International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

From the Himalayas to Ganges Delta: Historical Flows of Folk medicine from Uttarakhand to Bengal

Rajarshi Chatterjee

Associate Professor, Department of Chemistry, Government General Degree College, Singur, Hooghly-712409, West Bengal, India.

Abstract

The historical and medicinal exchange between Uttarakhand (the Western Himalaya) and West Bengal (the Lower Gangetic plains and Eastern Himalayan foothills) since ancient times centers on trade routes, textual transmission of Ayurveda, and the migration of ethno-medicinal knowledge. Since the Mauryan and Gupta periods, ancient trade routes (part of the greater Uttarapatha) connected the northern Himalayan frontiers with eastern commercial hubs like Pundranagara and Tamralipta (in ancient Bengal). Foundational texts like the Charaka Samhita and Sushruta Samhita established the Himalayas (Uttarakhand/Garhwal-Kumaon regions) as the prime repository for potent medicinal flora. In 1882, Thomas Atkinson, an Irish colonial administrator extensively documented the traditional plant lore and ethanomedicine of the Kumaon and Garhwal regions of the Western Himalayas in the multi volume Gazetter of the North –Western Provinces of India. Atkinson recorded centuries-old local knowledge regarding medicinal plants. For example, he documented that the bark of the Himalayan bay berry (historically myrica nagi) was traditionally utilized by local healers to treat epilepsy and digestive issues. All these ancient wisdom finds modern validation through the World Health Organization (WHO), which reports that majority of the global population, particularly in developing regions, depends on traditional herbal medicine for primary health care. Such enduring reliance underscores the critical importance of ethnobotany, the scientific study of dynamic relationships between cultures and flora [1] in preserving both biodiversity and indigenous knowledge systems. This can be stated as the downstream flow of Materia Medica, where we will observe that rare alpine and temperate herbs harvested in the higher altitudes of Uttarakhand were transported downstream via river networks and caravan routes into the Gangetic delta of Bengal. For example, Swertia chirata (commonly known as Chirota in Bengal) which thrives in cold temperate Himalayan regions (Uttarakhand) was historically traded eastward and southward into Bengal as a vital bitter tonic for fevers and liver disorders. Actually in Homeopathy where Materia Medica serves as a primary foundational text, the phrase “downstream flow” of Materia Medica refers to the relationship between medicinal source and its bedside use which is often viewed as a river. This review is the outcome of a meticulous study and critical examination of historical records, ethno-botanical literature, and relevant scholarly documents. An effort has been made to synthesize documented information to understand the historical transmission, cultural exchanges, and continuity of folk medicinal knowledge from Uttarakhand to Bengal.

Keywords: Ethnobotany, Indigenous knowledge, Folk medicine, biodiversity, Tribes

Introduction

Ethno-medicinal plants have a long history of use in traditional medicine and are often perceived as safe and non-toxic to humans [2]. Rural communities largely depend on subsistence agriculture for their livelihoods and possess extensive traditional knowledge of treating diseases through the use of forest resources [3]. Various plant parts, including leaves, roots, fruits, seeds, bark, and flowers, are used for medicinal purposes. However, the lack of systematic documentation of traditional healing practices has hindered the transmission of this valuable knowledge to younger generations, limiting their understanding of the therapeutic potential of herbal medicines [4]. Ethno-medicinal research is the study of unique knowledge about plant wealth and search of new resources for the preparation of herbal medicines, edible plants for consumption, and other aspects of plants [5]. Uttarakhand, a Himalayan state renowned for its rich biodiversity and diverse cultural heritage, encompasses approximately 12.18% of the Indian Himalayan region and supports more than 40% of its diverse forest types, including extensive natural forests and alpine pastures [6]. The diverse ethnic communities of Uttarakhand, including the Garhwali, Jaunsari, Bhotia, and Tharu, rely heavily on forest resources for primary healthcare and livelihood sustenance [7]. The exchange of folk medicine and ethno-botanical knowledge between Uttarakhand (the Western Himalayan region) and Bengal (the deltaic eastern plains) is a historic phenomenon rooted in geography, religion, and traditional trade. While Uttarakhand has historically served as a major source of high-altitude medicinal plants in India, Bengal has emerged as an important center for their processing, formulation, and integration into traditional medical practices. The exchange of ethno-medicinal knowledge between Uttarakhand, in the Central Himalayas, and Bengal, in the fertile Gangetic delta, has a long historical legacy. The exchange of ethno-botanical knowledge between these regions was facilitated by geographical connectivity, trade networks, religious pilgrimages, and royal patronage. Over several centuries, this knowledge transfer was shaped by ecological and economic interactions between the Himalayan highlands and the Gangetic plains, fostering the exchange of medicinal plant resources and traditional healing practices [8]. The dynamics of this ancient multi-century knowledge exchange occurred through the ecological trade matrix from highlands to plains.

