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Anti-inflammatory Activity of Bodhyadi Lepa : A Review Article

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ABSTRACT: Inflammation is a fundamental physiological defense mechanism initiated by the body in response to infection, toxins, trauma, or tissue damage. It is classically characterized by redness, heat, swelling, and pain, all of which reflect underlying vascular and cellular processes aimed at eliminating harmful stimuli and initiating repair. However, when inflammation becomes excessive, chronic, or uncontrolled, it contributes to a wide range of pathological conditions. Modern medicine relies predominantly on corticosteroids and non-steroidal anti-inflammatory drugs (NSAIDs) to manage such inflammatory states. Although effective, these agents are associated with significant adverse effects including gastrointestinal irritation, renal impairment, delayed wound healing, and immunosuppression especially with long-term use. This has prompted increasing interest in herbal, plant-based, and integrative medicines that can offer effective anti-inflammatory action with better safety margins. Ayurveda, the traditional Indian system of medicine, describes several external therapeutic formulations for localized inflammatory conditions. One such classical formulation is *Bodhyadi Lepa*, cited in the *Luta Visha Pratishedha Adhyaya* (management of spider bite) of *Ashtanga Sangraha Uttarsthana*. It is specifically indicated for the management of inflammation and swelling caused by *Luta damsha* (spider bite), a condition closely resembling acute inflammatory reactions. *Bodhyadi Lepa* is composed of three herbs: *Bodhi* (*Ficus religiosa*), *Shleshmataka* (*Cordia dichotoma*), and *Vibhitaka* (*Terminalia belarica*). Classical Ayurvedic texts attribute to these herbs properties such as *shothahara* (anti-inflammatory), *vedanasthapana* (analgesic), and *vishaghna* (anti-toxic), suggesting a broad therapeutic utility. These herbs are easily available, economical and traditionally considered safe for external use. This review synthesizes both classical Ayurvedic literature and contemporary scientific evidence to critically assess the anti-inflammatory potential of *Bodhyadi Lepa*.

KEYWORDS: Inflammation, Anti-inflammatory, *Ficus religiosa, Cordia dichotoma, Terminalia Bellarica*

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INTRODUCTION:

Inflammation is considered as a primary physiological mechanism that helps body to protect itself against various noxious stimuli. It is a defence reaction, the ultimate goal of which is to help the organism get rid of both initial cause of injury (eg. Microbes & toxins) and consequences of such injury (eg. Necrotic cells & tissues)[1] Ayurveda, the ancient Indian system of medicine, offers a rich collection of formulations aimed at treating inflammatory conditions through both internal and external therapies. Among these, *Bodhyadi Lepa* is a classical polyherbal external application described by *Acharya Vagbhata* in the *Ashtang Sangraha Uttarsthana*, specifically in the context of *Luta Vish Chikitsa* (management of spider and insect bites).[2] According to the classical text, a *Luta damsha* (spider bite) typically produces acute inflammatory symptoms such as *shotha* (swelling),[3] pain, and localized burning sensations.[4] To mitigate this inflammatory response, *Vagbhata* recommends *Bodhyadi Lepa*, highlighting its ability to alleviate swelling and neutralize local toxicity.[5] *Bodhyadi Lepa* consists of three herbal components—*Bodhi* (*Ficus religiosa*), *Shleshmataka* (*Cordia dichotoma*), and *Vibhitaka* (*Terminalia belerica*).[6] each known for their *Shothahara* (anti-inflammatory), *Vedanasthapana* (analgesic), and *Vishaghna* (anti-toxic) properties. Modern therapeutic approaches rely heavily on non-steroidal anti-inflammatory drugs (NSAIDs) and corticosteroids, which, despite their efficacy, are associated with notable adverse effects when used for prolonged period.[7] Therefore, traditional treatment involving plant parts can be used in the inflammatory disorders.[8] This review article aims to compile, analyze, and correlate both classical Ayurvedic descriptions and contemporary scientific findings related to the anti-inflammatory potential of *Bodhyadi Lepa* and its constituent herbs. By bridging traditional wisdom with modern pharmacological understanding, this review seeks to establish a rationale for its therapeutic application in a wide spectrum of inflammatory conditions.

PREVIOUS WORK DONE

1. Evaluation of antioxidant, wound healing and anti-inflammatory activity of ethanolic extract of leaves of *Ficus religiosa*. International journal of pharmaceutical sciences and research 2010.
2. Evaluation of a newly formulated anti-inflammatory ointment from *Ficus religiosa* root bark. International journal of drug technology 2023.
3. Screening of *Ficus religiosa* leaves fractions for analgesic and anti-inflammatory activities. Indian J Pharmacol. 2011 Nov-Dec; 43(6): 662–666.
4. Evaluation of analgesic, antipyretic and anti-inflammatory activity on *Cordia dichotoma G. Forst*. Leaf. Richa Gupta and Jagjit Kaur. Pharmacognosy Res. 2015 Jan-Mar; 7(1): 126–130.
5. Anti-inflammatory and Antioxidant Activities of *Cordia dichotoma Forst*. Nazim Hussain, Bibhuti Bhushan Kakoti, Mithun Rudrapal, Zubaidur Rahman, Mokinur Rahman and Devid Chutia. Biomedical and Pharmacology Journal. Vol.13
6. Evaluation of Toxicity Studies and Anti-inflammatory activity of *Terminalia belarica* in Carrageenan-induced Paw Edema in experimental rats. Prerana Chauhan, Surender Singh, YK Gupta, Uma Kumar. Departments of Pharmacology and 1Rheumatology, All India Institute of Medical Sciences, New Delhi, India.

