Documentation of Ethno-medicobotanical Practices from Mohan and Jaurasi Region of Almora, Uttarakhand, India

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ABSTRACT

Introduction: Traditional medicine plays a significant role in healthcare needs of a large segment of population of developing nations of the world. Local traditional healthcare practices using medicinal plants are predominant in the Uttarakhand state of northern India. A large number of traditional vaidya/folk healers are available in Uttarakhand providing healthcare services to significantly large population of the state with great success in far-flung areas by using medicinal plant species available in their vicinity.

Aim: To document the local health tradition (LHT)/folklore claims practiced by traditional vaidya/folk healers for the treatment of diseases of the local population for further scientific validation, which will be helpful in developing new treatment modalities for the prevalent diseases of the society.

Materials and methods: Ethno-medicobotanical surveys were conducted in Mohan and Jaurasi regions of Almora, Uttarakhand, India, and its adjoining areas in the month of January and February, 2019. The survey team met the traditional folk healers and interviewed them for documentation of folklore claims practiced by them.

Results: A total of 17 LHT claims were collected from the traditional healers during these field surveys. The claims were documented in a prescribed format and validated from available published literature for ayurvedic and medicinal plants. Gastrointestinal diseases (such as constipation and pain abdomen), jaundice, skin diseases, burns, and cut wound were the common ailments for which most of the claims were documented. Fresh leaves of the medicinal plants were used in most of the collected folklore claims. Kalka (paste), Choorna (powder), and Kwatha (decoction) were the common preparations of plant species used in majority of folk claims. Three medicinal plant species was involved in more than one folk claim. The description of 11 medicinal plant species used in these claims has been available in ayurvedic classical texts. During the validation of collected folk claims from these texts, therapeutic use of eight medicinal plant species was found to be similar to the description available in published literature, whereas references of two species were available with different therapeutic indication.

Conclusion: Traditional medicine is still prevalent in the healthcare practices sought by the residents of the remote and hilly areas like Uttarakhand. However, these practices are in a declining phase due to nontransfer of this valuable knowledge to the next generation. In this regard, there is a great urgency for documentation and validation of these practices for preventing them from getting vanished from public domain. Alongside, it will act as a great boon in the search of new management strategies for the diseases prevalent in the current era.

Keywords: Ethno-medicobotany, Folklore practices, Local health tradition practices, Medicinal plants, Uttarakhand.

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INTRODUCTION

Ethno-medicobotanical study plays a significant role in the area of drug research. It provides information on the distribution and availability of medicinal plants in a given area, along with collection of indigenous folk knowledge about medicinal plants used in various diseases, and conservation of wild medicinal plant species. The information generated about medicinal use of the plant species from folklore healers can also be implemented in clinical practice and medical research for the development of effective treatment modalities for the diseases prevalent in current era.

Approximately 80% of the people in developing countries depend upon traditional medicine for their healthcare needs.¹ Extensive knowledge exists among the inhabitants and tribes residing in remote places of Uttarakhand about the therapeutic use of medicinal plants.²⁻³. The inhabitants of this region are still bound to depend on medicinal plants and traditional folk healers for the treatment of various diseases due to nonavailability of proper hospital/medical facilities in remote areas as well as lack of proper transportation facilities. However, this traditional ethno-medical knowledge is vanishing to a great extent due to lack of documentation and nontransfer of this valuable traditional

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knowledge to the next generation, death of experienced folk healers, migration of local villagers and socioeconomic changes. Keeping in view, the present study was conducted in Mohan and Jaurasi regions of Almora forest division, Uttarakhand, India, and its adjoining areas to document the local health traditional (LHT) practices prevailing in this region.

