

SARACA ASOCA (ASHOKA)

A TREE FOR SORROW FREE LIFE



**NMPB Regional-cum-Facilitation Centre
(Southern Region)**

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Introduction

Saraca asoca (Family: Leguminosae), is an important medicinal plant, in the Indian Systems of Medicine. In trade, it is known as Ashoka or Seetha Ashoka. Ashoka is a medium-sized evergreen tree growing up to 15 meters in height with moderate fast growth. It is sporadically distributed in Myanmar, India and Sri Lanka. In India, it is mainly distributed in South Indian States, Orissa, Assam and in central and eastern Himalayas. Ashoka is preferred as an avenue tree owing to its beautiful architecture, attractive foliage and bright orange red flowers. It is linked with culture and religion in Myanmar, Nepal, India and Sri Lanka.



With multitude of medicinal properties and therapeutic uses, *Saraca asoca* has an apt Sanskrit name Ashoka, that is, the 'remover of sorrow'. It is also known as 'friend of women' as it is especially used in the management of menorrhagia and other female reproductive disorders.



The stem bark is the major raw drug; flowers and seeds are also medicinal. Flowers are used for treatment of hemorrhoids and dysentery, scabies in children and various other skin diseases, and seeds are used for the treatment of urinary disorders.

For centuries, natural habitats have been the source of Ashoka tree for herbal industries. However, in the last few decades, its availability is dwindling and at the same time demand has

been increasing, due to resurgence in interest in Indian Systems of Medicine. Due to sparse distribution and poor population size in natural forests, *Saraca asoca* is categorized as 'vulnerable' in the Red List of International Union for Conservation of Nature (IUCN).

Short supply of *Saraca asoca* bark has led to use of adulterants and substitutes in the medicine manufacturing industry. However, all substitutes may not have desired therapeutic properties. For instance, Ashokarishtam, a well-known and effective preparation made using *Saraca asoca* bark, to treat excess bleeding during menstruation (menorrhagia). However, a study conducted at Kerala Forest Research Institute, confirmed that stem bark of *Polyalthia longifolia*, a common substitute of *Saraca asoca*; is not an effective substitute to treat this ailment. One can also see distinct morphological differences in *Saraca asoca* and *Polyalthia longifolia* trees and identify them easily.



Saraca asoca



Polyalthia longifolia

Ashoka bark has very high demand in the Ayurveda industry, but it is in short supply. It is estimated that about 5,300 tons of bark is required annually for catering the needs of Indian Ayurvedic drug industry. However, the present supply is only about 2,000 tons of bark annually. In this background, it is necessary to take measures to promote Ashoka tree cultivation and create awareness among the people, particularly the farmers, on cultivation practices and economics of Ashoka trees.

Agro-techniques

Site Suitability

Ashoka trees grow well in tropical climates with 1800 to 3000 mm annual rainfall on a wide range of soils, up to an altitude of 1000 meters. Although Ashoka is a light demanding species, it is suited for cultivation as an intercrop with annual and perennial crops.

Propagation methods

Using seeds: For cultivation of Ashoka, seeds are the best propagation material. Mature seeds from trees of over six years age are collected from moist tracts during June to August. Seed collection season may vary from region to region. Seed has a short viability period, and therefore, it is advised to use fresh seeds for propagation. If storage is unavoidable, it can be stored up to 4 months under 16 degree Celsius. Approximately, 30 kg seeds are required for raising seedlings for planting in one hectare at a spacing of 3 m × 3 m.



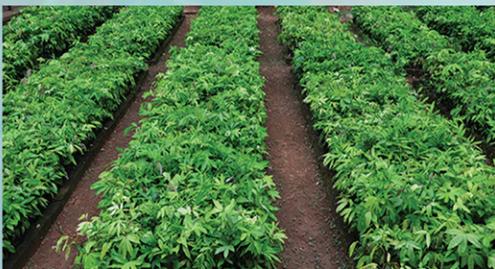
Seeds are dibbled in raised mother beds of 10 metre length, 100 cm width, and 30 cm height: or directly in suitable containers of 25 cm length and 10 cm diameter. Nursery beds (or potting mixtures for filling containers) are prepared using equal quantities of soil, sand, and farmyard manure. The seeds start germinating within 20 days and germination is completed by 50 days. The seed beds or seed-sown containers should be adequately irrigated. Seedlings become ready for planting in eight to twelve months.

Vegetative propagation: Planting stock of Ashoka can also be produced through vegetative propagation. For this, two nodded semi hard branch cuttings or shoot tips of one year old seedlings can be used. Treat the cuttings with talc-based IBA preparation of 2000 ppm and kept for 8 to 12 weeks in a mist chamber maintained between 30-40 degree celsius and 80-90 % humidity, to induce root formation in the cuttings.



The rooted cuttings are transplanted into containers filled with vermiculite. Necessary watering is done periodically. Transfer the rooted cuttings from the mist chamber to open areas for hardening for three months. About fourteen months old seedling can be used for field planting.

