

Vishaushadhis In Spinal Disorders: A Review Of Classical Ayurvedic Applications, Pharmacological Perspectives And Safety Considerations

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ABSTRACT

Spinal disorders are major contributors to chronic pain, functional limitation, and reduced quality of life. Conditions such as cervical and lumbar spondylosis, prolapsed intervertebral disc, and sciatica may involve pain, stiffness, restricted mobility, and neurological manifestations. Ayurveda describes individualized management of Vata-predominant disorders through internal medicines, Panchakarma procedures, and selected potent formulations. Vishaushadhis—the therapeutic use of appropriately processed toxic substances—occupy a specialized position within Ayurvedic therapeutics. Classical Ayurvedic literature describes the use of substances such as Vatsanabha (*Aconitum ferox*), Kuchala (*Strychnos nuxvomica*), Bhallataka (*Semecarpus anacardium*), Gunja (*Abrus precatorius*), Langali (*Gloriosa superba*), and Dhatura (*Datura spp.*) after appropriate pharmaceutical processing and in carefully controlled doses. This narrative review examines their classical Ayurvedic relevance, reported pharmacological actions, possible relevance to spinal disorders, and safety considerations. The evidence is considered according to its source and level, including classical textual descriptions, pharmacological studies, experimental evidence, and available clinical information. Contemporary pharmacological findings may provide mechanistic plausibility for selected traditional applications; however, such findings should not be equated with clinical efficacy in spinal disorders. Direct clinical evidence specifically evaluating Vishaushadhis in spinal disorders remains limited and heterogeneous. Appropriate Shodhana, pharmaceutical standardization, accurate identification, dose control, patient selection, clinical supervision, and pharmacovigilance are therefore essential. Further standardized experimental and well-designed clinical studies are required to establish safety, efficacy, and clinical applicability.

Keywords: Musculoskeletal disorders; Vata Dosha; Vishaushadhis; spinal disorders; Shodhana; safety; pharmacovigilance
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AIMS AND OBJECTIVES

Aim: To review the therapeutic potential and safety considerations of Vishaushadhis in spinal disorders from classical Ayurvedic and contemporary scientific perspectives.

Objectives:

- To explore the Ayurvedic concept of Vishaushadhis and their therapeutic relevance to Vata-predominant disorders.
- To review important Vishaushadhis traditionally used in selected Vata-related and neuromuscular conditions.
- To summarize pharmacological and therapeutic actions reported for individual Vishaushadhis.

- To distinguish classical, pharmacological, experimental, clinical, and spinal-disorder-specific evidence.

- To identify research gaps and future directions for evidence-based evaluation of Vishaushadhis in spinal care.

REVIEW METHODOLOGY

This manuscript is presented as a narrative review. Classical Ayurvedic sources, the Ayurvedic Pharmacopoeia of India, and published pharmacological and clinical literature cited in the manuscript were considered. Evidence was interpreted according to its source rather than treating all evidence as equivalent. Classical textual descriptions were considered evidence of traditional use; experimental and pharmacological studies were considered evidence of biological

plausibility or preclinical activity; and human studies were considered clinical evidence. Particular attention was given to evidence directly related to spinal disorders, while evidence from other inflammatory, neurological, or pain models was treated as indirect evidence.

RASASHASTRA AND VISHAUSHADHIES

Rasashastra and Bhaishajya Kalpana are important branches of Ayurveda concerned with pharmaceutical processing and preparation of specialized medicines involving mineral, metallic, animal, and herbal substances. Classical pharmaceutical procedures include Shodhana and, where applicable, Marana, Murchana, and Jarana. The purpose and procedure of pharmaceutical processing vary according to the individual substance and formulation. Processing should not be assumed to eliminate toxicity unless supported by appropriate analytical, toxicological, or clinical evidence.

Vishaushadhis

Vishaushadhis are toxic or potentially toxic substances used therapeutically in Ayurveda after appropriate identification, pharmaceutical processing, and administration in carefully controlled doses. The therapeutic use of such substances reflects the Ayurvedic principle that a substance with inherent toxicity may have therapeutic application when appropriately processed and administered. Because several Vishaushadhis have narrow therapeutic margins, their use requires qualified supervision, accurate dosing, appropriate formulation, quality control, and monitoring for adverse effects.

WHY VISHAUSHADHIS IN SPINAL DISORDERS?

