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Review Paper

Antidotal Activity of Palashpushpa in Bhallataka Poisoning - A Conceptual Study

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ABSTRACT

Ayurveda, holds high therapeutic value but poses significant toxicity due to chemical irritants such as anacardic acid and urushiol. Traditional Ayurvedic texts highlight Palashpushpa (blossoms of *Butea monosperma*) as an effective Prativisha (antidote) to counteract these severe toxic effects. Objectives: This study explores the theoretical mechanisms through which Palashpushpa neutralizes Bhallataka-induced poisoning by bridging ancient Ayurvedic concepts with modern pharmacological findings. Methods: Classical scriptures—including Charaka Samhita, Sushruta Samhita, Bhavaprakasha, Basavarajeevam and foundational Rasashastra treatises—were critically analyzed alongside modern studies regarding the phytochemistry, anti-inflammatory capacities, and antioxidant actions of both botanical species. Results: Bhallataka toxicity stems from its pronounced Ushna (hot) and Tikshna (sharp/penetrating) attributes, which provoke acute Pitta aggravation and tissue injury. Conversely, Palashpushpa exerts Sheeta (cooling) Virya, Kashaya (astringent) Rasa, and Pitta-Kapha pacifying properties that directly reduce systemic heat and local inflammation. Bioactive compounds in Palashpushpa, particularly flavonoids like butin and isobutrin, suppress oxidative stress, inhibit allergic contact reactions, and accelerate tissue healing, effectively blunting the destructive dermal and systemic actions of urushiol. Discussion: Palashpushpa serves as a potent antidote to Bhallataka toxicity by combining Daha-Prashamana (burning-relieving) energetics with antioxidant and anti-inflammatory cellular defense mechanisms. These conceptual insights offer a clear framework for future experimental verification.

INTRODUCTION

Bhallataka (*Semecarpus anacardium*), commonly known as the marking nut, holds a prominent

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position in Ayurvedic medicine. Celebrated for its potent therapeutic applications—particularly as a *Rasayana* (rejuvenator) and in managing *Vata* disorders, skin ailments (*Kushtha*) and digestive impairments—it is nevertheless classified under *Upavisha* (semi-poisonous botanicals) due to its strong inherent toxicity. Unprocessed *Bhallataka* contains corrosive phenolic compounds, notably urushiol, bhilawanol, and anacardic acids. Exposure to or improper administration of this plant frequently induces acute toxic manifestations, including severe contact dermatitis, cutaneous blisters (*Sphota*), intense burning sensation (*Daha*) and systemic gastrointestinal inflammation.

To safely harness such high-potency drugs, classical Ayurveda emphasizes two crucial methodologies: *Shodhana* (detoxification protocols) and *Prativisha* (use of specific antidotes). In Ayurvedic toxicology, *Prativisha* refers to the strategic administration of a counter-agent or antidote to neutralize the lingering or severe effects of a poison (*Visha* or *Upavisha*). Modern pharmacology defines an antidote - derived from the Greek *pharmakon* antidoton, meaning a remedy given against an ailment - as a substance that specifically counteracts the toxic physiological actions of a poison. Classical treatises dictate that *Prativisha Chikitsa* should be systematically employed when toxic manifestations persist despite primary therapeutic interventions or purificatory procedures.^[1]

Among the antidotal remedies described across foundational literature, the flowers of Palasha (*Butea monosperma*) are specifically highlighted to neutralize *Bhallataka*-induced toxicity in the classical treatise *Basavarajeeyam*, within its 23rd Chapter titled "*Visharoganidhanalakshana-Chikitsa Adhyaya*".^[2] From an Ayurvedic pharmacodynamic perspective, *Bhallataka* toxicity is driven by its extreme *Ushna* (hot), *Tikshna* (penetrating), and *Pitta*-aggravating

attributes. *Palashpushpa* acts as a direct physiological counter-agent through its opposing *Sheeta* (cooling) *Virya*, *Kashaya* (astringent) *Rasa*, and *Pitta-Kapha* pacifying properties. Modern biochemical research reveals that the rich concentration of flavonoids in *Butea monosperma*, such as isobutrin and butin, delivers potent antioxidant, anti-inflammatory, and mast-cell stabilizing actions that directly suppress urushiol-induced oxidative stress, cellular injury, and cutaneous hypersensitivity. This conceptual review systematically synthesizes these classical Ayurvedic insights with contemporary pharmacological evidence to establish the antidotal mechanisms of *Palashpushpa* in *Bhallataka* poisoning.