Field planting: Prepare pits of 60 cm x 60 cm x 60 cm at a spacing of 3 m x 3 m. Allow the pits and dug out soil for weathering for two to three days.



Refill the pit with topsoil and plant the seedling. Application of a basal dose of lime as well as fertilizer and organic manure based on soil test will be beneficial.

Planting and management in the field

Ashoka is planted either as a pure crop or as an intercrop with plantation crops such as coconut or even as an intercrop with other medicinal plants and herbaceous crops. When cultivated as a pure crop, 1,100 seedlings are needed in one ha, at a spacing of 3 m x 3 m. For planting as an intercrop, at a spacing of 10 m x 5 m



with plantation crops such as coconut, about 200 Ashoka seedlings are needed per hectare, and for planting at a spacing of 6 m x 3 m as an intercrop with herbaceous crops, about 550 seedlings per hectare are required.

During the first year after planting, weeding should be done three times. Application of manures and fertilizers are carried out as per soil testing. Partial shade along with frequent irrigation is to be provided to the saplings for the first one or two years. If needed, grown-up trees can be irrigated by forming a ring channel around trees. In the intercropping system, pruning can be done in November, if required.

Flowering and fruiting in Ashoka trees

Ashoka start flowering from the age of five years. The bright orange-yellow flowers appear in bunches on the trunk as well as branches during November-June. The flowers turn red before falling.



Fruits of Ashoka look like broad beans and ripen during June-August. Each fruit will have up to six seeds, which are brown in colour. On an average, 50 seeds will weigh a kilogram. Fruits, technically known as pods, are collected once they show signs of splitting. Pods are dried under shade to extract seeds.



Harvesting

Stem bark is the major raw drug derived from *Saraca asoca*. Bark can be harvested when the tree is under dormant growth (October-November). Two methods are generally followed to collect the bark.

In the first method, the entire tree is felled at a height of 15 cm from the ground level when they attain about 15 years of age. Bark is removed from the stem using knife. The stumps coppice well (and produce new shoots) under irrigation and manuring. The coppice shoots will be ready for harvest again after 15 years.



In the second method, the bark is collected without cutting down the tree. In this case, patches of bark are removed from 10th year onwards. Here, the bark is peeled off in vertical strips at 6 cm interspaces between each strip. The peeled off area will get renewed with fresh bark in 12 to 15 months. Then, the bark on the other areas can be peeled off. This non-destructive method should be preferred for harvesting if the requirement is limited. Following precautions shall be taken during bark harvest.

- Peel the bark, with a knife, from the tree in small pieces leaving most of it intact on the trunk on the east and west side of the tree
- Remove the bark in small sections of about 10 cm length and 5 cm width.
- Apply a small quantity of Bordeaux paste to the wound; this 'tree seal' will prevent the wound from drying out and insect infestation or fungal infections.

Bark of branches is also equally good in terms of efficacy. Therefore, for sustainable raw drug extraction, mature branch bark harvesting after lopping the branches is also recommended.

Post-harvest processing

It is very important to dry the harvested bark before storage to avoid microbiological contaminations and changes in the phytochemical composition. Bark shall be dried well under sun or under conditions specified by the buyer.

A clean surface, preferably clean cemented floor or tarpaulin sheet may be used for spreading the harvested bark for drying. Remove all impurities before drying. Cut the bark into small pieces of appropriate size to ensure uniform drying before spreading them in the drying yard. Make clear pathways to walk between the spread-out bark. Upturn the material frequently to facilitate even drying. Based on the bark thickness, grading is done as first grade (where thickness of bark is even) and the rest as second grade. Pack the dried bark in clean containers or sacks/ gunny/jute bags and store in a clean and dry room. Labeled sacks shall be kept in raised off the ground and away from the walls.

Economics of cultivation of Ashoka

In the long run, cultivation of *Saraca asoca* is profitable to farmers. When *Saraca asoca* is grown as a sole crop, Rs. 1,15,500/- per hectare will be the estimated total cost towards cultivation and management for 10 years. When the tree become 10-year-old, bark collection can be started. Subsequently, every year about 175 kg of dry bark can be obtained from one hectare of farm. At the rate of Rs. 150/- per kg of dry bark, annual income will be Rs. 26,500/-. That means, total income till trees reach 20 years will be around Rs.2,62,500/- in ten years.

Net annual income from Ashoka trees, 10 years after planting either with plantation crops or with annual crops are also estimated. Ashoka trees planted with plantation crops can fetch Rs.6,000/- while those planted with annual crops can yield Rs.13,000/- per hectare per year. Thus, total income from Ashoka trees till they reach 20 years will be around Rs.60,000/- and Rs. 1,30,000/- per hectare respectively, besides additional income from associated crops.

NMPB-RCFC (SOUTHERN REGION)

NMPB-RCFC (Southern Region) is one of the seven Regional cum Facilitation Centres of the National Medicinal Plants Board (NMPB). NMPB is functioning under the Ministry of AYUSH (Govt. of India).

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