Uttarakhand is floristically one of the richest phytogeographical regions of India, situated in north-western part of the Indian Himalayas. It is considered as “Herbal State” endowed with medicinal and aromatic plants of tropical, subtropical, temperate, subalpine, and alpine. Almora is situated on the southern edge of Kumaun hills in Uttarakhand state of India in the Himalayan range. It is located between 29°30ʹ08ʺ N–29°58ʹ48ʺ N latitude and 79°04ʹ18ʺE–79°47ʹ30ʺE longitude. Almora forest division comprises of six forest range viz. Almora, Someshwar, Ranikhet, Dwarahaat, Mohan, and Jaurasi forest range. Among them, Mohan and Jaurasi regions were selected for this study.

Materials and Methods
The present ethno-medicobotanical surveys were conducted in the Mohan and Jaurasi regions of Almora forest division and its adjoining areas in the month of January and February, 2019. The areas covered during the study were Mohan, Kumeria, Ghugutidhar, Kijari, Bakule, Simtaya, Charidhar, Panuadhyokhan, Ghati, Pathoria, Jumeria, Chandkichod, Tolyun, Kathkinao, Bhagwati, Bhatrokhan of Mohan region and Pasoli, Jaikhal, Buranspani, Bhanglwari, Kathpatiya, Gular, Dotiyal, Manila, Malekuda, Bakjhet (Shyalde), Jhimar, Mulekhal, Dudhilia, Songaon, Khadakiya of Jaurasi region of Almora, Uttarakhand.

During the study, surveys were made to identify the folk healers practising in this region. Survey team met the folk healers available in the survey areas and interviewed them for documentation of LHT folklore claims. Detailed information was collected along with photographs in a prescribed format developed by Central Council for Research in Ayurvedic Sciences, New Delhi and brief video recording was also made. Information collected from folk healers about the medicinal plants include vernacular name, parts used, and disease indication for which it has been used, method of preparation, dosage, duration, vehicle, preventive measures, etc. (Tables 1 and 2). For further reference, herbarium specimens were also collected under the supervision of concerned folk healers. The collected specimens were further identified by matching with the specimens available at the Herbarium of Regional Ayurveda Research Institute, Ranikhet and also with the available literature by the taxonomists. These herbarium specimens were incorporated in the herbarium of Regional Ayurveda Research Institute, Ranikhet. The medicinal plants and their uses were validated through authentic ayurvedic texts and concerned published literature.

Results
Ethno-medicobotanical surveys were conducted to collect the folklore claims from the traditional vaidya/folk healers practising in the Mohan and Jaurasi region of Almora forest division, Uttarakhand. A total of 17 folklore claims were documented during the survey. Out of 17 LHT claims, 16 claims were of single drug, whereas 1 claim was of polyherbal formulation. Details of medicinal plants including botanical name, Sanskrit name, vernacular name, part(s) of medicinal plants used, dosage, method of administration, and folklore uses collected during the study are summarized in Tables 1 and 2.

Out of claims for single drug recorded, 3 were for burns, 2 each for jaundice and gastrointestinal diseases (such as constipation and pain abdomen), 1 each for eczema, hypertension, otalgia (pain in ear), fracture, cuts and wound, herpes zoster, conjunctivitis, skin rashes in infants, insect sting, and oral ulcers. Folklore claim having polyherbal formulation of five medicinal plant species has been practiced for fever, cough, constipation, and improving general health condition. Distribution of the diseases among the documented folk claims is summarized in Table 3. Among the 17 folk claims documented, 7 were having oral administration of drugs, whereas 10 involve local application over the affected body part. In 16 folk claims regarding single drug, fresh leaves of the medicinal plants were used in 7 folklore claims, root in 4 claims, whole plant in 2 claims, and bark, stem, and seeds in 1 claim each (Table 4). Dosage forms of medicinal plants used by the folk healers were Swaras (expressed juice), Kalka (paste), Kwatha (decoction), Hima (cold water infusion), and others. Details of dosage forms are given in Table 5.