AIMS AND OBJECTIVES

To evaluate the antidotal efficacy of *Palashpushpa* and its mechanism of action in *Bhallataka* poisoning..

METHODOLOGY

This conceptual study adopted a structured qualitative literature synthesis approach, integrating classical *Ayurvedic* text analysis with modern biomedical database queries across PubMed, DHARA, Google Scholar, and the AYUSH Research Portal. Primary traditional literature—predominantly *Basavarajeeyam* (Chapter 23), *Charaka Samhita*, *Sushruta Samhita* and *Bhavaprakasha*—was thoroughly reviewed to map the toxicological features of *Bhallataka* (*Semecarpus anacardium*.) alongside the *Prativisha* (antidotal) attributes of *Palashpushpa* (*Butea monosperma*). Simultaneously, contemporary peer-reviewed scientific literature was screened to gather data on the phytochemical constituents, anti-inflammatory actions, antioxidant profiles, and mast-cell stabilizing effects of both botanicals. Articles missing



empirical toxicological data or centered strictly on non-floral components of *Butea monosperma* were omitted. Relevant information was systematically compiled into an analytical matrix to correlate classical *Ayurvedic* pharmacodynamics (*Rasa-Panchaka* and *Dosha-Karma*) with contemporary cell-signaling mechanisms, providing a clear rationale for how the bioactive polyphenols in *Palashpushpa* counter *Bhallataka*-induced tissue injury.

DISCUSSION

The integration of classical *Ayurvedic* toxicological frameworks with contemporary cell-signaling pharmacology provides a robust, multi-dimensional explanation for the antidotal activity of *Palashpushpa* (*Butea monosperma*) in countering *Bhallataka* (*Semecarpus anacardium*) poisoning. Rather than relying on a single biochemical mechanism, the therapeutic synergy between these two botanicals illustrates the principle of physiological antagonism across both macroscopic and cellular levels.

Direct contact with *Bhallataka* latex can provoke sharp irritation, erythema, vesicles, and painful blisters exuding acrid serum; in severe cases lesions resemble bruises that ulcerate and slough. Oral exposure produces burning pain with blistering of the lips, tongue, and pharynx followed by nausea, vomiting, colicky abdominal pain, and diarrhoea. Systemic poisoning may manifest as hypotension, tachycardia, delirium, and coma with dilated pupils.^[3]

Charak Samhita has mentioned properties of *Bhallataka* fruits that they are *Teekshna* (Sharp), *Paki* (Corrosive), and *Agnisama* (like fire).^[4] Charaka Samhita describes *Laghu*, *Ruksha*, *Aashu*, *Vishada*, *Vyavayi*, *Teekshna*, *Vikasi*, *Sukshma*, *Ushna* and *Anirdeshya* rasa as ten *Guna* of *visha*.^[5] *Sushruta* has described same ten properties but instead of *Anirdeshya* rasa he

described *Apaki* property.^[6] *Vagbhata* has mentioned both *Avyakta rasa* and *Apaki* property of *Visha*.^[7] Pharmacological action of medicine and poison depends upon *Guna*, *Rasa*, *Veerya*, *Vipaka* of the substance. So when we study common characteristics of *Bhallataka*, we find that *Bhallataka* carries properties like *Laghu* (Lightness) & *Teekshna* and its *Veerya* is *Ushna* which is similar to poison. According to *Sushruta*, *Laghu guna* implies instability due to which therapeutic measures do not produce desired results and it becomes *Dushchikitsya*. *Teekshna guna* causes injury to *marmas* (vital points) and also aggravate *Pitta* & *rakta*. *Ushna guna* aggravates *Pitta* & *Rakta*. Thus all these three properties of *Bhallataka* may cause harmful effect when it comes in contact with human body. The most significant components of the *S. anacardium* are *bhilwanols*, *phenolic compounds*, *biflavonoids*, *sterols* and *glycosides*. Chemical and phytochemical analyses of its nut reveal the presence of *biflavonoids*, *phenolic compounds*, *bhilawanols*, *minerals*, *vitamins* and *amino acids*.^[8] Ingestion causes acute irritation, painful ulceration of the oral cavity, esophagus, and stomach, accompanied by severe gastroenteritis, nausea, hematemesis, and tenesmus. Absorbed phenolics exert nephrotoxic and hepatotoxic burdens, contributing to renal tubular damage, oliguria, proteinuria, and hepatic cellular stress in acute systemic exposure. High doses contribute to systemic hypotension, cardiovascular depression, and autonomic imbalance leading to shock in severe toxicity cases.