The Ecological Trade Matrix (Highlands to Plains): Uttarakhand serves as a natural repository of rare alpine medicinal herbs (Jadi-Buti), whereas Bengal has historically functioned as a major center for the processing, consumption, and therapeutic utilization of tropical medicinal plants [9].

Within India's herbal trade network, Uttarakhand primarily functions as an important upstream supplier of high-altitude medicinal plants, whereas West Bengal serves as both a regional consumer of medicinal plant resources and a major distribution and transit hub. Commercial centers such as Burrabazar in Kolkata facilitate the movement of herbal commodities to domestic AYUSH industries and international markets. The trade infrastructure of Uttarakhand, as an upstream supplier of medicinal plants, primarily comprises Bhesaj Sanghs, forest depots, and specialized trading markets (mandis) in Tanakpur, Ramnagar, and Haridwar [10]. In contrast, West Bengal, as a downstream consumer and distribution center, relies on extensive wholesale trading networks centered in Kolkata, which facilitate the movement of medicinal plant commodities to domestic markets and connect regional trade with Indo-Bangladesh and East Asian commercial routes. These transmission of folk remedies and herbal knowledge between these two distinct ecosystems occurred through three primary channels:

The Pilgrimage Routes: Historical pilgrimage routes linking Bengal with the Uttarakhand Himalayas followed ancient river networks and overland pathways across the Gangetic plains, extending through

Haridwar and Rishikesh to the sacred shrines of the Garhwal and Kumaon regions [11]. These routes may have facilitated the exchange of ethnobotanical knowledge and traditional medicinal practices along the Ganges River basin, which extends from the Himalayan headwaters at Gomukh in Uttarakhand to the Gangetic delta near Gangasagar in West Bengal. Since ancient times, ascetics, sadhus, and pilgrims from Bengal traversed the plains to reach the sacred shrines of Uttarakhand (Chardham-Badrinath, Kedarnath, Gangotri, and Yamunotri). Monks and wandering mystics (Vaidyas and Tantriks) carried localized regional knowledge back and forth, introducing Himalayan herbs to the East and Gangetic medical folklore to the North. Pilgrims and travelers from Bengal used the Ganges River waterway and adjacent arterial land routes heading northwest through Uttar Pradesh toward Haridwar, the gateway to the upper Himalayan shrines. The nineteenth and twentieth-century travelogues—such as those by monks of the Ramakrishna Mission [12] or writers like Umaprasad Mukhopadhyay [13] give us the detailed arduous walking paths from the plains into the high-altitude abodes of Badrinath, Kedarnath, and Kailash. Indigenous communities like the Bhotias and Shaukas managed traditional high-altitude tracks, bridging economic barter and sacred spaces. Basically Pilgrims, traders, and traditional healers like Vaidyas and Ojhas acted as the primary human vectors for this exchange. Along the standard circumambulation networks (parikrama) and riverine highways, medicinal knowledge flowed dynamically between these distinct eco-zones.

The Barter and Trade Networks: Uttarakhand's border and nomadic communities like the Bhotias and Shaukas operated localized and long-distance barter, trading high-altitude medicinal herbs, salt, and wool for grains, jaggery, metalware, and textiles from the lower plains. High-altitude herbs like Kutki (*Picrorhiza kurroa*), Jatamansi (*Nardostachys jatamansi*), Giloy (*Tinospora cordifolia*), Vanshlochan, and the bark of Kafal (*Myrica esculenta*) moved from Uttarakhand's alpine belts into wider commercial and traditional medical networks [14]. These raw materials were traded down to the plains, eventually reaching major commercial hubs in Bengal via the riverine trade routes of the Ganges. It seemed to be knowledge of diffusion where these medicinal plants blended indigenous Himalayan shamanic/faith-healing practices with classical Ayurvedic and regional folk pharmacopeias as they traveled down the pilgrimage and river arteries toward the east.