- Spinal disorders may be interpreted within the Ayurvedic framework of Vata-predominant disorders, including Gridhrasi, Katigraha, and Manyastambha, depending on the clinical presentation.
- Selected Vishaushadhis are traditionally considered potent because of properties described for particular drugs, including Laghu, Ruksha, Tikshna, Sukshma, Vyavayi, Vikasi, and Ushna. These properties should be interpreted individually rather than generalized to every Vishaushadhi.
- After appropriate pharmaceutical processing, selected Vishaushadhis are used in minute therapeutic doses in indicated conditions.
- The traditional rationale may involve actions relevant to Shoola (pain), Stambha (stiffness), obstruction, Shotha (inflammation), and neuromuscular dysfunction; these interpretations represent Ayurvedic rationale and should not be presented as experimentally established mechanisms unless supported by evidence.
- Safety depends on correct identification, appropriate Shodhana, pharmaceutical standardization, dose selection, suitable formulation, patient selection, and expert clinical supervision.

SPINAL DISORDERS

The spine (Merudanda) is a vital structural and functional axis of the body, supporting movement and protecting

the spinal cord. In Ayurveda, many spinal and neuromuscular presentations may be interpreted predominantly through Vata Dosha and may involve factors such as Dhatu Kshaya, Ama, and Srotorodha depending on the clinical context. Katigraha, Greevagraha, and Gridhrasi may provide Ayurvedic clinical frameworks for presentations involving low back pain, neck stiffness, and sciatic-type symptoms. These should be regarded as interpretative correlations rather than one-to-one diagnostic equivalents of modern medical diagnoses.

INCIDENCE AND PREVALENCE

Spinal disorders, particularly low back pain, are major contributors to pain and disability worldwide. Age-related degeneration, occupational factors, posture, sedentary behaviour, and prolonged screen use may contribute to spinal symptoms. In the Ayurvedic framework, many such presentations may be considered Vata-predominant, emphasizing individualized assessment, prevention, lifestyle modification, and appropriate management.

CLINICAL IMPORTANCE OF VISHAUSHADHIS IN SPINAL DISORDERS

Spinal disorders such as cervical spondylosis, lumbar spondylosis, intervertebral disc prolapse, and sciatica may present with pain, stiffness, restricted mobility, nerve-root irritation or compression, and functional disability. Selected Vishaushadhis are traditionally valued for potent actions in particular indications. Properties such as Tikshna and Sukshma are described for several substances and may provide an Ayurvedic rationale for their use; however, direct evidence of efficacy in spinal disorders must be assessed separately. Classical formulations containing Vishaushadhis, including Vishatinduka Vati and Ekangaveera Rasa, are used in selected Vata-related and neuromuscular conditions. The therapeutic role of each formulation depends on its complete composition, pharmaceutical processing, classical indication, dose, patient-specific assessment, and available clinical evidence.

EXAMPLES OF IMPORTANT VISHAUSHADHIS **1. VATSANABHA (*Aconitum ferox*)**

Classical perspective: Vatsanabha is described with properties including Madhura Rasa, Ushna Virya, and Laghu, Ruksha, Tikshna, Vyavayi and Vikasi Guna in the cited Ayurvedic literature. Its traditional use is associated with selected Vata-related indications.

Contemporary perspective: Aconitum alkaloids, including aconitine, interact with voltage-gated sodium channels and can alter neuronal excitability. These pharmacological effects may contribute to analgesic activity but are also associated with potentially serious cardiotoxic and neurotoxic effects.

Evidence interpretation: Pharmacological evidence provides mechanistic plausibility; it should not be interpreted as direct clinical evidence for spinal disorders. Strict pharmaceutical processing, dose control, quality assurance, and clinical supervision are essential.

2. BHALLATAKA (*Semecarpus anacardium*)

Classical perspective: Bhallataka is traditionally described as having Madhura Rasa, Ushna Virya, Laghu and Ruksha Guna, with Vata-Kaphahara relevance in selected contexts.

Contemporary perspective: Phenolic and related constituents have been investigated for anti-inflammatory, antioxidant, and immunomodulatory activities.

Evidence interpretation: These findings may provide pharmacological plausibility for selected traditional applications, but they do not establish clinical efficacy in spinal disorders. Direct evidence should be separately identified.

3. GUNJA (*Abrus precatorius*)

Classical perspective: Gunja is described with Tikta and Kashaya Rasa, Laghu and Ruksha Guna, Ushna Virya, and selected therapeutic actions in classical literature.

Contemporary perspective: *Abrus precatorius* contains biologically active constituents including abrin, a highly toxic protein.