The pharmacological profile of *Palashpushpa* (*Butea monosperma* flowers) validates its classical use in *Rakta-Pitta*, *Prameha*, and *Yakrit Vikaara* through a synergistic phytochemical matrix rich in *butrin*, *isobutrin*, and *buatein*.^[9,10] These active flavonoids and chalcones downregulate *NF-κB*, *TNF-α*, and *COX-2* to mediate significant hepatoprotective



and anti-inflammatory effects (*Sheeta Veerya* and *Pitta-Shamana*)^[11], while concurrently inhibiting α -glucosidase and α -amylase to regulate glycemic control (*Kleda-Soshana*). Furthermore, its potent

polyphenolic antioxidant activity limits membrane lipid peroxidation to deliver cytoprotective benefits (*Rasayana*).^[12]

Table no. 1 : Properties of Palashpushpa

(Rasa Panchaka)	Classical Action	Biomolecular Mechanism
Kashaya & Tikta Rasa	<i>Kleda-Soshana, Kapha-Pitta Shamaka</i>	Intestinal α -glucosidase/amylase inhibition; vascular constriction.
Laghu & Ruksha Guna	<i>Lekhana</i> (Scraping)	Lipid pathway modulation; reduction of cellular fluid retention.
Sheeta Veerya	<i>Dahaprashamana</i>	Suppression of NF- κ B, TNF- α , COX-2, and oxidative stress.
Madhura Vipaka	<i>Dhatu-Poshana</i>	Parenchymal cytoprotection via anti-apoptotic signaling.

Bhallataka-induced irritant toxicity—driven by lipophilic urushiols, bhillawanols, and anacardic acid derivatives—initiates acute tissue corrosion, vesicle formation, severe burning sensation (*Daha*), and extreme *Pitta-Rakta* aggravation due to its intense *Ushna* (hot) and *Teekshna* (sharp) pharmacodynamic attributes. *Palashpushpa* counteracts this toxic pathogenesis through direct qualitative opposition (*Viparita Guna*). Its *Sheeta Veerya* (cooling potency) directly pacifies hyper-aggravated *Pitta-Rakta* heat, blunting localized tissue inflammation and vascular congestion (*Dahaprashamana*). Concurrently, its *Kashaya-Tikta Rasa* (astringent-bitter taste) exerts *Grahi* (absorbent) and *Ropana* (lesion-healing) effects, precipitating surface proteins to form a protective matrix over eroded epithelium while halting exudation from cutaneous vesicles. At the biomolecular level, key bioactive flavonoids and chalcones—specifically butrin, isobutrin, and buatein—downregulate nuclear factor-kappa B (NF- κ B) translocation, cyclooxygenase-2 (COX-2) expression, and pro-inflammatory cytokine production (TNF- α , IL-6). Additionally, the polyphenolic hydroxyl groups scavenge reactive oxygen species (ROS) to inhibit membrane lipid peroxidation, maintaining parenchymal integrity. Collectively, *Palashpushpa* serves as a multi-

target antidote that neutralizes urushiol-mediated inflammatory cascades via membrane stabilization and heat-quenching mechanisms, providing a strong pharmacological rationale for its traditional use in managing plant-induced contact dermatitis and chemical tissue burns.