Discussion
During this ethno-medicobotanical survey study, a total 17 of folklore claims were recorded which are being practiced by traditional health practitioners/folk healers of the survey areas for different common diseases. A total of 18 medicinal plant species (including 17 genera and 14 families) were recorded for the documented folk claims for 16 different diseases. Three medicinal plant species (Tinospora cordifolia (Willd.) Miers, Boerhavia diffusa L., and Cissampelos pareira L.) were involved in more than one folk claim. Out of 18 plant species, the description of 11 medicinal plant species has been available in ayurvedic classical texts. Gastrointestinal diseases (such as constipation and pain abdomen) along with jaundice, skin diseases, burns, and cut wound were the common ailments for which most of the claims documented. The locals of the survey areas may be routinely suffering from these diseases. Most of the folk healers diagnose the patients on the basis of symptoms and observation. It was also observed that folk healers prefer to collect fresh medicinal plant for administration. Fresh leaves of the medicinal plants were most commonly used by the folk healers in most of the folklore claims documented. Leaves can be easily collected and are available in most of the seasons may be the reason for preference of leaves. Kalka (paste), Choorna (powder), and Kwatha (decoction) were the common preparations of plant species to be used in majority of folk claims. Most of these are the basic therapeutic preparations described in ayurvedic classical texts as Panchvidha kashaya kalpa.

The folk claims documented during the surveys were scientifically validated from ayurvedic classical texts,6–13 ayurvedic Dravyaguna vigyanam compilations,14,15 The Ayurvedic Pharmacopoeia of India,16 medicinal plant database,17–19 and other available concerned published literature on medicinal plants.20–25 During the validation of collected folk claims from these texts, the therapeutic use of medicinal plant species Melia azedarach L. (Vicharchika), Tinospora cordifolia (Willd.) Miers (Vibandha), Cissampelos pareira L. (Vrana and Kukshishoola), Thallictrum foliolosum DC. (Kaksha), Berberis asiatica Roxb. ex DC. (Netra Abhishyanda), Artemisia nilaginica (C.B. Clarke) Pamp. (Raajika), Boerhavia diffusa L. (Kaorna), and Ajuga integrifolia

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| Botanical name | Sanskrit name | Local name | Part used | Dosage and method of use | Folklore uses | Field book and accession no. | GPS data |
|----------------|---------------|------------|-----------|--------------------------|--------------|---------------------------|----------|
| Grevillea robusta A., Cunn. ex R. Br.* | NA | Silver oak | Leaves | – | – | 42222, 29271 | N29°32.359’ E079°09.645’ |
| Melia azedarach Linn. | Mahanimba, Ramyaka, Dreka | Pahari Neem, Baitad | Bark | Approx. 100 g of inner bark after removing cuticle taken and soaked overnight in 1 L water. Take half glass of the preparation 2–3 times daily before meals | Vicharchika (eczema) | 42223, 29272 | N29°32.359’ E079°09.645’ |
| Thinospora cordifolia (Willd.) Miers | Guduchi, Amritavalli, Amrita, Madhuparni, Chinnodbhava | Gurch | Stem | 3 pieces of stem of about 3 inch size pounded and soaked in 750 mL water overnight. Strain it and take empty stomach in the morning | Vibandha (constipation), Vyanvatakopa (hypertension) | 42225, 29273 | N29°33.536’ E079°13.586’ |
| Boerhavia diffusa Linn. | Punarnava, Kahtilla, Sophaghnhi, Sothaghnhi, Varsabhu | Punarnava | Root | Take half glass of decoction prepared from root twice daily for 15 days or till complete relief | Kaamala (jaundice) | 42226, 29274 | N29°33.536’ E079°13.586’ |
| Holarrhena pubescens Wall. ex G. Don [Syn. Holarrhena antidysenterica (Roth) Wall. ex A. DC.]* | Kutoja, Kalinga, Shakra, Vatsaka | Chilmadu | Leaves | – | – | 42231, 29277 | N29°32.359’ E079°09.645’ |
| Vanda cristata Wall. ex Lindl. | NA | Hadjojana | Whole plant | Whole plant pounded and paste applied over affected area twice daily followed by bandage with cotton cloth till complete healing | Bhagna (fracture) | 42232, 29289 | N29°32.277’ E079°08.302’ |
| Cissampelos pareira Linn. | Patha, Ambashtaki | Pahari jad | Leaves | Leaves pounded and the paste applied over affected area and bandage with cotton cloth | Vrana (cuts and wound) | 42233, 29278 | N29°32.180’ E079°10.007’ |
| Thalictrum foliolosum DC. | Peetranga | Makadua | Leaves | Leaves pounded with cow urine and paste applied over the affected area twice daily | Kukshishoola (pain in abdomen) | 42234, 29279 | N29°35.010’ E079°12.232’ |
| Rubus ellipticus Smith* | NA | Hisalu | Leaves | – | – | 42235, 29280 | N29°35.010’ E079°12.232’ |
| Berberis asiatica Roxb. ex DC. | Daruharidra, Katamkateri, Darvi | Kilmora | Root bark | Bark of the root peeled off; boil it with water. Cool the solution and strain it. Wash the eyes with this solution 2–3 times daily | Netrabhishyanda (conjunctivitis) | 42236, 29281 | N29°35.010’ E079°12.232’ |
| Cissampelos pareira Linn. | Patha, Ambashtaki | Naal Ki Jad | Root | 1–2 g of root with jaggery taken empty stomach 1–2 times daily; till complete relief | Kukishshoola | 42237, 29282 | N29°33.034’ E079°06.985’ |