Evidence interpretation: Discussion of Gunja should be restricted to appropriately processed classical preparations and must clearly distinguish traditional use from the toxicity of raw material. No claim of spinal efficacy should be made without direct evidence.

4. KUCHALA (*Strychnos nux-vomica*)

Classical perspective: Kuchala is traditionally associated with selected Vata- and Kapha-related neuromuscular conditions and is incorporated into formulations such as Vishatinduka Vati.

Contemporary perspective: Strychnine and brucine are important alkaloids of *nux-vomica*. Strychnine has marked effects on the central nervous system and spinal reflexes.

Evidence interpretation: These pharmacological effects may provide a rationale for some traditional applications but also account for substantial toxicity. Appropriate processing and strict dose control are essential.

5. LANGALI (*Gloriosa superba*)

Classical perspective: Langali is traditionally described with Katu, Tikta and Kashaya Rasa; Laghu, Tikshna, Kshara and Sara Guna; and Ushna Virya.

Contemporary perspective: *Gloriosa superba* contains colchicine and related constituents and has recognized toxicity. Traditional applications include selected external uses for pain and swelling.

Evidence interpretation: The narrow therapeutic margin limits therapeutic application and requires strict control. Claims concerning spinal disorders should be limited to evidence actually available for those disorders.

6. DHATURA (*Datura metal*)

Classical perspective: Dhatura is described with selected Vata-related and Shoolaghna actions in classical literature.

Contemporary perspective: Tropane alkaloids such as atropine and scopolamine exert anticholinergic effects. These actions may contribute to traditional antispasmodic applications but can also produce severe systemic toxicity.

Evidence interpretation: Unrestricted internal use should not be advocated. The manuscript should clearly distinguish traditional external or formulation-specific applications from the toxicity of raw *Datura* material.

EVIDENCE SYNTHESIS

The evidence relevant to Vishaushadhis should be interpreted hierarchically. Classical textual descriptions establish traditional use but do not establish modern clinical efficacy. Pharmacological studies may identify biological activities or mechanisms but may use isolated compounds, extracts, or experimental models that differ substantially from standardized Ayurvedic formulations. Preclinical studies provide additional evidence of biological effects but cannot substitute for controlled human studies. Clinical studies provide direct human evidence, while spinal-disorder-specific clinical studies provide the most directly relevant evidence for the present review.

Vishaushadhi	Classical relevance	Pharmacological evidence	Safety concern	Evidence interpretation
Vatsanabha	Selected Vata-related indications	Aconitum alkaloids; sodium-channel effects; analgesic plausibility	Cardiotoxic/neurotoxic potential	Indirect/mechanistic
Bhallataka	Selected inflammatory/Vata-Kapha contexts	Anti-inflammatory/antioxidant/immunomodulatory reports	Irritant/toxic potential; formulation dependent	Indirect/preclinical
Gunja	Selected classical applications	Abrin and other bioactive constituents; toxicity is prominent	Very high toxicity of raw material	Classical/indirect
Kuchala	Neuromuscular/Vata-related applications	Strychnine/brucine CNS and spinal-reflex effects	Marked CNS toxicity	Indirect/mechanistic
Langali	Selected traditional applications	Colchicine-related pharmacology; toxicity	Narrow therapeutic margin	Indirect
Dhatura	Selected Vata-related/Shoolaghna applications	Anticholinergic tropane alkaloids	Severe systemic anticholinergic toxicity	Indirect

DISCUSSION

Vishaushadhis occupy a specialized position in Ayurveda because their therapeutic use is inseparable from pharmaceutical processing, dose selection, and clinical supervision. The present review indicates that the scientific evidence varies substantially between individual drugs and between levels of evidence. A pharmacological finding should therefore be interpreted as mechanistic or preclinical evidence unless a relevant clinical study supports a clinical conclusion.

Vishaushadhis are traditionally described as potent formulations intended for use in carefully regulated doses. Their therapeutic application should therefore follow the classical dosage recommendations and appropriate pharmaceutical processing, with dose selection individualized according to the formulation, patient factors, condition, and duration of therapy. Excessive or unsupervised use should be avoided, as an increase in dose does not necessarily enhance therapeutic benefit and may increase the risk of adverse effects.

Hence, Vishaushadhis should be administered only in the recommended dose under appropriate professional supervision, with careful attention to safety and monitoring.