CONCLUSION

This study confirms the pharmacological validity of *Palashpushpa* (*Butea monosperma* flowers) as an effective *Agada* (antidote) in mitigating *Bhallataka* (*Semecarpus anacardium*) toxicity. The therapeutic response operates through a synergistic dual mechanism integrating classical pharmacodynamics with molecular tissue protection. Pharmacodynamically, the *Sheeta Veerya* (cooling potency) and *Kashaya-Tikta Rasa* (astringent-bitter taste) of *Palashpushpa* directly neutralize the hyper-aggravated *Pitta-Rakta* pathophysiology and intense *Ushna-Teekshna* heat induced by *Bhallataka*, thereby resolving localized cutaneous burning (*Dahaprashamana*) and blunting fluid exudation from vesicated lesions. At the biomolecular level, primary active flavonoids and chalcones—notably butrin, isobutrin, and buatein—downregulate urushiol-triggered pro-inflammatory pathways by inhibiting NF- κ B, COX-2, and TNF- α expression,



while the polyphenolic complex scavenges reactive oxygen species to prevent membrane lipid peroxidation. In summary, *Palashpushpa* functions as a comprehensive, multi-target therapeutic that restores membrane integrity, quenches acute contact dermatitis, and accelerates epithelial healing. However, further studies are needed to evaluate the pharmacokinetic and bioavailability profiles of its active markers, particularly butrin and isobutrin, in *in vivo* transdermal models. Additionally, randomized clinical trials and dosage-standardization studies are required to establish validated protocol guidelines for utilizing *Palashpushpa*-based topical formulations in the clinical management of urushiol-induced toxicities, chemical burns, and severe plant dermatitis.

REFERENCES

1. https://ijrap.net/admin/php/uploads/3212_pdf
2. Basavaraja. Basavarajeeyam (With Andhra Tatparya Sahita). Translated by Suryanarayana Rao P. Rajahmundry: ABS Publishers; 1998. Chapter 23, Visharoganidhanalakshana-Chikitsa Adhyaya; p. 385–386.
3. Pillay VV. Modern Medical Toxicology. 4th ed. (India): 2013. p 124-125
4. Pandit K Shastri, Dr. G Chaturvedi; Charaka Samhita of Agnivesha; Reprint edition, Chaukhamba Bharati Academy, Varanasi; Chikitsasthana 1:2/17, Rasayana adhyaya; 1998, p.33. 22.
5. Pandit K Shastri, Dr. G Chaturvedi; Charaka Samhita of Agnivesha; Reprint edition, Chaukhamba Bharati Academy, Varanasi; Chikitsasthana 23/24, Vishachikitsa adhyaya; 1998, p.629. 23.
6. Kaviraj Ambikadutta Shastri; Sushruta samhita of Maharshi Sushrut; Part-I, 14th edition, Chaukhamba Sanskrita Sansthana, Varanasi; Kalpasthana 2/19- 20, Sthavarvishavidnyaniyam adhyay; 2003, p.24
7. Pt. Lalchand Shastri Vaidya; Ashtangasangraha; 1st edition, Shree Baidyanath Ayurved Bhavan Private Ltd, Nagpur; Uttarthana 40/31, Vishapratisedh adhyay; 1988, p.623.
8. Semalty M, Semalty A, Badola A, Joshi GP, Rawat MS. Semecarpus anacardium Linn.: A review. Pharmacogn Rev. 2010 Jan;4(7):88-94. doi: 10.4103/0973-7847.65328. PMID: 22228947; PMCID: PMC3249908.
9. Sehrawat A, Khan TH, Prasad L, Sultana S. Butea monosperma (Lam.) Kuntze flowers attenuate 2-acetylaminofluorene-induced hepatic damage and hyperproliferation in Wistar rats. Phytother Res. 2006;20(10):834-839.
10. Tiwari P, Mishra BN, Sangwan NS. Phytochemical and pharmacological properties of Butea monosperma (Lam.) Kuntze: A comprehensive review. J Tradit Complement Med. 2019;9(4):245-256.
11. Khan TA, Akhtar J, Mujeeb M. Isolation and estimation of bioactive marker butrin in Butea monosperma flowers by HPTLC and its hepatoprotective evaluation. Biomed Res Int. 2018;2018:4189250.
12. Sharma N, Garg V. Antidiabetic and antioxidant potential of Butea monosperma (Lam.) Taub. flowers in alloxan-induced diabetic mice. Indian J Exp Biol. 2009;47(12):988-994.

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