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Palas *(Butea Monosperma)*: A Medicinally Important, Gum and Resin Producing Tree

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Abstract
Multipurpose trees (MPTs) fulfill more than one basic need of human beings and have a high impact on food and health security of people, especially those living in and around the rural and forest areas. Palas *(Butea monosperma)* is one such multi-purpose tree of forest which is not only an important medicinal plant but also an important source of livelihood for people residing around forest area. The tree has been accepted traditionally in the form of natural medicine and commonly used herb in Ayurvedic medicine. The plant is widely used by the rural and tribal people in curing various disorders. Apart from this palas is an important source of natural gum and also indirectly produces lac resin by hosting lac insect. It finds use both medicinally and commercially with each part of the plant having utility thereby plays a significant role in the livelihood.

Introduction
Life is impossible without the vegetative world around us. Forest trees have great importance in our life as these trees provide us shade, habitat for animals, fruits, flowers, leaves, food, wood, fodder, etc. besides fulfilling our basic needs trees becomes a source of livelihood for those who live in the vicinity of rural and forest areas. Plants have been the main form of medicine in India since ages. The floras are repository of various active ingredients and organic mixtures. Many of them are used to make medicines. In traditional medicines, potential diseases are prevented by using natural raw medicines originating from plants. In this sequence, Palas is one such unique species (Fig 1a) which is famous for its medicinal properties. Due to its fire-like red-orange flowers, it is popularly known as 'flame of forest' (Fig 1b). Palas is called Dhak in Hindi, Palas in Marathi, Kesudo in Gujarati, Chamata in Malayalam, Kinsukamu in Telugu and Kinchukam in Tamil.

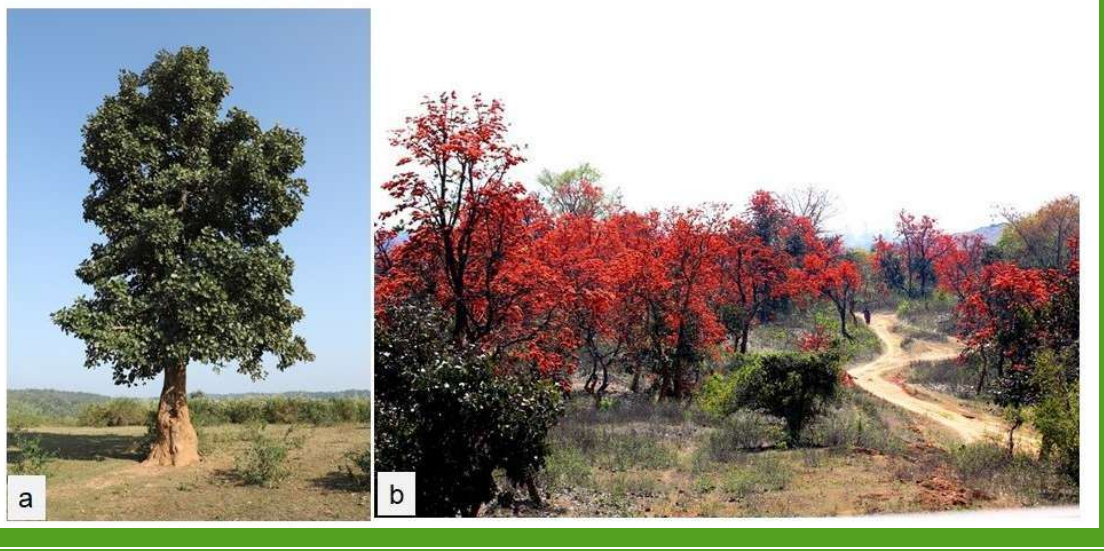

Fig 1. a) Palas Tree; b) Palas: Flame of forest

Palas in Vedas-Puranas
Palas tree has been used curatively since ancient times. The tree is used in the worship and festivities of God all over

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India. In Vedic literature, the Palas tree has been considered as a form of fire. Dried branches/ wood have been used in holy fires and also to treat burns and diseases. It is mentioned in the *Rigveda* as *kimshuka* (fruit of attractive color) (Sukta 85, Chapter 7, Mandal 10) It is mentioned in the *Arthaveda* for healing wounds. In the *Upanishads* the palas flowers are written in elaborate form. In this, the tree is considered the place of Lord Brahma. It is mentioned in the *Charaka Samhita* to treat diseases like arsha, diarrhea etc. In the *Sushruta Samhita*, Palas is mentioned in *Raghradi*, *Mushkadi*, *Ambasthadi* and *Nyagrodhadi*. In the *Kashyapa Samhita*, the use of Palas extract (the thick juice of the drugs after boiling plant parts in water) has been mentioned about children getting rid of the planetary issues. In the Sanskrit ancient scripture, *Nighantu*, the Palas tree has been addressed with the names *Brahmavriksha*, *Kimushuka*, *Raktapushpa*, *Sahibdar*, *Vatpoya* etc. In this, the name of Palas extract is called *Tikta* and *Kashaya*, *Virya*, *Ushn*a. But Palas flowers are considered cold. According to *Bhavaprakash Nighantu*, the fruit is considered to be *Ushna* (hot) and is used for *Prameha*, *Arsha Krimi* and *Vatakfaja Ranga*. In *Raja Nidhantu*, full and seed are mentioned for *Krish Pama* (dermatitis). In *Bhavaprakash Nidhantu*, flowers and seed have been reported effective against worms and leprosy Disease.