MATERIALS AND METHODS

A systematic search was performed on databases such as PubMed, SCOPUS, AYUSH

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Portal and Google Scholar. Search terms included- *Ficus Religiosa, Terminalia Belarica, Cordia Dichotoma,* anti-inflammatory.

REVIEW OF LITERATURE

Bodhyadi Lepa is a classical Ayurvedic formulation composed of Bodhi (Ficus religiosa), Shleshmataka(Cordia dichotoma) and Vibhitaka (Terminalia belarica). Traditionally it is cited for it's anti-inflammatory effect in Luta damsha. In the Luta visha pratishedha adhyaya of Ashtang Sangrah, Bodhyadi Lepa is indicated in swelling caused by poisonous bites.

Drug	Latin Name	Ayurvedic Karma	Relevant Actions
Bodhi	*Ficus religiosa*	*Vedanasthapana, Shothahara*	Analgesic, anti-inflammatory
Shleshmatak	*Cordia dichotoma*	*Vishaghna*	Anti-poisonous, anti-edematous
Vibhitak	*Terminalia bellerica*	*Shothahara*	Anti-oxidant, anti-inflammatory

Lepa is defined as an external paste prepared by grinding dry/wet herbal substances with water.

Indications in classical texts

- *Luta visha pratishedha* – management of swelling caused by insect (spider) bites
- *Shotha* (inflammation)
- Localized edematous conditions

Mode of Action According to Ayurveda

- *Shothahara* (Anti-inflammatory) activity reduces local swelling
- *Vedanasthapana* (Pain relief) alleviates pain
- *Vishaghna* (Anti-toxic) action neutralizes toxic inflammatory response
- *Lepa* application produces *bahya chikitsa* (External therapy) facilitating quick relief at the site of pathology

Ficus religiosa, commonly known as *peepal* tree is distributed throughout India, Pakistan, China and other tropical countries. The bark is reported to possess wound healing activity,[9] anti-inflammatory, analgesic, anti-lipid peroxidation activity,[10] and tender shoots have purgative properties.[11] The leaf extract shows the presence of glycosides and tannins from the phytochemical analysis.[12] Seeds of *Cordia dichotoma* are used for the management of various inflammatory disorders.[13] *Terminalia bellarica* is known for its anti-inflammatory, wound healing and anti-oxidant properties.[14,15]

DISCUSSION:

Acute inflammation pathology involves a rapid response to injury or infection characterized by four classic signs: redness, heat, swelling, and pain. Pathologically, this involves increased blood flow (vasodilation), increased vascular permeability causing fluid leakage (exudate), and the migration of neutrophils to the site to clear the offending agent through phagocytosis.

Ficus religiosa

1. Blocks mediators responsible for vasodilation & pain.
   - Inhibits prostaglandins (PGE2) → reduces pain, heat, redness.
   - Reduces nitric oxide (NO) production → decreases vasodilation.
2. Reduces vascular permeability (less swelling)
   - Tannins in bark stabilize capillary walls → reduces plasma leakage.
3. Antioxidant effect supports tissue repair.

Terminalia bellarica

1. Strong inhibitor of inflammatory mediators

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- Suppresses COX and LOX enzymes → reduces prostaglandins & leukotrienes.
- Decreases TNF-α and IL-1 → reduces intensity of inflammation.

Cordia dichotoma

1. Blocks early mediators of acute inflammation
   - Suppresses histamine and serotonin, which cause early vasodilation.
2. Reduces edema formation
   - Proven to reduce acute-phase swelling, especially in early phase.
3. Soothing, demulcent effect reduces irritation and pain

Bodhyadi Lepa embodies a unique *Ayurvedic* approach for inflammation management, particularly where topical therapy is preferred. The polyherbal combination ensures a multidimensional therapeutic effect. The findings affirm that constituents of *Bodhyadi Lepa* contain anti-inflammatory properties. Results from recent studies increases the reliability of the formulation. The formulation is simple to prepare, cost-effective, ea and free from steroid-associated toxicities. Given the adverse effects of chronic NSAID use, *Bodhyadi Lepa* holds great promise as an herbal substitute for traumatic edema, insect bites, cellulitis and inflammatory skin lesions.

CONCLUSION:

The review consolidates the Ayurvedic heritage with contemporary pharmacological evidence supporting each constituent's efficacy. However, while individual ingredients have been investigated extensively, comprehensive clinical trials on the complete *Bodhyadi Lepa* formulation remain necessary to fully validate and standardize its therapeutic use. Future research should focus on controlled studies evaluating its safety profile and comparative efficacy against standard anti-inflammatory treatments. Overall, *Bodhyadi Lepa* represents a valuable integrative approach to inflammation management, combining time-honored herbal wisdom with modern scientific insights. Its multi-targeted mechanism addresses the complex pathology of inflammation, making it a relevant and effective tool in Ayurvedic therapeutics for both acute inflammations. Continued exploration and clinical validation will enhance its acceptance and application in broader medical practice. This conclusion reflects the formulated evidence and traditional knowledge about *Bodhyadi Lepa*'s anti-inflammatory activity and future research requirements for its optimized use as an herbal medicinal treatment.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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