Phyllanthus amarus Schum. & Thonn.

Synonyms: *Phyllanthus fraternus* auct. non Webster

Phyllanthus niruri sensu Hook. f., non L.

Family: Euphorbiaceae

Various names

Common/Trade names: Bhumi amla, Phyllanthus

Sanskrit names: Bahupatra, Bhumi amalaki

Hindi name: Jangli amli, Jaramla

Popular name/s in the southern region

- *Andaman & Nicobar Islands*: Not recorded
- *Andhra Pradesh*: Nela usiri, Triphalamu
- *Karnataka*: Kiru nelli, Nela nelli
- *Kerala*: Keezhanelli, Kizhakkainelli
- *Lakshadweep*: Keezhanelli, Kizhakkainelli
- *Puducherry*: Keezhanelli
- *Tamil Nadu*: Keezhanelli
- *Telangana*: Nela usiri, Triphalamu

Distribution

Phyllanthus amarus is native of America and now distributed in most of the tropical regions of the world. In India it is distributed mainly in tropical and sub tropical parts.

Description

Erect herbs to 30 cm tall. Leaves simple, 6-8 × 3-4 mm, oblong, apex obtuse to acute, base unequal sided, lower surface glaucous; stipules lanceolate, scarious. Male flowers towards tip of branchlets, solitary, axillary; tepals 5, ovate; stamens 3, exserted. Female flowers c. 1.5 mm across; tepals 5, oblong; ovary globose. Capsule c. 2 mm across, globose; seeds 6, trigonous, vertically muriculate.

Uses

The plant is widely used to tone-up sluggish liver and also given in chronic liver condition and jaundice. Used as diuretic, cooling and astringent. In recent studies, the herb and its root have exhibited antiviral actions on Hepatitis-B.

Agro ecological requirements

It grows well as a rain-fed crop under semi temperate to tropical conditions at up to 800 m altitude and tolerates water logging. Plant growth is restricted under shade. The plant is well adapted to calcareous, well drained sandy loamy/black soil with pH of 6.5 to 7.5.

Cultivation

Planting stock production: *P. amarus* is propagated through seeds. Seeds are 0.8 mm long, trigonous, brown, with 6-7 straight parallel longitudinal ribs on back. Direct seeding results in poor stands and therefore, seeds are sown in April-May in nursery beds mixed with farmyard manure. Germination of freshly collected seeds is slower than older seeds. Soaking the seeds in fresh water for 20-30 minutes before sowing or treatment with Giberllic Acid 200 ppm for 6 hours would help in increased germination. Adequate moisture is maintained until seedlings are ready for planting. For a hectare, 1 kg seeds are sufficient. The seeds germinate in about a week and are maintained up to 20 days.

Improved varieties: Kayakirti, Navyakrit and CIM-Jeevan (Developed by CIMAP, Lucknow)

Field planting: Plough the land twice or thrice and level the top soil, Seedlings that are 3-4 week old and 10-15 cm tall are transplanted at 15-25 × 10-20 cm spacing during the rainy season. A proper irrigation just after transplanting ensures establishment of seedlings.

Manuring: For good vegetative growth farmyard manure is applied based on soil analysis during land preparation.

Weeding: The crop needs hand weeding at 30 and 60 days interval after planting.

Irrigation: Irrigation is required during dry season if monsoon rains is scanty. Sprinkler irrigation required once in every 10-15 days.

Pests and Diseases: Powdery mildew disease occurs during rainy season. This is controlled by spraying biopesticides like Azadirachtin, *Trichoderma viride*, *Pseudomonas chlororaphis* etc.

Harvesting and Post harvesting processes

The crop matures in 80-90 days and can be harvested. The plant has maximum active chemical ingredients during fruiting. However, seeds collection is done after 110-120 days old crop. Plants in September will contain highest amount of leaves and is the suitable time for harvesting. Whole plant is pulled manually and shade dried. The dried herb is stored in polythene lined gunny bags at cool, well ventilated go downs.

Yield

Approximately 2-3 tonnes of bio mass per hectare on drying.

Economics of cultivation

Cost of cultivation: ₹ 10,000 per hectare.

Market price: *Whole plant* - ₹ 50/kg. (As on June 2019)

Quantitative qualitative standards (acceptable limits)

- *Foreign matter:* Not more than 2.0 %
- *Ash:* Not more than 12.5 %
- *Acid-insoluble ash:* Not more than 6.0 %
- *Ethanol-soluble extractive:* Not less than 6.0 %
- *Water-soluble extractive:* Not less than 9.0 %

***Note*:** The farmers are advised to adopt suitable practices so as to meet the quality parameters and standards of the buyers.