In the modern period, efforts are being made to explore the traditional properties of Palas and to discover the chemical secrets of its medicinal properties. So far 42 chemical substances have been identified in the study of plant chemistry. These include imide, lacatone, flavonoid, sterol and alkaloids. Special medicinal properties are found in different parts of Palas and most of them like antibacterial, contraceptive, carcinogens, wormicidal, anti-diarrhea, wound healing, liver cleaners, etc. have been successfully tested.

Flowers

Flowers are known by the names *Tessu* and *Maduga* (Fig 2a). In Ayurveda, use of Palas flowers is recommended against skin diseases, itching diseases, etc. Flowers are used in the treatment of diseases like jaundice, stiffness in the muscles, swelling of the cervix, obstruction of urine, etc. Flowers are also used as an astringent diuretic, aphrodisiacs, sunburn, diarrhea, arthritis, dermatitis, leprosy, blisters, poultice, menstruation and also have anti-inflammatory, anticancer, anti-fungal properties. Juice of flowers is used to prevent pus in urogenital areas. The juice of flowers is used to control body temperature and fever. It is also used for the prevention of leucorrhoea and diuresis. Flowers are also used to make vegetables.

Dye

Dye/ color is also made from flowers. Silk and cotton cloths are dyed with this color (Fig 2b). Tilak of the forehead is applied with color. Holi is played with the color of palas flowers. According to new research, color can be used in food and medicines.

Leaves

The leaves have medicinal values against inflammation of the eye, energy drink, aphrodisiac, arthritis, acne, piles and worms. The juice of the leaves is used to cure cold, cough and stomach disorders. Eye diseases are treated by putting leaf juice in the eye. The practice of making plates and donas from the leaves of Palas has been going on for centuries. It is used in marriage and other religious functions. It is a source of business and income for tribals.

Wood

Wood is durable in water; hence it is used to form the inner circle of a well. Wood coal is also used. In Gujarat, wood is used to make houses. A rope is made from the fibres and bark of the inner stem, which was being used to tie the wood of the boat in past. The bark fibre is used by tribal people in agriculture.

Seed

Seed (Fig 2c) powder is used in the treatment of worms in children, urinary disorders and urinary stones.

Gum

Red colored discharge comes out from the stem of the tree in summer (Fig 2d). It is known as Bengal Kino or Butea Gum or Kamarkas. Gum is used to prevent diarrhea. The gum is well known for restoring and contracting the muscles and tissues of females after delivery, hence popularly known as Kamarakas. Gum is used to get rid of cracks in toes, hence used in crack creams. The laddus (sweet dish) of palas gum is fed in Unani to increase sexual arousal. Gum is also used in diarrhea, acidity, eye, eye disorders, heat reduction, etc.

Tree Bark

Palas tree bark and its juice is used in antifungal formulations, wound healing, diarrhea etc. The powder of stem bark is used in wound healing. The juice of the stem is applied over the tonsils. Stem paste is used to remove inflammation of the body.

Root

Juice of its roots is taken to remove weakness and fed 2-3 spoons daily at night. The powder of the roots acts as an antidote in snake bites.

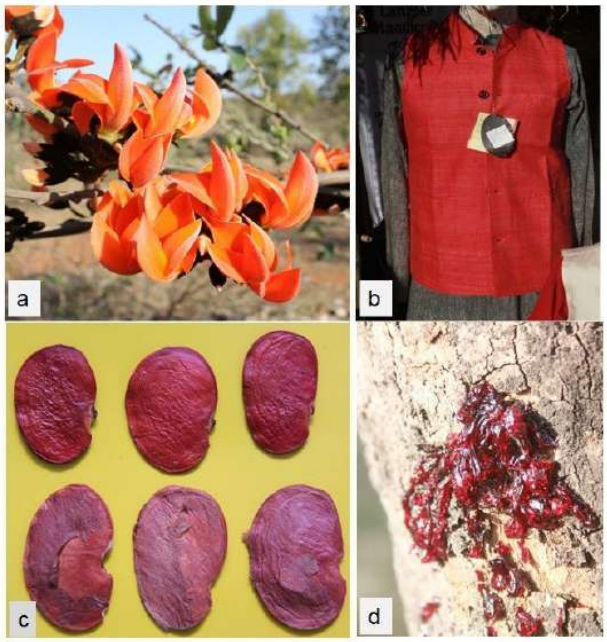

Fig 2. a) Palas Flower; b) Jacket coloured with Palas flower dye; c) Seeds; d) Gum

Other economical uses: Palas tree is popular as shed providing tree due to its large leaves. Farmers in India plant the Palas tree on the bunds so that the soil of their field does not erode away. Its new leaves feed the animals as fodder. Tribal people use the leaves as umbrella and also to cover their houses for shed and also to avoid rain.

Palas: A Lac Host Tree

Palas tree is nature's gift to mankind. This tree is used to produce lac resin (Fig 3) since time immemorial. Lac is produced (secreted) by the lac insect (Kerria lacca Kerr.) while feeding on the sap of this host tree. The secreted lac coating provides protection by forming a cover over the insects. Shellac (lac resin), red colored lac dye and wax are the main components of lac. The largest amount of lac is produced from this tree. Palas is abundantly found in India and therefore, cultivation of lac on Palas is an important tool for self-employment and economic development for the forest dwellers.

Fig. 3. Lac on Palas branches

Summary

Being capable of treating various diseases from its various parts, Palas is a wonderful medicinal plant. This is indeed a special tree as it can yield gum from its bark and lac resin by hosting lac insect on its branches. Being unique tree proving resin and gum together, perhaps it has got its place in the logo of the ICAR- Indian Institute of Natural Resin and Gum.

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