushruta Samhita to contemporary pharmacological studies, Shirish has been recognized for its broad therapeutic spectrum. Its phytoconstituents including flavonoids, saponins, tannins, and terpenoids are responsible for diverse pharmacological actions like anti-inflammatory, anti-allergic, antioxidant, antimicrobial, wound healing, and immunomodulatory effects.

The anti-infective potential of Shirish lies in its ability to inhibit the growth of Gram-positive and Gram-negative bacteria, fungi, and parasites, making it useful against common pathogens responsible for respiratory, gastrointestinal, and skin infections. The wound healing activity is attributed to its capacity to promote faster wound contraction, collagen synthesis, and epithelialization while reducing microbial contamination at the wound site. This dual property of being antimicrobial and regenerative makes Shirish highly valuable for infected wounds, ulcers, and dermatological disorders.

In Ayurveda, multiple formulations such as Shirisha Avaleha and Panchshirisha Agada have utilized its detoxifying and therapeutic properties. Modern research supports these uses, particularly in the management of asthma, allergies, microbial infections, and wound healing. Given its wide pharmacological profile, *Albizia lebbbeck* holds great promise for developing novel herbal formulations, especially as natural alternatives to synthetic antimicrobials and wound-healing agents. However, further clinical trials, standardization of extracts, and mechanistic studies are essential to establish its efficacy, safety, and dosage optimization. Sustainable



cultivation and conservation of this species are also important to ensure its availability for both medicinal and ecological purposes.

Thus, Shirish is not only a traditional healer's remedy but also a modern pharmacological resource that bridges the gap between ancient wisdom and contemporary medicine.

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HOW TO CITE: Gayatri Upase, Aishwarya Basugade, Anuradha More, Sushil Sarvadgod, Dr. D. R. Jadage, A Review on Parts of SHIRISH (*Albizia lebbeck* (L. Benth.) used as Ayurvedic Drugs, *Int. J. of Pharm. Sci.*, 2026, Vol 4, Issue 5, 4615-4621. <https://doi.org/10.5281/zenodo.20272257>

