

## Importance and Uses of Ankol (*Alangium Salvifolium*)

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### SUMMARY

Ankol (*Alangium salvifolium*) is an underutilised and climate smart crop of semi-arid region with high nutraceutical and medicinal value belongs to the Cornaceae family. The present article highlights about the different aspect of ankol tree i.e. the botany, nutraceutical value, importance uses, description of important species and future prospect of this crop.

### INTRODUCTION

Ankol is a medicinally rich plant that belongs to the family Cornaceae and also referred to as sage leafed. In India it is found in different states of India like Andhra Pradesh, Bihar, Chhattisgarh, Gujarat, Kerala, Karnataka, Himachal Pradesh, Maharashtra, Odisha, Rajasthan, Tamil Nadu, Uttar Pradesh, Uttarakhand and West Bengal. All parts of ankol such as roots, leaves, stems, and bark, are being used to make medicines that are used to cure a variety of illnesses. Ankol fruits are an excellent source of macro- and micronutrients and are particularly high in carbohydrates, vitamins, and minerals. Sugar and dietary fibre are both present in fruits in good amounts. Fruit has 50 kcal of calories per 100 g and contains 62.46 mg of vitamin C, 0.71 mg of vitamin E, 83.9 g of moisture, 11.67 g of carbs, 2.07 g of protein, 0.12 g of fat, 1.61 g of ash, and 62.46 mg of vitamin C per 100 g. 168 mg of K, 12 mg of Ca, and 1.37 mg of Fe per 100 g. The ankol fruit also has antioxidants like phenols, flavonoids, and anthocyanin.

### Botany

**Trees:** Trees are prickly deciduous trees that reach heights of 5 to 20 metres. The surface of the ankol tree's bark is smooth while the tree is young but becomes rough as it ages due to cracking in the bark. The bark has a light brown to yellowish colour. The wood is regarded as ideal fuelwood as well and has wide range of applications, including ornaments, musical instruments, and furniture. In India, the plant is collected from the wild for use in traditional medicine.

**Leaves:** The leaves are circular, alternating, and typically uneven at the base. Without stipules, leaves are placed simply alternately and are typically not all the same size. The leaves range in colour from light to dark green. The broad, oblong, lanceolate leaves have a sharp or rounded base.

**Flowers:** Flowers are axillary, bisexual, and have stigmas that are conical or head-shaped. Flowers are scented and range in colour from white to yellowish-white. Flowering in ankol tree occurs between the months of February and April, it bears white blooms that are yellowish white, aromatic, and in axillary fascicles.

**Fruits:** The fruits are drupes that are that are capped by the calyx lobes. Fruit pulp, which is firmly attached to the seed, is the part of the flesh that may be eaten. Aril, the fruit's fleshy pulp, has a pleasant scent and a sweet taste. Each fruit has one albuminous seed.

The taxonomic classification of ankol is described below

**Kingdom:** Plantae

**Phylum:** Tracheophyta

**Class:** Equisetopsida

**Order:** Cornales

**Family:** Cornaceae

**Genus:** Alangium

**Species:** *A. salviifolium*

**Importance and uses of ankol**

Ankol is a multipurpose plant and all the plant parts of Ankol tree i.e., leaves, fruit, bark, root seed and oil have multifaceted uses. The different uses of ankol plant parts are described in table 1.