Contd…
Buch.-Ham. (Mukhapaka) were found to be similar in these texts. The therapeutic uses described by folk healers for *Grevillea robusta* A. Cunn. ex R.Br., *Holarrhena pubescens* Wall. ex G. Don, *Rubus ellipticus* Sm., *Micromeria biflora* (Buch.-Ham.ex D.Don) Benth., and *Euphorbia parviflora* L. are not mentioned in ayurvedic texts as well as in available published literature on medicinal plants and their dosage, method of use and folklore uses can not be disclosed in this article due to IPR issue. However, references of *Vanda cristata* Wall. ex Lindl. (fracture) and *Quercus leucotrichophora* A. Camus (scorpion sting) are available in few published articles, but the part used are not completely similar. Hence, further study is required to validate the therapeutic efficacy of these medicinal plant species. Only then, they could be effectively used in the management of diseases for which they have been practiced by traditional folk healers.

Table 2: Details of one LHT claim having polyherbal formulation documented during survey

| Name of ingredients | Botanical name | Part used | Method of preparation and dosage | Folklore uses |
|----------------------|----------------|-----------|----------------------------------|---------------|
| Haritaki             | Terminalia chebula Retz. | Fruit | All the five ingredients taken in equal quantity; dried in shade and each of them powdered. Mix them and kept in air tight container. | Kasa (cough), Jwara (fever), Vibandha (constipation), Rasayana (general health tonic) |
| Vibhittaki           | Terminalia bellirica (Gaertn.) Roxb. | Fruit | Dose: Two teaspoonful twice daily empty stom-ach with lukewarm water or milk. | |
| Aamalaki             | Phyllanthus emblica L. | Fruit | | |
| Guduchi              | Tinospora cordifolia (Willd.) Miers. | Stem | | |
| Punarnava            | Boerhavia diffusa L. | Whole plant | | |

Table 3: Distribution of different disease conditions documented during study

| S. no. | Name of disease                  | Total no. |
|--------|----------------------------------|-----------|
| 1      | Gastrointestinal diseases and jaundice | 5         |
| 2      | Skin diseases                    | 3         |
| 3      | Burns and cut wounds             | 4         |
| 4      | Eye and ENT disorders            | 2         |
| 5      | Others                           | 3         |

