An avowal of importance of endangered tree

Oroxylum indicum (Linn.) Vent.

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Abstract
A small deciduous tree Oroxylum indicum (Linn.) Vent. of family Bignoniaceae, also known as Shivnak, Sonapatha, Shyonaka or Midnight horror possesses economic as well as medicinal importance. The tree was distributed throughout the greater part of India but now it is listed amongst endangered species in many areas in the country. Its conservation is urgently required.

Keywords: Shivnak, Sonapatha, Shyonaka, Midnight horror, Oroxylum indicum, Medicinal plant, Endangered tree, Conservation.

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Introduction
Deforestation has resulted in a serious damage to biodiversity and gene resources1,2. Naturally grown forests have lost many tree species and Shivnak, Oroxylum indicum (Linn.) Vent. is one of them. Shivnak grows in India, Sri Lanka, South China, Celebes, Philippines and Malaysia. In India, it was distributed throughout the country up to an altitude of 1200 m and found mainly in ravine and moist places in the forests3-6. At present it is found only in gardens. Destructive and non-sustainable collection methods coupled with low regeneration and habitat destruction have posed serious threat to the survival and availability of this highly useful tree3. This is an attempt to reestablish the glory of this valuable asset amongst all concerned.

It is a small to medium sized deciduous tree measuring up to 12 m in height and bearing soft, light brown bark with corky lenticels. Leaves of tree are very large (90-180 cm long) and 2-3 pinnate. Leaflet rachis is very soft and swollen at the junction of the branches. Leaflets are in 2-4 pairs, ovate, elliptic or acuminate in shape and glabrous in texture. Flowers are numerous, reddish purple outside and dull or pale yellow pinkish inside; arranged in large erect racemes. Fruit is a long woody capsule up to 1m in length, containing numerous papery, flat, winged, light seeds. The fresh root bark is soft and juicy and creamish yellow to greyish in colour. The taste is sweet initially later becoming bitter. On drying, the bark shrinks, adheres closely to the wood and becomes faintly fissured.

Utilization
Every part of this tree possesses medicinal value. Dichloromethane extract of the stem bark and root possesses antimicrobial, antifungal, anti-inflammatory and anticancerous properties7,8.

Root bark of the plant is an astringent used in diarrhoea, dysentery, rheumatism and otorrhoea as it contains ellagic acid9. Stem bark paste contains oroxylin A, chrysin, tannic acid,
scutellarein-7-rutinoside and is applied for the cure of scabies\textsuperscript{10} and to treat arthritis\textsuperscript{11}. Leaves contain baicalein-7-glucuronide\textsuperscript{12}. Leaf decoction is given in treating stomachache, rheumatism, enlarged spleen\textsuperscript{13}. Mature fruits of the tree are useful in treating cough, bronchitis, jaundice, piles, smallpox, dyspepsia, colic, leucoderma, pharyngodymia, cardiac disorder, helmintiasis, gastropathy, hemorrhoids and cholera\textsuperscript{5, 14}. Seeds of this species are used as purgative. They contain a flavone glucuronide-oroxindin, baicalein-6-glucuronide and baicalein-7-glucuronide, baicalein 7-O-\(\beta\)-gentiobioside, fixed oil (25\%) and crude proteins (7.9 \%).\textsuperscript{10, 16} Dried seed powder is used by women to induce conception in ethnic communities\textsuperscript{14}. The plant is used in many Ayurvedic preparations like, Shyonaka patpak and Bruhat pancha mulayadi kwath\textsuperscript{3}, Dashmula and Chyawanprash\textsuperscript{17, 18}.

Young shoots, unripe fruits and flowers of this tree are eaten as vegetable. The tree is lopped for fodder. Seeds yield non drying oil used in perfumery industry. Wood of the tree is used to make match boxes. Stem bark and fruits of the tree are employed as mordant and the stem bark yields a khaki colour dye\textsuperscript{6, 19}.

**Conclusion**

Owing to the indiscriminate collection, over exploitation and uprooting of whole plants bearing roots this valuable tree has become vulnerable in Karnataka and Andhra Pradesh and endangered in Kerala, Maharashtra, Madhya Pradesh and Chhatisgarh\textsuperscript{20, 21}.

Although described in literature as an important medicinal species, this non-wood forest product (NWFP) is for some strange reasons reported to have no routine demand. Some herb traders are reported to supply shivnak tree parts to some leading pharmaceutical companies and twigs of the tree are traded in India at through a way price of Rs. 9/kg (approx. US $ 20 cent/kg) but its extract in international market is believed to fetch Rs. 500,000/kg (US $ 15,000 cent/kg). Perhaps botanical fraternity needs to know its botany and uses as much as the national/international demand and export potential. Looking to the various uses of the tree in question more concerted efforts are needed not only to identify and collect healthy and elite specimens but conserve it by modern biotechnological means such as plant tissue culture and also harness its medicinal and/or chemical principles for its ready use in pharmaceutical drug industries. Research for genetically improving the tree species for higher production of compounds under in culture condition is essential\textsuperscript{22}. Large-scale suspension cultures are recommended for industrial production of useful plant chemicals, viz. pharmaceuticals and food additives in a manner similar to microbial fermentation\textsuperscript{23}. 
References