Table 1. Uses of different parts of Ankol (*Alangium salvifolium*) tree :-

Sr. No.	Plant Parts	Category	Uses
1	Leaves	Medicinal uses	Analgesic, Anti-rheumatic
		Traditional uses	Osteoarthritis and rheumatic pain are locally treated with ankol leaf paste, and asthma is also treated with ankol leaf paste. Due to its great nutritional content, this rare and endangered plant is used as summertime fodder in certain West Himalayan regions of India.
		Phytochemical compound's	Ankorine, Alengiside, Alangimarckine, Deoxytubulosine, Dehydroprotoemetine, Sterols,
2	Fruits	Nutritional Value	Vitamin C: 62.46 mg, vitamin E : 0.71 mg, moisture 83.9 g, carbohydrates: 11.67 g, protein: 2.07 g, fat : 0.12, ash: 1.61 g, calories: 50 kcal/100 g, K:168 mg, Ca: 12 mg, and Fe: 1.37 mg
		Medicinal uses	Aphrodisiac, Antidote for snakebites and scorpion stings, Laxative or Purgative, Expectorant and Carminative
		Phytochemical compounds	Alangiside, deoxytubulosine, and N-methylcephaeline
		Traditional uses	Fruit juice is also consumed locally to treat eye disorders. In India, mature fruits of <i>A. salvifolium</i> and sweet flag are combined with honey to control pests in agricultural crops
3	Seeds	Medicinal uses	Antidiabetic, Antimicrobial Anti-cancer preventive, Antiepileptic, Anti-inflammatory, Diuretic and Laxative
		Traditional uses	Athletes use ankol seed to build strength and endurance. The seed is used to treat digestive problems and intestinal colics. Ankol seed when consumed through dishes can cure bronchial asthma.
		Phytochemical compounds	Algimarine, Algimaridine, Alamanine, Betulinic acid, Betuline, Betulinaldehyde, Emetine, Cephaeline, N-methylcephaeline, Psychotrine, and Lipeol
4	Ankol oil	Medicinal uses	Antipruritics, Anti-Cancer, Analgesics, Antibiotic Antiepileptic, Anti-diabetic, Demulcent, Diuretics and Laxative
		Traditional Uses	Ankol seed oil serves as a strong analgesic and relieves pain. Boils, itching, scabies, and hives have all been traditionally treated in India with the seed oil. It controls the kapha and vata doshas. It alleviates a number of skin disorders and encourages skin detoxification. It promotes hair growth and volume. It manages blood conditions. It aids in the treatment of ageing skin.
5	Bark/ Stem	Medicinal uses	Antiemetic, Anti- diarrhea
		Traditional Uses	Wood is used for use in furnishings and musical instruments beside this it is used to make tool handles, walking sticks, gunstocks, flooring, furniture, and other handicraft items. The twigs are used to brush teeth in India.
		Phytochemical compounds	Alangicine, Alkaloids A & B, Lamarckine, d- Marckine, Marckidine, and Methylpsychotrine

6	Root	Medicinal Uses	Anticancer, Anti-Arthritic, Antipyretic, Analgesic, Antispasmodic, Anti-Rheumatic, Anti-Inflammatory, Anthelmintic, Anti-Hypertensive, Anti-Protozoal, Carminative and Hypoglycemic,
		Traditional Uses	The root of the ankota or arka is extinguished with rice water when one has jaundice. The root of the ankola plant coupled with buffalo buttermilk is a potent remedy for diarrhoea. Skin cancer, blood disorders, piles, hypertension, diarrhoea, fever, and piles can all be treated with the roots, along with worm removal and purgative effects.
		Phytochemical compound's	Alangium A & B, Alangine, Alangiside, Cephaeline, Emetine, Isotubulosine, Marckidine, Marckine, Psychotrine and Tubulosine,

## Species

According to the "The Plant List" there are 133 scientific plant names of species ranked for the genus *Alangium* and out of these 27 are accepted species names. On the basis of pulp color, there are two types of ankola i.e. White and Red types. The crop is underutilized and hence lacks the varieties. The description of important species of *Alangium* other than *Alangium salvifolium* are described as below

### *Alangium chinense*

A pioneer species that grows quickly in nature can be found primarily in Africa, China, India, Malaysia, Myanmar, and Thailand. In Africa, the various plant parts of this species including the roots, bark, and leafy twigs are used to make traditional medicines. It is cultivated along agricultural borders and in live fences. The stems and roots are purgative, contraceptive, a blood tonic, and a carminative. They are used to treat gastrointestinal discomfort, rheumatism, numbness, traumatic wounds, and snakebite injuries. Headaches can also be treated with the root powder of this species.

### *Alangium platanifolium*

It is a deciduous shrub that can reach a height of about 3 metres and has upright, zigzag stems with few branches. It is found in China, Japan, Russia, and Korea. The plant is used locally for food, medicine, and pesticide. People boil the young leaves before eating them. The root is used to cure rheumatism and other conditions affecting the bones. The root's bark and leaves of the *Alangium platanifolium* are used as insecticides.

### *Alangium longiflorum*

The tree grows up to 35 m-tall with mid-canopy size. It is indigenous to the Borneo, Malaya, Maluku, New Guinea, Philippines, and Sumatera. Its fruits are delicious, and edible whereas the leaves juice is used to treat scabies and skin itching. Wood is used in the construction of houses, the creation of furniture and cabinets, tool handles, walking sticks, handicrafts, gunstocks, and a variety of other handicrafts.

## CONCLUSION

Ankola is a climate resilient crop with high nutraceutical and medicinal value. It can be easily grown in semi-arid regions. Recently according to the, IUCN Red List of Threatened Species it is kept under the Least Concern category. Therefore, seeing the potential of this crop, more research on its collection, conservation, production technology, and breeding has to be attempted in the future.

## REFERENCES

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