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Unlocking the Power of *Phyllanthus niruri* - Nature's Hidden Gem

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Abstract

In the world of herbal remedies and natural medicine, few plants have captured the imagination of researchers and wellness enthusiasts quite like *Phyllanthus niruri*. Known by a variety of common names, including 'stone-breaker', 'chanca piedra', and 'gale of the wind', this unassuming herb has a rich history of use in Ayurveda and traditional Chinese medicine across the globe primarily for its beneficial effects on kidney health, including kidney stone prevention and the promotion of their natural passage. In recent years, it has gained significant attention for its potential health benefits and therapeutic properties. It boasts a nutritional profile rich in protein, carbohydrates, vitamins and minerals. Incorporating *P. niruri* into one's wellness routine can be achieved through dietary supplements, herbal teas, tinctures or traditional recipes. *P. niruri* represents a valuable botanical resource with diverse health benefits, warranting careful consideration for its optimal utilization in holistic well-being approaches.

1. The Botanical Marvel

P. niruri which originated in India usually occurs as a winter weed throughout the tropical and subtropical regions, including parts of India, China, South America and the Caribbean area of the Southern United States. It is a small annual herb of *Phyllanthaceae* family growing 10-60 cm in height. The plant is characterized by its delicate, green leaves and small, inconspicuous flowers. *Phyllanthus* means "leaf and flower" because the flower as well as the fruit, seem to become one with the leaf. The main stem of the herb is either simple or branched and terete smooth or scabrous in younger parts. The nutritional and phytochemical components of the plant including its fruits and seeds contain moderate amount of protein, rich in carbohydrates, low in fat and crude fiber. It is rich in other constituents including Mg, Ca, K, P, ascorbic acid, Fe, Zn, thiamine, niacin and riboflavin (Ghosh et al., 2022). In India usually it grows during the second week of June and starts bearing fruits up to mid-July or August. It can remain so until the end of the rainy season or can even survive upto mid-winter under congenial conditions. The plant has different names in different languages viz.,

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holpholi (Assamese), *bhuiamla* or *saadhazurmani* (Bengali), *bhonyaamali* (Gujarati), *bhumi amla* or *bhuiavvalah* (Hindi), *bhumyalaki* (Konkani), *kijhandli* (Malayalam), *ray avail* or *bhuiavala* (Marathi), *narakoli* (Oria), *bhoodatri* (Sanskrit), *aru* (Tamil), *nela usiri* (Telugu) etc.



Figure 1: (From left clock-wise) – Whole plant, flowers and fruits of *P. niruri*

2. Health Benefits

The extract of *P. niruri* is the most commonly used treatment in Ayurveda system of medicine and has especially been recommended for treatment of bronchitis, anaemia, skin diseases, asthma, cough, liver, kidney and urinary tract disorders (Dahanayake et al., 2020). Different classes of organic compounds have been reported with various medical interests, majority of which are lignans, tannins, polyphenols, alkaloids, terpenoids, flavonoids etc. (Table 1)

2.1. A Powerful Ally for Kidney Health

P. niruri has a long history of use in traditional healing systems such as ayurveda and traditional Chinese medicine (Couto et al., 2013). One of the primary traditional uses of *P. niruri* is its potential to support kidney health. For centuries, it has been employed as a natural remedy to help break down kidney stones and prevent their formation. In fact, its common name, “stonebreaker,” is a testament to this specific use. *P. niruri* can inhibit the growth of crystals in the urinary tract, making it easier for the body to naturally pass kidney stones by interfering with the crystallization process and promoting the relaxation of the urinary tract, which can help ease the painful passage of stones (Pucci et al., 2018).

2.2. Detoxification and Liver Health

Beyond its kidney-related benefits, *P. niruri* has shown promise in supporting liver health and detoxification

Table 1: List of organic compounds isolated from *P. niruri* (Narendra et al., 2012)

Sl. No.	Type of organic compound	Source
1.	Alkaloids • 4-methoxy-nor-securin • nirurin • nor-securin	Stem, aerial plant, roots Whole plant roots
2.	Lignans • Phyllanthin • Niranthin • Hydroxy niranthin • Nirphyllin	leaves and aerial parts leaves Leaves aerial parts
3.	Coumarins, tannins and other polyphenols • Gallic acid • Brevifolin carboxylic acid • Geraniin • Amarulone	Root culture Leaves Plant Plant
4.	Lipids • Ricinoleic acid • Estradiol	Seed oil Plant

(Campos et al., 1999). The liver is a vital organ responsible for filtering toxins and metabolizing various substances in the body. Studies have indicated that this herb may help protect the liver from damage and promote its overall well-being. *P. niruri* contains a range of bioactive compounds, including flavonoids and alkaloids, which contribute to its hepatoprotective (liver-protective) properties. These compounds may help reduce oxidative stress, inflammation, and liver injury, making it a potential natural remedy for individuals seeking to maintain their liver health.

2.3. Antiviral and Antioxidant Properties

In addition to its well-documented effects on kidney and liver health, *P. niruri* also possesses various other medicinal properties including anti-viral and anti-oxidant properties. It can combat various viral infections, including hepatitis B and HIV, by inhibiting viral replication. Furthermore, the plant's antioxidant properties make it a valuable tool in the fight against free radicals and oxidative stress. Antioxidants help neutralize harmful molecules in the body, potentially reducing the risk of chronic diseases and supporting overall well-being of human beings. Besides, it is also credited with other medicinal properties including analgesic, antimutagenic, anti-inflammatory, hepatoprotective, antilithic, antispasmodic, antiviral antibacterial, antioxidant, diuretic, hypoglycaemic and

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anticancer properties as well as in treating jaundice (Narendra et al., 2012).

2.4. Others

In addition to the above benefits, several other activities viz., immune modulatory actions, anti-fertility activity, anti-microbial activity, anti-malarial activity, nematocidal activity, analgesic activity etc. have been demonstrated under *in-vitro* studies (Narendra et al., 2012)

3. How to Incorporate *P. niruri* into Our Wellness Routine

There are various ways to incorporate it into your wellness routine (Figure 2):

- Dietary Supplements: *P. niruri* supplements are readily available in the form of capsules, extracts, or powders. However, they have to be taken in consultation with a healthcare professional before adding any new supplement to the regimen.
- Herbal Teas: One can brew a soothing herbal tea using dried *P. niruri* leaves by simply steeping a teaspoon of dried leaves in hot water for a few minutes followed by straining before consumption.
- Tinctures: Tinctures are concentrated liquid extracts that can be taken orally as per the dosage recommended by the physician. They are available at many health food stores and online retailers.
- Traditional preparation: Traditional recipes from Ayurveda such as *kashayam* (water decoction), *thambuli* (water/buttermilk-based) or traditional Chinese medicine that incorporate *P. niruri* can be explored for inclusion in the routine.



Figure 2: Commercially available forms of *P. niruri* (from left to right) – dietary supplements, herbal tea and tincture drops

4. Conclusion

P. niruri is undoubtedly a botanical marvel with a rich history and a promising future in the world of natural medicine. From its potential to support kidney and liver health to its antiviral and antioxidant properties, this unassuming herb has much to offer those seeking holistic approaches to well-being. While *P. niruri* is generally considered safe, as with any natural remedy, it's essential to approach it with knowledge and care, consulting healthcare professionals as needed to harness its full potential.

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