The Royal and Academic Patronage: Historic rulers of Kumaon especially the Katyuri and Chand Dynasties provided state grants, land, and court positions to eminent Vaidyas. Those rulers patronized the documentation of high-altitude flora like Kutki (Picrorhiza kurroa) and Jatamansi, establishing official oversight for the harvesting of alpine bio-resources. Aside from this, the kings of Tehri-Garhwal institutionalized traditional medicine by funding the compilation of Ayurvedic texts that integrated local tribal lore. Royal courts of the Shah Dynasty (Garhwal Kingdom) regularized the status of professional herbalists, separating standardized herbal therapeutics from purely ritualistic faith healing (Jagar or Tantra-mantra). Whereas during the rule of the Pala and Sena dynasties in Bengal, court physicians routinely sought out rare Himalayan flora to refine the classical texts of Ayurveda and local folk treatises. Historically, the royal courts of Bengal didn't just subsidize text-based Ayurveda (Kaviraji); they heavily integrated regional folk practices that relied on the local biodiversity of the Sundarbans, North Bengal, and Rarh regions. Epigraphic records from the Pala era (such as the Nayapala inscriptions) reveal royal land grants given to Arogyashalas (healing houses/hospitals). These institutions merged elite medical knowledge with widespread folk treatments for snakebites, animal toxins, and pediatric care for the general public. Similarly the Koch and Rajbanshi Kingdom of Cooch Behar operated a highly sophisticated system of folk medicine managed by local healers like Ojhas or

Mahans. Historical court records suggest that, until the early twentieth century, local royal households relied extensively on indigenous herbal formulations for healthcare rather than Western medicine. The formalization of this knowledge was historically backed by local administrative systems before being disrupted by colonial frameworks. When the British East India Company officially withdrew state patronage from indigenous sciences post-1835 to focus exclusively on Western Allopathy, the survival of local medicine fell back on Bengal's wealthy landlords (Zamindars). Landlords in regions like Murshidabad, Burdwan, and Pathuriaghata funded traditional Tols and Chatushpathis (home-schools). These Zamindari Subsidies during Colonial Neglect preserved the fluid boundaries between folk herbalism and formal Ayurvedic practice [15]. Today, academic patronage in West Bengal focuses heavily on validating and standardizing folk medicine to prevent it from dying out due to generational shifts. Bengal researchers document the precise combination of drugs used by Vaidyas and Ojhas in districts like Bankura, Murshidabad, and the 24 Parganas to isolate active chemical compounds for modern therapeutics.

Ecological & Ethnopharmacological Dynamics

From ancient times, trans-Himalayan trade routes brought prized alpine flora down the Indo-Gangetic plains into the deltaic ports and wetlands of Bengal. These high-altitude plants became deeply familiar to Bengal's regional culture—primarily as valuable commodities in traditional Ayurvedic medical networks, dynamic religious rituals, and early preservation techniques. These high-altitude plants became deeply familiar to Bengal's regional culture—primarily as valuable commodities in traditional Ayurvedic medical networks, dynamic religious rituals, and early preservation techniques. West Bengal is characterized by rich floristic diversity and a wide range of medicinal plant species. The state is home to diverse ethnic communities that continue to rely on traditional ethnomedicinal practices for healthcare. However, information on medicinally important plant species and their traditional applications remains incomplete and fragmented, highlighting the need for systematic documentation and preservation of this valuable indigenous knowledge. Some prominent Uttarakhand Alpine Flora in Historical Bengal was discussed below.

