

**SIDDHA - MODERN IN CONFORMANCE OF BUTEA
MONOSPERMA - A REVIEW****Dr. K. Niruba***

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Corresponding Author*Dr. K. Niruba***Temporary Demonstrator,
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EUSL.**ABSTRACT**

Butea Monosperma is one of important herb that has been mentioned in many herbal medicinal literatures. Butea Monosperma belongs to the plant family Fabaceae/ Leguminosae and the order Fabales. In tamil it called as 'palasu'. It generally distributed in India, Ceylon, Burma and Java. It is common in Sri Lanka mostly in dry regions, Jaffna, Batticaloa, Bintenne, Polonnaruwa and Bibile. The purpose on the review focuses on siddha stanza about the general character of the Butea Monosperma with current research findings. The siddhars wrote their knowledge in palm leave manuscripts, as the form of stanzas, quotations which were denoted many medicinal uses of plants, metals

and minerals. The study aim is to prove the siddhars concept with the analysis of current research findings. The therapeutic values which are expressed in siddha quotations are analogous with current research findings. The stanza indicates that the Butea Monosperma possess therapeutic effect to cure Mukkuttam, abdominal disorders, intestinal worms, diarrhea (kazhichchal), body pains (udal kudaichchal) and also increase the appetite. The gum which secreted from this plant use to strengthen the nerves, joints and chest, enhance the sperm count and intellectual function. Seeds of this plant can use to cure intestinal worms, body pain, Peptic ulcer (kunmam), eczema (karappan), ringworms (padarthamarai). The scientific validation emphasize seed oil of B. monosperma has antimicrobial activity against several human pathogenic bacteria and fungi. Extracts of the stem bark from B. monosperma displayed antifungal activity against Cladosporium cladosporioides. The seeds of B. monosperma showed significant anthelmintic activity. Stem bark of B. monosperma reduced gastrointestinal motility. The overall view corroborate and validates the stanza which has been described in the ancient siddha text gunapadam.

KEYWORDS: Butea Monosperma, Palasu, Stanza.

INTRODUCTION

Use of plants in siddha medicine is a popular empirical knowledge of observation and experience. The verses written by siddhars have a deep inner meaning. The Siddhars' have created a wealth of knowledge. Their accomplishments in medicine, alchemy, martial arts, poetry and language have been recorded on palm leaf manuscripts. Many of these writings are currently preserved in museums and by selective families. Butea Monosperma is one of important herb, knowns as palasu in siddha and commonly known as "Flame of forest". It belongs to the plant family Fabaceae/ Leguminosae and the order Fabales. It is an erect, medium sized tree of 12-15 m high, with a crooked trunk and irregular branches. There are various species of Butea monosperma available over the world. The leaves 3 foliate, large and stipulate. It generally distributed in India, Ceylon, Burma and Java. It is common in Sri Lanka mostly in dry regions, Jaffna, Batticaloa, Bintenne, Polonnaruwa and Bibile. Number of constituents belonging to imides, lactones, flavonoids, sterols, and alkaloids has been reported from various species of Butea. Siddha stanza about general character of Butea Monosperma mentioned that it can be used for Mukkuttam, abdominal disorders, intestinal worms, diarrhea (kazhichchal), body pains (udal kudaichchal) and also increase the appetite. The gum which secreted from this plant use to strengthen the nerves, joints and chest, enhance the sperm count and intellectual function. Seeds of this plant can use to cure intestinal worms, body pain, Peptic ulcer (kunmam), eczema (karappan), ringworms (padarthamarai). Pharmacologically Butea monosperma has been reported for various activities such as anthelmintic, anticonceptive, anticonvulsive, antidiabetic, antidiarrhoeal, antiestrogenic and antifertility, antiinflammatory, antimicrobial, antifungal, antibacterial, antistress, chemopreventive, haemagglutinating, hepatoprotective, radical scavenging, thyroid inhibitory, antiperoxidative and hypoglycemic effects and wound healing activities. The purpose on the review focuses on siddha stanza about the general character of the Butea Monosperma with current research findings.

AIM AND OBJECTIVES

Aim

This review is aim to explore the siddha and modern concept of Butea Monosperma by analogous with the current scientific studies.

