

THERAPEUTIC POTENTIALS FROM *BHAVAPRAKASHA NIGHANTU* WITH SPECIAL REFERENCE TO *BHAGNASANDHANAKARA KARMA*

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ABSTRACT

Fractures are a common occurrence, with studies indicating that a significant percentage of people will experience a fracture at least once in their lifetime. A fracture occurs when the force applied to a bone exceeds its inherent strength, leading to a break. While many fractures result from high-impact events, such as falls, car accidents, or sports injuries, others can develop as a consequence of medical conditions that weaken the bones, like osteoporosis, which makes bones more fragile and susceptible to breaks from even minor stress. In this paper, we explore the various bhagna-sandhanakara dravyas, or herbs, as described in the ancient text Bhavaprakasha Nighantu. These preparations are traditionally used in Ayurvedic medicine to support bone healing and repair. We will also discuss their potential mechanisms of action, examining how these substances may aid in the healing process of fractures (bhagna) by promoting bone strength, reducing inflammation, and enhancing overall recovery. Through this exploration, we aim to provide a comprehensive understanding of both the clinical implications of fractures and the therapeutic options available in traditional medicine.

KEYWORDS: Fracture, *Bhagna-sandhana karma*, *Bhavaprakasha Nighantu*

INTRODUCTION:

In various Ayurvedic texts, an extensive range of treatment modalities for astibhagna, or bone fractures, is documented. Among these, the surgical techniques described by Acharya Sushruta¹ stand out due to their systematic approach to fracture management. In addition to these surgical methods, traditional healers and bone setters across different cultures employ a variety of herbal remedies to aid in the healing process of fractures. A thorough exploration of several Nighantus (Ayurvedic compendiums) reveals numerous herbs known for their efficacy in promoting the repair of broken bones. This effort aims to compile a comprehensive list of bhagna-sandhanakara dravyas, or healing substances, as documented in the Bhavaprakasha Nighantu. The Bhavaprakasha Nighantu, authored by Bhavamishra in the 16th century A.D., is considered a seminal text in Ayurveda, classified among the three key texts known as laghutrayee. This Nighantu is meticulously organized into various sections (vargas), such as Haritakyadi Varga, which includes digestive enhancers; Karpooradi Varga, featuring aromatic compounds; and Guduchyadi Varga, which focuses on immune-boosting herbs, among others. In the process of compiling this information, drugs from the Bhavaprakasha Nighantu were systematically screened for their role in bhagna-sandhana. This analysis encompasses substances derived from herbal, mineral, and animal sources, each categorized according to their respective vargas. Detailed references from the text provide validation for their therapeutic properties, highlighting the interconnectedness of traditional healing practices and the empirical knowledge found in Ayurvedic literature.

Table 1: Bhagnasandhanakara drugs of Haritakyadi varga with respective references

Sl.	Drug Name	Botanical Name	Action of Drug	Corresponding reference
1.	<i>Rasona</i>	<i>Allium sativum</i>	<i>Bhagnasandhana</i>	B.P.N.1/222
2.	Astha varga (Group of eight drugs) <i>Jeevaka</i> <i>Rishbhaka</i> <i>Meda</i> <i>Mahameda</i> <i>Kakoli</i> <i>Ksheerakakoli</i> <i>Ridhi</i> <i>Vridhi</i>	<i>Microstylis wallichii</i> <i>Microstylis muscifera</i> <i>Polygonatum cirrifolium</i> <i>Polygonatum verticillate</i> <i>Fritillaria aroylei</i> <i>Lilium polyphyllum</i> <i>Habenariaedgeworthii</i> <i>Habenarialatilabris</i>	<i>Bhagnasandhana</i>	B.P.N.1/122

Table 2: Bhagnasandhanakara drugs of Karpuradi varga with respective references

Sl	Drug Name	Botanical Name	Family	Action of Drug	Corresponding reference
1.	<i>Guggulu</i>	<i>Commiphora mukul</i>	Burseraceae	<i>Bhagnasandhana</i>	B.P.N.2/39

Table 3: Bhagnasandhanakara drugs of Guduchyadi varga with respective references

Sl	Drug Name	Botanical Name	Action of Drug	Corresponding reference
1.	<i>Gandhaprasarini</i>	<i>Paederia foetida</i>	<i>Sandhanakaraka</i>	B.P.N.3/409
2.	<i>Asthishrinkhala</i>	<i>Cissus Qudrangularis</i>	<i>Asthisamhari</i>	B.P.N.3/226

Table 4: Bhagnasandhanakara drugs of Vatadi varga with respective references

Sl	Drug Name	Botanical Name	Action of Drug	Corresponding reference
1.	Panchavalkala <i>Vata</i> <i>Udumbara</i> <i>Plaksha</i> <i>Parisha</i> <i>Ashwatha</i>	<i>Ficus bengalensis</i> <i>Ficus glomerata</i> <i>Ficus infectoria</i> <i>Ficus arnottiana</i> <i>Ficus religiosa</i>	<i>Bhagnasthiyojaka</i>	B.P.N.5/17
2.	Palasha	<i>Butea monosperma</i>	<i>Bhagnasandhana</i>	B.P.N.5/50
3.	Dhanvanga	<i>Grewia tiliaefolia</i>	<i>Sandhikrudh</i>	B.P.N.5/62

Table 5: Bhagnasandhanakara drugs of Dhatwadi varga with respective references

Sl	Drug Name	English Name	Action of Drug	Corresponding reference
1.	<i>Sindhura</i>	Red oxide of Mercury	<i>Bhagnasandhana</i>	B.P.N.7/77