Table 4: Distribution of part used of medicinal plants for therapeutic preparation

| S. no. | Part used | Total no. |
|--------|-----------|-----------|
| 1      | Fresh leaves | 7         |
| 2      | Root       | 4         |
| 3      | Whole plant | 3         |
| 4      | Fruit without seed | 3         |
| 5      | Stem, bark, seed | 1 each   |

Table 2: Details of one LHT claim having polyherbal formulation documented during survey

| Name of ingredients | Botanical name | Part used | Method of preparation and dosage | Folklore uses |
|----------------------|----------------|-----------|----------------------------------|---------------|
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| Aamalaki             | Phyllanthus emblica L. | Fruit | | |
| Guduchi              | Tinospora cordifolia (Willd.) Miers. | Stem | | |
| Punarnava            | Boerhavia diffusa L. | Whole plant | | |
Table 5: Distribution of dosage form used by folk healers

| S. no. | Dosage form (topical dosage form) | Total no. |
|--------|----------------------------------|-----------|
| 1      | Swaras (expressed juice)         | 1         |
| 2      | Kalka (paste)                    | 5         |
| 3      | Choorna (powder)                 | 3         |
| 4      | Kwatha (decoction)               | 3         |
| 5      | Hima (cold water infusion)       | 2         |
| 6      | Lepa (topical dosage form)       | 2         |
| 7      | Other (direct intake)            | 2         |

It was also noticed during the study that the medicinal plants are depleting in their natural habitat due to several factors like forest fire, habitat loss, rampant deforestation, overexploitation of medicinal plants, overgrowth of notorious weeds, etc. As a result, folk healers are not getting the raw drug/medicinal plants for their practice easily. Therefore, conservation and cultivation of medicinal plants are urgently needed. It was also brought to the notice of survey team by the locals of these regions that many of the folk healers were died without sharing their knowledge to others and thereby the important LHT knowledge got vanished from public domain which could have been utilized for the well-being of the society. Hence, emphasis should be given for systematic documentation of the traditional ethno-medical knowledge which is still available in the different communities of the society for further scientific validation.

CONCLUSION

Traditional ethno-medicobotanical knowledge and the LHT practices are declining in the current era due to modern medical facilities, socioeconomic changes, nontransfer of this valuable traditional knowledge to next generation, death of experienced folk healers, and poor availability of raw drugs/medicinal plants. Systematic collection and documentation of this knowledge followed by scientific validation is essential for wider applicability of these practices and development of effective treatment modalities for various ailments prevalent in our society. Also, the status for availability of medicinal plants is in an alarming situation in their natural habitat due to overexploitation and lack of conservation measures. Therefore, it is urgently required to create awareness among the local people regarding conservation and cultivation of medicinal plants.

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हिंदी सारांश

अल्मोड़ा, उत्तराखंड, भारत के मोहन एवं जौरासी क्षेत्र से प्रजातीय वानस्पतिक चिकित्सा प्रथाओं का प्रलेखन

परिचय: पारंपरिक चिकित्सा दुनिया के विकासशील देशों की जनसंख्या के एक विशाल भाग की स्वास्थ्य संबंधी जरूरतों में महत्वपूर्ण भूमिका निभाती है। औषधीय पौधों का उपयोग करते हुए स्थानीय पारंपरिक स्वास्थ्य चिकित्सा पद्धतियां उत्तर भारत के उत्तराखंड राज्य में प्रमुख हैं। उत्तराखंड में बड़ी संख्या में पारंपरिक वैद्यों लोक चिकित्सक उपलब्ध हैं, जो राज्य की काफी विशाल जनसंख्या के लिए अपने आसपास के क्षेत्र में उपलब्ध औषधीय पदार्थों की प्रजातियों का उपयोग करके दूरबीनों के क्षेत्रों में सफलता के साथ स्वास्थ्य संबंधी सेवाएं प्रदान करते हैं।