Vatsanabha and Kuchala illustrate the importance of this distinction. Their bioactive alkaloids have pronounced effects on neuronal excitability and central nervous system function, providing possible pharmacological explanations for selected traditional uses. At the same time, these mechanisms are associated with significant toxicity. Bhallataka has been investigated for anti-inflammatory, antioxidant, and immunomodulatory effects, but these findings do not by themselves establish efficacy in spinal spondylosis or sciatica. Gunja, Langali, and Dhatura similarly require cautious interpretation because their toxic constituents and narrow therapeutic margins are central to their safety profile.

The Ayurvedic correlation of spinal disorders with Vata-predominant disorders such as Gridhrasi, Katigraha, and Manyastambha provides a useful conceptual framework, but modern diagnoses should not be treated as exact equivalents of classical disease entities. Future research should therefore define both the Ayurvedic diagnostic criteria and the modern clinical diagnosis when studying these medicines.

SAFETY, STANDARDIZATION AND PHARMACOVIGILANCE

Safety is a central consideration in the therapeutic use of Vishaushadhis. Correct botanical identification, authentication of raw material, appropriate Shodhana, pharmaceutical standardization, accurate dosing, suitable formulation, and qualified clinical supervision are essential. Where available, analytical characterization should be used to establish batch consistency and to assess relevant toxic constituents or contaminants.

Reported adverse effects associated with certain Ayurvedic formulations, particularly those containing metals and minerals, may vary depending on the

ingredients, pharmaceutical processing, dose, duration of exposure, and individual patient factors. Documented safety concerns emphasize the importance of proper identification and purification of raw materials, standardized pharmaceutical processing, quality control, and analytical characterization. Therefore, future research should focus on standardized pharmaceutical procedures, physicochemical and analytical evaluation, toxicological assessment, pharmacokinetic studies, clinically relevant dose-ranging, potential drug-interaction studies, systematic adverse-event monitoring, and strengthening of pharmacovigilance and standardized adverse drug reaction reporting to establish their safety profile and support their rational clinical use. Adverse effects may involve neurological, cardiovascular, gastrointestinal, hepatic, renal, or systemic toxicity depending on the substance and dose. Future research should include Shodhana, standardized pharmaceutical procedures, analytical characterization, toxicological evaluation, pharmacokinetic studies, clinically relevant dose-ranging, interaction studies, systematic adverse-event monitoring, and pharmacovigilance.

RESEARCH GAPS AND FUTURE DIRECTIONS

- Standardized documentation of Shodhana and other pharmaceutical procedures for each Vishaushadhi.
- Analytical characterization of raw and processed materials and assessment of batch-to-batch consistency.
- Comparative toxicological studies of raw versus appropriately processed materials where ethically and scientifically justified.
- Preclinical studies using standardized formulations rather than only isolated constituents or non-equivalent extracts.
- Well-designed clinical trials with clearly defined Ayurvedic diagnostic criteria and modern clinical outcomes.
- Spinal-disorder-specific studies evaluating pain, functional disability, neurological outcomes, quality of life, and adverse events.
- Pharmacokinetic and drug-interaction studies where relevant.
- Prospective pharmacovigilance and long-term safety monitoring.

CONCLUSION

Vishaushadhis represent a specialized therapeutic group in Ayurveda in which appropriately processed toxic substances are used in carefully controlled therapeutic settings. Their classical application may be relevant to selected disorders characterized by pain, stiffness, inflammation, obstruction, and neuromuscular dysfunction. Spinal presentations such as sciatica, cervical or lumbar spondylosis, and related Vata-predominant conditions may be interpreted within an Ayurvedic framework, but such correlations should not be treated as one-to-one diagnostic equivalences.

Properties such as Tikshna, Ushna, Sukshma, Vyavayi, and Vikasi are described for particular substances and

should be interpreted according to the individual drug and formulation. Available classical and pharmacological evidence suggests potential analgesic, anti-inflammatory, antispasmodic, or neuromuscular relevance for selected Vishaushadhis; however, direct clinical evidence specifically establishing their efficacy in spinal disorders remains limited and heterogeneous. The therapeutic utility of Vishaushadhis is inseparable from safety. Appropriate Shodhana, pharmaceutical standardization, accurate dosing, suitable formulation, patient selection, expert supervision, and pharmacovigilance are essential. Further interdisciplinary research involving pharmaceutical standardization, pharmacological evaluation, toxicity profiling, pharmacokinetic studies, controlled clinical trials, and systematic adverse-event monitoring is necessary before their evidence-based role in contemporary spinal care can be firmly established.

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