OBJECTIVE

To prove the general character of Butea Monosperma with scientific confirmation.

METHODOLOGY

The ancient and eminent siddha literatures were referred and selected a stanza for general character of Butea Monosperma from gunapadam – porudpanpunool – mooligai vaguppu and traced online scientific evidence from Am. J. PharmTech Res, IJRPC, Medline, Medlar scientific journal and thesis. The pharmacological studies and clinical research evidences were validated with the siddha quotation.

RESULTS AND DISCUSSION

The following quotation obtained from siddha material medica plant division.

Plant

Purasuva thampiththam pongukapang kunmam

Kirumiyudane kirani – peruvali noi

Ooddumathi theepanaththai undakumappozhuthe

Theddiyavet kannai! Theli

Abstract: It cures Mukkuttam, abdominal disorders, intestinal worms, diarrhea (kazhichchal), body pains (udal kudaichchal) and also increase the appetite.

Seeds

Vayittuk kirumikanam vathamodu seetham

Niyaththa padarthamaraiyum neengum vayittu

Valiyiraichcha; vankarappan maarumpith thundaam

Malipurasang koddaitthanai vazhththu

Abstract: Seeds of this plant can use to cure intestinal worms, body pain, Peptic ulcer (kunmam), eczema (karappan), noisy abdomen, ringworms (padarthamarai). It cause body heat (Azhal).

Gum

Santhikadku naadikadkun thankusukki lanthanakum

Punthiyurang kadkumuram poodunkaa – nunthu

Saramathanukkaakamanool saattumalar maathe!

Piramatharu vitsampi sin.

Abstract: gum which secreted from this plant strengthens the nerves, joints and chest; enhance the sperm count and intellectual function.

Online searches especially pharmacological, microbial, clinical evaluation was traced to match with siddha concept. Scientific studies of *Butea Monosperma* show varieties of pharmacological actions for each parts of plants as follows.

Leaves

Anti-filarial: Sahare et al. (2008) reported the anti-filarial activity of aqueous extracts from *B. monosperma* leaves and roots. The extracts significantly inhibited the motility of microfilariae (*Brugia malayi*) in a concentration dependant manner *in vitro* with IC50 value at 83ng/ml suggesting anti-filarial effects.

Anti-inflammatory and anti-oxidant: Borkar et al. (2010) have evaluated anti-inflammatory and antioxidant activity of ethanol, petroleum ether, ethyl acetate, chloroform and hexane extracts of *B. monosperma* leaves using HRBC (human red blood cells) membrane stabilizing method. The petroleum ether and chloroform extract showed significant anti-inflammatory effects whereas hexane, ethyl acetate and ethanol extracts had moderate anti-inflammatory activity. Moreover, these extracts showed antioxidant effects.

Seeds

Antihelminthic effect: Prashant et al., reported potent antihelminthic activity of methanolic extract of *B. monosperma* seeds. Another study of Iqbal et al., also demonstrate the same activity and found potent antihelminthic effect against Trichostrongylid nematodes in sheep⁶². The crude powder obtained from the seeds of *B. monosperma* showed time and dose dependent antihelminthic effect when administered orally at doses 1, 2 and 3 g/kg to sheep naturally infected with mixed species of gastrointestinal nematodes.

Antiviral: Yadava and Tiwari, (2005) have isolated a potential antiviral flavone glycoside from the seeds of *B. monosperma*. **Antimicrobial activity:** The oil obtained from *B. monosperma* seeds showed a significant bactericidal and fungicidal effect *in vitro*.

Anti-inflammatory: Gunakunru et al. (2004) has demonstrates the anti-inflammatory activity of fixed oil, mixed fatty acids, and unsaponifiable matter obtained from *B. monosperma* seeds. These *B. monosperma* derivatives possess significant anti-inflammatory effects against carrageenin-induced paw oedema and cotton pellet induced granuloma in rats.

Stem bark

Anti-diarrhoeal: Gunnakkunru et al. (2005), have reported the antidiarrhoeal activity of ethanolic extract of stem bark of *B. monosperma* against castor oil induced diarrhea and PGE₂ induced enteropoolong in rats. The results revealed reduction of gastrointestinal motility after charcoal meal administration.