उद्देश्य: स्थानीय स्वास्थ्य परंपरा (एलएचटी) लोक दाय का प्रलेखन करने के लिए पारंपरिक वैद्यों लोक चिकित्सकों द्वारा स्थानीय आबादी के रोगों के उपचार हेतु भविष्य के वैज्ञानिक विविधतामकरण के लिए अभ्यास किया जाता है, जो समाज के विविध रोगों के लिए नए उपचार के तौर-तरीके विकसित करने में सहायक होगा।

सामग्री और विधियाँ: जनवरी व फरवरी, 2019 के महीने में अल्मोड़ा, उत्तराखंड, भारत के मोहन एवं जौरासी प्रदेश न के इसके समीपस्थ क्षेत्रों में प्रजातीय वानस्पतिक चिकित्सा सर्वेक्षण किए गए। सर्वेक्षण दल पारंपरिक लोक चिकित्सकों से मिला एवं उनके द्वारा किए गए लोक दाय के प्रलेखन के लिए उनका साक्षात्कार किया।

परिणाम: इन क्षेत्र सर्वेक्षणों के दौरान पारंपरिक चिकित्सकों से कुल 17 एलएचटी दायों को एकत्रित किया गया। इन दायों को निश्चित प्रस्तुती के साथ प्रतिलिपि दी गयी एवं आयुर्विज्ञान और औषधीय पदार्थों के उपलब्ध प्रकाशित साहित्य से समाप्त किया गया। जड़ रसिकार (यथा मलबद्धता और उदकशूल), पीलिया, जलकंठ, जलन और कटा हुआ चावल सामान्य रोग थे जिनके लिए अर्थव्यवस्था दायों का प्रलेखन किया गया। औषधीय पदार्थों के तार या पत्तों का उपयोग अधिकांश उपचार के लिए गए लोक दायों में किया गया। कर्क (प्रेस), चूर्ण (पाउडर), और काठ (कागज) आदि बहुसंख्यक लोक दायों में उपयोग किया जाने वाले पदार्थ प्रजातियों की सामान्यता कहलाते थे। तीन औषधीय पदार्थ प्रजातियों का एक से अधिक लोक दायों में समिलता किया गया। इन दायों में जड़ रसिकार, 11 औषधीय पदार्थ प्रजातियों का विवरण आयुर्विज्ञान शास्त्रीय रूप से मुख्य है। इन शंगों से एकत्रित लोक दायों के विविधतामकरण के दौरान, आठ औषधीय पदार्थों की प्रजातियों के विचित्र उपयोग को प्रकाशित सही में उपलब्ध विवरण के साथ पाया गया, जबकि दो प्रजातियों के संदर्भ अलग-अलग चिकित्साशील प्रयोग के साथ उपलब्ध थे।

निष्कर्ष: उत्तराखंड जैसे दूरस्थों और पहाड़ी क्षेत्रों के निवासियों द्वारा खोजी गई स्वास्थ्य प्रथाओं में पारंपरिक चिकित्सा अथौ भी प्रचलित है। ये प्रथाएं इस बुद्धिमत्ता ज्ञान को आगे पूर्वी की हस्तांतरित नहीं करने के कारण प्रति के दौरे में हैं। इन संबंध में, सार्वजनिक भूमिका से तुलना होने से रोकने के लिए इन प्रथाओं के प्रलेखन और विविधतामकरण की बहुत उपयोगकारी है। साथ ही, यह वर्तमान युग में प्रचलित रोगों के लिए नई प्रबंधन रणनीतियों की खोज में एक बड़े विद्यार्थी के रूप में कार्य करेगा।

मुख्य साबित: प्रजातीय वानस्पतिक चिकित्सा, लोक चिकित्सा, स्थानीय स्वास्थ्य पारंपरिक चिकित्सा, औषधीय पदार्थ, उत्तराखंड।