Aloe vera (L.) Burm.f.

Synonym: *Aloe barbadensis* Mill.

Family: Liliaceae

Various names

Common/Trade name: Indian aloe

Sanskrit name: Kumari

Hindi names: Ganwar-patho, Ghee-ganwar, Gwar patta

Popular name/s in the southern region

- *Andaman & Nicobar Islands*: Ganwar-patho, Ghee-ganwar, Gwar patta
- *Andhra Pradesh*: Kalanbanda
- *Karnataka*: Lole
- *Kerala*: Kattarvazha
- *Lakshadweep*: Kattarvazha
- *Puducherry*: Sotru katrazhai
- *Tamil Nadu*: Sotru katrazhai
- *Telangana*: Kalanbanda

Distribution

Natural stands of *Aloe vera* occur in the southern half of Arabian Peninsula, through North Africa, as well as Sudan. It mainly grows in the tropical and subtropical areas. It is cultivated throughout India.

Description

Perennial succulent herbs with short stem which produce suckers at the base. Leaves are clustered at the base, to 30 × 2-4 cm, ensiform, thick, fleshy, and sparsely dentate on margins. Flowers are borne in terminal racemes; peduncles to 1 m long. Flowers reflexed, reddish; pedicels to 1 cm long. Perianth tubular, 2.5-3 cm long, lobes 6, almost equalling the tube. Ovary 8 mm long, ovoid 3-loculed with many ovules in each locule; style elongated and stigma obscurely 3-lobed. Fruit is a capsule about 1.5 cm long.

Uses

Primary use is in cosmetic industry for preparation of shampoo, face creams, moisturizing agents. It is also used in Ayurveda, Siddha, Chinese medicines. The leaves and root of *Aloe vera* are used in the form of juice to treat spleen enlargement, epilepsy, inflammation in penis, abscess, jaundice and headache.

Agro-ecological requirements

A. vera naturally occurs in the driest and poorest soils and can be grown in a variety of soils, the ideal soil is slightly alkaline with pH upto 8.5. The root system is shallow and does not penetrate deep into the soil. Waterlogged soil and temperate climate are unsuitable.

Cultivation

Planting-stock production: *Aloe vera* is normally propagated through root suckers. About 15-18 cm long root suckers are planted by keeping two third portion under the ground. 10,000 to 25,000 suckers are required for planting in one hectare of land. Spacing of 45 × 45 cm to 90 × 90 cm is practiced in planting. Depending on the soil type and agro-climatic conditions, 1-2 ploughing followed by leveling are recommended. Planting can be done during two seasons (June - July, September - October) to get better field survival and subsequent growth. However, under irrigated conditions planting can be done round the year except during winter months.

Improved varieties: "IC-111271, IC-111280 (NBPGR, New Delhi); RLAV -18, CIM – Sheetal (CIMAP, Lucknow).

Irrigation: *A. vera* requires minimal water; soon after planting, the land shall be irrigated.

Manure and fertilizer: Use of farmyard manure 12-15 tonnes per hectare and cow dung 5-10 tonnes per hectare are recommended at the time of land preparation.

Diseases/pests: Leaves affected by mealy bug's result in yellowing and withering. It can be controlled by spraying powder of *Verticillium lecanii* (2 kg/ha) mixed in water. Anthracnose causes many diseases such as dieback, twig cankers, blotches, defoliation and shoot blight. Spraying of 70% neem oil helps to cure from this disease.

Harvesting & Post-harvest processing

Commercial yield is available from second year to fifth year of planting. After 5 years it needs replanting. Older leaves are harvested. The plants can be removed manually or with the help of a tractor drawn disc harrow or cultivator. The juice is drained from the cut leaves into suitable vessels or squeezed or grind to get the gel. Water entered in the juice is reduced through evaporation, most frequently by boiling.

Yield

Yield Leaves(kg): 1st Year: 7000, 2nd Year: 15000, 3rd Year: 15000, 4th Year: 16000, 5th Year: ₹ 15600

Yield of suckers(No's): 1st Year: 0.0, 2nd Year: 11000, 3rd Year: 16000, 4th Year: 16000, 5th Year: ₹ 16000

Economics of cultivation

Cost of cultivation: 1st Year: ₹1,40,000, 2nd Year: ₹60,000, 3rd Year: ₹47,000; 4th Year: ₹ 47,000, 5th Year: ₹47,000

Market Price: *Leaves*- ₹ 10/kg; *Suckers*- ₹ 05/- (as on September 2019)

Quantitative quality standards (acceptable limits) (w/v)

Leaf

- *Foreign material*: Nil
- *Total ash*: Not more than 1 %
- *Acid-insoluble ash*: Not more than 0.002 %
- *Alcohol-soluble extractive*: Not less than 0.5 %
- *Water-soluble extractive*: Not less than 1.5 %

Gel

- *Foreign material*: Nil
- *Total ash*: Not more than 0.5 %
- *Acid-insoluble ash*: Nil
- *Alcohol-soluble extractive*: Not less than 0.5 %
- *Water-soluble extractive*: Not less than 0.5 %

Dried juice (Aloe)

- *Foreign material*: Nil
- *Total ash*: Not more than 3.5 p%
- *Acid-insoluble ash*: Not more than 0.4 %
- *Alcohol-soluble extractive*: Not less than 83 %
- *Water-soluble extractive*: Not less than 60 %

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