Nardostachys jatamansi, commonly known as Jatamansi both in Uttarakhand and in Bengal, is a high-altitude medicinal plant native to the Himalayan region. It was traditionally sourced from the alpine meadows of Uttarakhand. Its aromatic rhizomes facilitated storage and transportation over long distances. In Bengal, Jatamansi was valued for its traditional medicinal and aromatic properties and was incorporated into herbal formulations, perfumed hair oils, and incense used in religious practices. Udoy Chand Dutt's The Materia Medica of the Hindus (Calcutta, 1877) records Jatamansi and gives the Bengali name Baluchar [16]. Edward Jhon Waring's nineteenth-century account also documents its availability in bazaars and its inclusion in the Bengal Pharmacopoeia [17]. Several of them are addressed here.

Aconitum heterophyllum (Atis) *and Picrorhiza kurroa* (Kutki) are high-altitude medicinal plants native to the Western Himalayas, thriving in subalpine and alpine habitats. In Bengal, these plants are known as ativisha and kotki respectively. They were incorporated into traditional Ayurvedic and indigenous healing practices, particularly for managing digestive disorders, fever, and liver-related ailments. Their roots and rhizomes served as important ingredients in herbal formulations used by traditional practitioners, including the Baidya community, reflecting the exchange of medicinal plant resources between the Himalayan region and the Gangetic plains. Kutki was recognised in historical Indian

medicinal literature. A 1927 paper in the Indian Medical Gazette discusses these Himalayan bitter-root drugs, including the related historical name Gentiana kurroo, of kotki and their medicinal potential [18]. *Swertia chirayita* (Chirata), commonly known as chirota in bengali, is a bitter medicinal herb harvested from the temperate and subalpine regions of the Himalayas, became an important component of traditional healthcare practices in Bengal. Infusions prepared from its dried plant parts were traditionally used as febrifuges to alleviate fever, including fever associated with malaria. Its incorporation into Bengali household remedies reflects the historical movement of Himalayan medicinal plants into the Gangetic plains and their adaptation to regional ethno-medicinal practices. Furthermore, the predominant use of medicinal plants for managing gastrointestinal and dermatological disorders may reflect the relatively high occurrence of these conditions in the region, possibly influenced by the prevailing climatic conditions of the state. Before modern medicine, Bengal suffered heavily from tropical fevers, dysentery, and malaria. Folk healers in Bengal relied extensively on Chirata, a bitter herb primarily harvested in the high slopes of Uttarakhand. The knowledge of brewing Chirata decoctions as a potent antipyretic passed directly from mountain healers to the village practitioners (Kavirajas) of Bengal. Conversely, Kalmegh (the "King of Bitters" native to Bengal plains) was introduced northward into the lower foothill practices of Uttarakhand to manage standard liver disorders. This review of existing literature documented the use of various preparations and formulations obtained from the reported ethno-medicinal plants for managing different ailments and diseases. Among the various therapeutic uses, these plants were predominantly employed to address gastrointestinal and dermatological disorders, respiratory complaints, insect stings and animal bites, dental and gynecological problems, and common illnesses, including colds, coughs, and fever. The treatment of the most documented ailments involved the use of several plant species, administered either as individual remedies or in combination with two or more species. Gastrointestinal disorders represented the most frequently addressed category, with near about 200 plant species reported for their treatment, followed by dermatological conditions, for which more than 150 species were documented [19]. These findings underscore the considerable diversity of medicinal plant resources utilized in traditional healthcare practices. Certain ailments, such as anemia, abortion, jaundice, diarrhoea, cough, snakebite, dyspepsia, and bone fractures, were reported to be treated using specific medicinal plant species that were not associated with any other therapeutic applications. In total, 25 such plant species, each exclusively documented for the treatment of a particular ailment, were identified and are presented in Table 1.