Table 6: Bhagnasandhanakara drugs of Dhanya varga with respective references

Sl	Drug Name	Botanical Name	Action of Drug	Corresponding reference
1.	Godhuma	<i>Triticum sativum</i>	<i>Sandhanakaraka</i>	B.P.N.8/33
2.	Kangu	<i>Setariaitalic</i>	<i>Bhagnasandhana</i>	B.P.N.8/77

Table 7: Bhagnasandhanakara drugs of Krutanna varga with respective references

Sl	Drug Name	Action of Drug	Corresponding reference
1.	<i>Sevika</i> (A kind of food preparation)	<i>Sandhikrudh</i>	B.P.N.11/20

Table 8: Bhagnasandhanakara drugs of Dugdha varga with respective references

Sl	Drug Name	Action of Drug	Corresponding reference
1.	<i>Dugdha</i>	<i>Sandhikari</i>	B.P.N.13/2

Table 9: Bhagnasandhanakara drugs of Taila varga with respective references

Sl	Drug Name	Botanical Name	Family	Action of Drug	Corresponding reference
1.	<i>Tila</i>	<i>Sesamum indicum</i>	Pedaliaceae	<i>Bhagnasputita</i>	B.P.N.19/6

Table 10: Bhagnasandhanakara drugs of Madhu varga with respective references

Sl	Drug Name	English Name	Action of Drug	Corresponding reference
1.	<i>Madhuchista</i>	Bee wax	<i>Bhagnasandhana</i>	B.P.N.21/30

PROBABLE MODE OF ACTION

The healing of fractures is influenced by the chemical composition and active principles contained in specific therapeutic drugs.

Flavonoids²: Research has indicated that flavonoids, a diverse group of phytonutrients found in various fruits, vegetables, and plants, play a significant role in bone health. Two epidemiological studies focusing on women have established a positive correlation between total dietary flavonoid intake and increased bone mineral density. Flavonoids may protect against bone loss by enhancing the activity of signaling pathways that promote osteoblast function—the cells responsible for bone formation. Additionally, flavonoids have been shown to mitigate the adverse effects of oxidative stress and chronic low-grade inflammation, both of which are detrimental to bone health. An illustrative example of a plant rich in flavonoids is Gandhaprasarini (*Paederia foetida*), which has been traditionally used in herbal medicine for its beneficial effects on bone and joint health.

Bone Fracture Healing Activity of *Cissus quadrangularis*^{3,4}:

Cissus quadrangularis, commonly known as the "Bone Setter," is a notable herbal remedy widely recognized in traditional medicine systems, particularly in South Asia. It is referred to as "Hadjod" in Hindi due to its remarkable ability to facilitate bone healing and repair. The primary active ingredient in *Cissus quadrangularis* is believed to be a bioactive steroid that interacts with estrogen receptors in bone tissue, potentially enhancing the repair process.

Research has demonstrated that *Cissus quadrangularis* not only supports the stimulation of metabolic processes but also significantly increases the uptake of essential minerals, such as calcium, sulfur, and strontium, by osteoblasts during the fracture healing process. This enhanced mineral absorption is crucial for strengthening bone structure and promoting regeneration. Furthermore, studies suggest that *Cissus quadrangularis* helps counteract the anti-anabolic effects of cortisone, a steroid that can impede healing, likely attributed to its rich vitamin C content, which is known for its role in collagen synthesis and overall tissue repair. Overall, *Cissus quadrangularis* offers a multifaceted approach not only to enhance bone density but also to improve functional outcomes following fractures.

DISCUSSION AND CONCLUSION

The effective management of fractures centers on three core principles: Reduction, Immobilization, and Rehabilitation⁵. These principles have been highlighted by ancient practitioners, or Acharyas, who combined them with specific medicinal treatments to promote optimal healing of fractures. The use of various herbs is foundational in this healing process. These herbs are administered in multiple forms, including kashaya (herbal decoctions), churna (powders), vati (tablets), asava and arishta (fermented herbal preparations), and lepa (herbal pastes applied externally). Beyond the herbs cataloged in the Bhavaprakasha Nighantu, a foundational text in Ayurveda, many other herbal remedies are referenced in diverse Nighantus, showcasing the rich herbal pharmacopoeia available. It is important to note that many herbs can be utilized both internally and externally, enhancing their therapeutic potential. Certain dietary preparations also play a crucial role in the healing process. Nutrient-dense foods such as milk, meat soup, and wheat-based dishes are known to support recovery. A specific dish, Sevika⁶, is described in the Bhavaprakasha Nighantu; it is created by mixing wheat flour with water to form thin, elongated sticks, which are then dried, fried in ghee (clarified butter), and submerged in boiled milk with added sugar for consumption. This preparation serves as a nourishing home remedy and embodies the holistic approach of Ayurvedic healing. Additionally, Ashtavarga drugs are recognized for their efficacy in promoting the healing of fractures, known in Ayurveda as bhagnasandhanakara. However, the contemporary landscape presents challenges in obtaining and correctly identifying these specialized herbs, raising concerns about their availability. As a result, practitioners may resort to substitutes; however, it is essential to understand that these alternatives may not provide the same therapeutic benefits as the original herbs. For herbs to produce the best results, they must be used correctly, following the traditional guidelines outlined in ancient texts. A balanced diet, combined with the application of appropriate herbal pastes and decoctions, is vital for facilitating fracture healing. The impact of both supportive and contraindicated diets can significantly influence the healing duration and the overall quality of recovery. Hence, it is imperative for future research to investigate the efficacy of preparations such as sindhura (a form of herbal mineral), panchavalka (a combination of five barks), and potential substitutes for Ashtavarga, to comprehensively document their effects on fracture healing. Such studies would contribute to the understanding of traditional Ayurvedic practices in the context of modern medicine and enhance patient care in fracture management.

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