

# BHUMI AMLA (PHYLLANTHUS NIRURI LINN.): AN INTEGRATIVE AYURVEDIC AND PHARMACOLOGICAL REVIEW OF ITS ROLE IN LIVER DISORDERS AND DIABETES MELLITUS

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## ABSTRACT

Bhumi Amla (*Phyllanthus niruri* Linn.) is a classical medicinal plant extensively used in Ayurveda for the management of liver disorders, metabolic diseases, and urinary ailments. Traditionally indicated in Yakrit Roga, Kamala, Prameha, and Agnimandya, the plant has gained global attention due to growing scientific evidence supporting its hepatoprotective, antiviral, antioxidant, and antidiabetic properties<sup>1–3</sup>. The present review aims to provide a comprehensive and integrative account of Bhumi Amla by correlating its Ayurvedic attributes with contemporary pharmacological findings. Detailed emphasis is laid on its botanical identity, phytochemical constituents, mechanisms of action in liver diseases and diabetes mellitus, clinical relevance, dosage forms, safety profile, and drug–herb interactions. The review underscores Bhumi Amla as a promising natural therapeutic agent capable of bridging traditional knowledge with modern biomedical science<sup>4,5</sup>.

**Keywords:** Bhumi Amla, *Phyllanthus niruri*, Hepatoprotective, Diabetes Mellitus, Dravyaguna, Integrative Medicine

## INTRODUCTION

Liver diseases and diabetes mellitus constitute major global health challenges, significantly contributing to morbidity and mortality worldwide<sup>6,11</sup>. Modern pharmacotherapy, though effective, is often associated with adverse effects, high cost, and long-term dependency. This has led to renewed interest in traditional systems of medicine, particularly Ayurveda, which emphasizes disease prevention, metabolic balance, and organ protection through herbal formulations<sup>1,2</sup>.

Bhumi Amla (*Phyllanthus niruri* Linn.) occupies a prominent place in Ayurvedic therapeutics for disorders involving Pitta Dosha, Rakta Dhatu, Yakrit (liver), and Medovaha Srotas<sup>1</sup>. Classical Ayurvedic texts recommend Bhumi Amla in Kamala (jaundice), Pandu, Prameha, Mutrakricchra, and Vishaja Vikara<sup>1,2</sup>. Its bitter and astringent taste, along with its detoxifying nature, makes it especially useful in metabolic and hepatic dysfunctions.

Recent pharmacological investigations have validated many of these traditional claims, demonstrating hepatoprotective, antiviral (particularly against Hepatitis B virus), hypoglycemic, antioxidant, and anti-inflammatory effects<sup>3–7</sup>. This review attempts to critically elaborate on the therapeutic potential of Bhumi Amla through an integrative lens.

## BOTANICAL DESCRIPTION AND TAXONOMICAL CLASSIFICATION

**Scientific Name:** *Phyllanthus niruri* Linn.

**Family:** Phyllanthaceae

The taxonomical classification and morphological

description of *Phyllanthus niruri* have been well documented in classical pharmacognosy literature and WHO monographs<sup>2,8,9</sup>.

Bhumi Amla is a small, erect, annual herb measuring 10–70 cm in height. The stem is slender and green, bearing numerous lateral branches. Leaves are simple, elliptic-oblong, arranged distichously, giving the appearance of a pinnate compound leaf. Flowers are minute, greenish-white, unisexual, and axillary. Fruits are smooth, globose capsules borne beneath the leaves, a distinctive feature responsible for its common name “seed-under-leaf”<sup>2,9</sup>.

## Ayurvedic Properties (Dravyaguna Perspective)

The Ayurvedic pharmacodynamic profile of Bhumi Amla is described extensively in Dravyaguna classics<sup>1,2</sup>.

The Tikta–Kashaya Rasa contributes to detoxification and metabolic regulation, while Sheeta Virya pacifies aggravated Pitta, making Bhumi Amla particularly beneficial in inflammatory liver disorders and metabolic syndromes<sup>1</sup>.

## Phytochemical Constituents

Phytochemical investigations have revealed the presence of multiple bioactive compounds in *Phyllanthus niruri*, which act synergistically to produce therapeutic effects<sup>3,4,7</sup>.

Lignans such as phyllanthin and hypophyllanthin are primarily responsible for hepatoprotective and antiviral activity<sup>4,5</sup>. Flavonoids including quercetin, rutin, and kaempferol contribute to antioxidant and insulin-sensitizing effects<sup>6,11</sup>. Tannins like corilagin and geraniin exhibit antiviral and anti-inflammatory actions<sup>3,7</sup>.

## ROLE OF BHUMI AMLA IN LIVER DISORDERS

### Ayurvedic View

In Ayurveda, liver disorders are primarily associated with Pitta Dushti and Rakta Dhatu imbalance. Bhumi Amla, due to its Pittashamana and Raktashodhana properties, restores hepatic function and corrects metabolic toxins (Ama)<sup>1,2</sup>.

### Hepatoprotective Pharmacology

Experimental and clinical studies have demonstrated that Bhumi Amla stabilizes hepatocyte membranes, prevents toxin-induced oxidative damage, and normalizes elevated liver enzymes such as AST and ALT<sup>10,12</sup>. Its antiviral action against Hepatitis B virus has been attributed to inhibition of viral DNA polymerase<sup>5</sup>.

Clinical studies also suggest its beneficial role in fatty liver disease and non-alcoholic steatohepatitis through improvement of lipid metabolism and reduction of hepatic steatosis<sup>13</sup>.

### BHUMI AMLA IN DIABETES MELLITUS

#### Ayurvedic Correlation

Prameha is described as a Santarpanajanya Vyadhi involving Meda and Mutravaha Srotas. Bhumi Amla corrects Agni, reduces excessive Kleda, and improves metabolic efficiency<sup>1,2</sup>.

#### Antidiabetic Actions and Mechanisms

Several experimental studies have confirmed the hypoglycemic activity of *Phyllanthus niruri*, showing reduction in fasting and postprandial blood glucose levels<sup>6,11,15</sup>. The herb acts as a natural  $\alpha$ -amylase and  $\alpha$ -glucosidase inhibitor, delays carbohydrate digestion, enhances insulin sensitivity, and protects pancreatic  $\beta$ -cells from oxidative stress<sup>6,11</sup>.

#### DOSAGE AND THERAPEUTIC USE

The dosage forms and therapeutic use of Bhumi Amla are described in Ayurvedic Pharmacopoeia and classical texts<sup>1,14</sup>.

#### Safety Profile and Drug–Herb Interactions

Bhumi Amla is generally safe when used judiciously; however, caution is advised in patients receiving antidiabetic, antihypertensive, or anticoagulant therapy due to possible additive effects<sup>11,15</sup>.

### CONCLUSION

Bhumi Amla (*Phyllanthus niruri* Linn.) emerges as a potent hepatoprotective and antidiabetic medicinal plant with strong roots in Ayurvedic wisdom and growing validation through modern scientific research<sup>1-5</sup>. Its multitargeted pharmacological actions, safety profile, and affordability make it a valuable adjunct in the management of liver disorders and diabetes mellitus. Further large-scale clinical trials and standardization studies are essential to establish its role as a mainstream therapeutic agent in integrative

healthcare<sup>8,13</sup>.

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