Table-1.Comparative Ethno-botanical Documentation of Medicinal Plants in Uttarakhand and West Bengal

Plant Species	**Common name in Uttarakhand**	**Common name in West Bengal**	**Ailments**
Swertia chirayita	Chirata	Chireta/Chirota	Fever, digestive, blood cleanser
Justicia adhatoda	Basinga/vasig	Basak	Chronic cold and cough and bronchitis
Andrographis paniculata	Kalmegh/Bhui Neem	Kalomegh	Respiratory Tract infections, Fever management & natural antipyretic

Hygrophila auriculata	Talmakhna	Kulekhara	Hematinic properties, managing iron-deficiency by elevating Hemoglobin levels
Bacopa monnieri	Jal Brahmi	Brahmi	Brain tonic to improve memory and lower stress
Oxalis corniculata	Bhilmoro/Bhilmoda	Amrul shaak	Diarrhea, piles, anemia, and eye problems
Phyllanthus emblica	Amla/Aonla	Amloki	Digestive health, immunity (vitamin C), hair care
Calotropis procera	Aak/Madar	Akando	Antitumor, antihelmintic, antioxidant
Carissa carandas	Karonda/Karondhu	Karomcha	Anti-inflammatory and anti-pyretic activity
Asparagus curillus	SafedMusli/Shatavari	Satamuli	Piles, fever, wound, anti-toxic, weakness, cough
Anaphalis adnata	Buglya	Bugla	Juice applied on fresh cuts and wounds, Urinary tract infections
Artemisia vulgaris	Paati	Nagdamani/Nagdona	Nervous system relaxant, Menstrual cycle regulator and calm down painful periods
Mentha arvensis	Jangli Pudina	Bon Pudina	Digestive issues, Rheumatism, fever and ulcer
Picrorhiza kurroa	Kutki	Kotki	liver support
Ocimum sanctum	Tulsi	Tulsi	bronchitis, asthma & genitourinary disorders
Achyranthes aspera	Laatjeera (Chichira in Garwal dialect)	Apang	Asthma, old wound, insect and snake bite,
Terminalia bellirica	Bahera	Boira	Digestive & metabolic support, liver protection
Woodfordia fruticosa	Dhaula/Dhaura	Dhatri ful	Antimicrobial, leprosy, wound healing properties
Myrica esculenta	Kaphal	Kaiphal	Asthma & bronchitis, gum swelling & ulcers
Tinospora cordifolia	Giloy/Guduchi	Gulancho	Immunomodulator, antiarthritic, hypoglycemic
Ephedra gerardiana	Somlata/Tutgantha	Somlata	syphilis, nasal congestion, potent bronchodilator
Acacia catechu	Khair	Khoyer	Anti inflammatory & antioxidant properties
Terminalia	Harad	Haritaki	Primary component of Triphala,

chebula			metabolic support
Berberis aristata	Kilmora/Kingor	Daru haridra	Skin disorders like acne, eczema & psoriasis
Abrusprecatorius	Ratti/Gunchi	Koonch/ Chunhali	Nerve disorders, bonefracture, Intestinal ulcer

The Ashtavarga Connection in Ayurvedic Medicine between Uttarakhand and Bengal

The Ashtavarga represents a group of eight rare, high-altitude Himalayan medicinal herbs essential to classical Ayurvedic formulations like Chyawanprash and Brahma Rasayana. While these plants (such as Jivak, Rishbhak, Meda, Mahameda Riddhi, Vriddhi and Kakoli) grow exclusively in the high altitudes of Uttarakhand, it was the legendary scholars and Ayurvedic physicians of Bengal (particularly during the revival of the Bengal School of Ayurveda in the late medieval and British eras) who documented, classified, and created standardized recipes using these mountain ingredients. These eight traditionally recognized medicinal plants are valued for their rejuvenating, restorative, and therapeutic properties [20]. As because these true Ashtavarga herbs are endemic to the high-altitude cold climates of the Himalayas (Uttarakhand) and are severely threatened or endangered in the wild, a major supply-and-knowledge bridge exists between the harvesting or cultivation hubs of North India (such as Uttarakhand and Patanjali/Haridwar networks) and traditional medical centers, pharmacies, and practitioners in Bengal (Kolkata and surrounding hubs) [21]. Authentic raw Ashtavarga tubers, rhizomes, or their standardized botanical substitutes (such as Ashwagandha for Kakoli or Vidarikanda for Jeevak) are transported across the supply chain from Himalayan collection/cultivation centers in Uttarakhand down to historic Ayurvedic manufacturing and dispensing hubs in Bengal (such as Burrabazar and established clinics in Kolkata)

Conclusion

The connection between Uttarakhand and Bengal can be explored through the historical exchange of Ayurvedic knowledge, the distribution and availability of medicinal plants, and the use of Himalayan plant resources in the traditional healthcare practices of Bengal. In this context, Uttarakhand is particularly important because its Himalayan regions provide habitats for several high-altitude medicinal plants traditionally associated with the Ashtavarga group. Bengal, on the other hand, has a rich tradition of Ayurvedic medicine and herbal healthcare, through which Himalayan medicinal resources and their formulations have been incorporated into regional materia medica.