Wound healing: Ethanolic extract of *B. monosperma* bark possess wound-healing properties. The extract accelerated the wound healing effect when applied topically on full excision wounds made on the back of rats. The topical application results in increased cellular proliferation and collagen synthesis at the wound site, which was corroborated, by increase in DNA, total protein and total collagen content in granulation tissues. The results also found to enhance the wound contraction and decreased epithelialization time in excision wound model, increased the tensile strength of the incision wound significantly and increased the granulation tissue weight and hydroxyproline content in the dead space wounds in comparison to the control group suggesting promising wound healing properties.

Osteogenic and Osteoprotective: Bhargavan et al. (2009), have isolated two structurally related methoxyisoflavones; cajanin and isoformononetin from the stem bark extract of *B. monosperma*. They found that cajanin possess strong mitogenic as well as differentiation-promoting effects on osteoblasts. However, isoformononetin was found to potent anti-apoptotic effect and osteoblast differentiation promoting effects. Similarly, Maurya et al., (2009), performed the phytochemical investigation of the stem bark of *B. monosperma* and isolated three new compounds buteaspermin A, buteaspermin B and buteasperminol along with other known compounds. He reported that medicarpin, cajanin, formonentin, isoformonentin and cladrin isolated from stem bark responsible for osteogenic activity. Moreover, the studies of Pandey et al. (2010) demonstrate the osteogenic and osteoprotective potential of the total extracts and standardized fraction from the stem bark of *B. monosperma*.

Anti-inflammatory: The methanolic extract of the stem bark of *B. monosperma* exhibited anti-inflammatory and analgesic activity in carrageenan induced paw edema and acetic acid induced writhing and Pentozocine for hot plate test model.

Anti-stress: Bhatwadekar et al. (1999) have shown the anti-stress effect of water-soluble part of ethanolic extract. The extract attenuated water immersion stress induced elevation of brain

serotonin and plasma corticosterone levels and this anti-stress effect was comparable to that of diazepam.

Anti-fungal: Ratnayake Bandara et al., isolated the active constituent medicarpin from petroleum and ethyl acetate extracts of the stem bark of *B. monosperma* and demonstrated the potent antifungal activity than the standard fungicide Benlate against *Cladosporium cladosporioides*.

Anti-ulcer: Patil et al. (2009) demonstrate the antiulcer activity of methanolic extract of *B. monosperma* bark against aspirin and ethanol induced gastric ulcerations respectively suggesting free radical scavenging properties.

Flowers

Anti-cancer: Choedon et al. (2010) recently reported anticancer property of aqueous extract obtained from the dried flowers of *B. monosperma* for antioxidative, anti-inflammatory, hepatoprotective, anti-proliferative, pro-apoptotic and anticancer activities in cancer model where it was found to inhibit cell proliferation and accumulation of cells in G1 phase with significant induction of apoptotic cell death suggesting promising anti-cancer properties.

Anticonvulsant: Kasture et al., reported that petroleum ether extract of flowers of *B. monosperma* exhibits anticonvulsant activity (Kasture et al., 2000). Kasture et al. (2002) also demonstrate that the active principle lies in acetone soluble part of petroleum ether extract of *B. monosperma* flowers (Kasture et al., 2002) for anticonvulsant activity. This fraction protected animals from maximum electro shock, electrical kindling and Pentylene-tetrazole induced convulsions in mice.

Fruits

Antihelminthic effect: Agarwal et al. have studied the antihelminthic activity of herbal formulation. Pippali rasayana contains the active constituent *B. monosperma* which is prescribed for the treatment of chronic dysentery and worm infestations. They evaluated Pippali rasayana for anti-giardial and immuno-stimulatory activity in mice, infected with *Giardia lamblia* trophozoites and observed up to 98% recovery after 15 days of treatment from the infection (Agarwal et al., 1994). After 15 days of drug treatment they found that there was a complete absence of *G. lamblia* (trophozoites/cysts) from the stools of 23 out of 25 patients.

CONCLUSION

The pharmacological and clinical screening revealed the Butea Monosperma medicinal potential which has already committed in ancient siddha text. The overall research findings corroborate and validate the stanza of Butea Monosperma activity which has been traditionally described by the siddhars. Therefore the ancient concept has been scientifically proof by comparing the modern concept.

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