Acknowledgements

I wish to express my sincere gratitude to Dr. Saurabh Chakrabarti, Principal, Bidhannagar College, Kolkata, whose inspiration, encouragement, and intellectual guidance motivated me to undertake this review entitled “Historical Flows of Folk Medicine from Uttarakhand to Bengal.” His encouragement stimulated my interest in exploring the historical, cultural, and ethno medicinal connections between Uttarakhand and Bengal, particularly the exchange and continuity of traditional folk medicinal knowledge across these regions. I would also like to express my heartfelt appreciation to the resource persons and distinguished speakers of the two-day seminar on “Sustainable Development and Green Himalayan Growth,” held on 16–17 September 2026, which was organised by Rajkiya Mahavidyalaya, Kanvaghati, Kotdwara, Uttarakhand. The valuable insights, scholarly deliberations, and perspectives

shared during the seminar further inspired me to explore the rich traditional knowledge systems of the Himalayan region, their relationship with biodiversity conservation, and their historical connections with the folk medicinal traditions of Bengal. The knowledge and inspiration gained from these academic interactions have significantly enriched my perspective and encouraged me to pursue this review. I sincerely acknowledge everyone whose thoughts, contributions, and encouragement have helped shape this academic endeavour.

References

1. Katewa S.S., Chaudhary B.L., Jain A, *Journal of Ethnopharmacology*. (2004) 92: 41-46, Issue 1
2. Tarafdar R.G., Nath S., Das Talukdar A., Choudhury M, *J. Ethnopharmacol*. (2015) 160:219–226
3. Uniyal B, *Ind. J. Trad. Knowl.* (2003) 2:366–370
4. Chakraborty R., Roy S., Mandal V, *J. Integr. Med.* (2016) 14:336–358
5. Chandra K., Nautiyal B., Nautiyal M, *J. Hum. Ecol*. (2013) 42:259–271
6. Purohit A.N. Royal Tropical Institute; Amsterdam, The Netherlands: (2004) *KIT Bulletin.* 359
7. Kala C.P., Farooquee N.A., Dhar U, *Biodivers. Conserv*. (2004) 13: 453–469
8. Bose D., Ghosh R., Das J., Mahapatra S., Datta T, *J. Med. Plants Stud.* (2015) 3:15–21
9. Chaudhury, S., Singh, H., Rahman, C.H, *J. Tradit. Folk Pract.* (2018) 6: 67–97
10. Mathur A., Joshi H, *Ethnol. Res. Appl.* (2013) 11:175–203
11. Caldecott, T, *Mosby Elsevier, Philadelphia, USA.* (2006)
12. Akhandananda S, *"In the Lap of the Himalayas"* (1897) published by Sri Ramakrishna Math
13. Mukherjee U, "Pancho Kedar" (1968) published by Mitra and Ghosh
14. Brandis, D, *Indian Journal of Traditional Knowledge,* (2003) 2:397 –399
15. Hochmuth C, *Bull Hist Med.* (2006) 80(1):39-72
16. Dutt U.C. "*The Materia Medica of the Hindus"* (1877) published by Thacker, Spink & Co.
17. Waring E.J.*"Remarks on the Uses of Some of the Bazaar Medicines"* (1860) Sirrar Press.
18. Osmaston A.E. *"A Forest Flora for Kumaon"* (1927) Government Press, Allahabad
19. Vineeta., Shukla G., Bhat J. A, *Phytomedicine Plus.* (2022) 100158
20. Balkrishna A., Srivastava A., Mishra R. K, *Int. J. Med. Arom. Plants*. (2012) 2: 661–676
21. Chauhan R.S., Nautiyal M.C, *The McAllen International Orchid Society Journal.* (2008) 9(6): 8–12