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Ethnomedicinal insight among local tribes in Seraj valley, Himachal Pradesh, India

Pankaj Sharma and Raju L

Abstract
The current study focused on the documentation, analysis, and interpretation of ethnomedicinal phyto-wisdom in the Seraj valley of Himachal Pradesh's Mandi region. The poor tribal and rural population of Seraj valley, Mandi district, Himachal Pradesh, India, do not have access to adequate primary healthcare. They have long used medicinal plants found in their surroundings for a variety of purposes, including therapeutic purposes. The goal of this study was to document ethnobotanical knowledge, especially of notable herbs used by various backward populations in the study area, whether tribal or rural. Structured interviews and conversations with tri-bal/rural informants, healers, medicine-men/women, and others aged 40-70 were used to obtain ethnomedical data. For each claim, a minimum of five to eight sources were considered. This survey discovered that residents of the study area Seraj commonly use about 50 plant species from numerous different families. The most widely used plant components include leaves, flowers, fruit, stem bark, and root. People in Seraj, Mandi district, use native medicinal herbs to cure a wide range of ailments. These ethnomedicinal claims could contribute in the discovery of new treatments.

Keywords: Ethnomedicinal, Plants, Seraj

Introduction
Seraj valley is one of the most beautiful valleys of the middle Himalayas situated between 31°39′N and 32°15′N latitude and 77°20′E′ and 77°33′E longitude. The map of the Seraj valley along with its adjoining area is shown in the figure 1. This valley is having a big reserve containing about 150 medicinal plants growing widely. Vitamins, proteins, carbohydrates, dietary fibers, amino acids, minerals, steroids, alkaloids, glycosides, tannin, phenolics, and flavonoids are all phytochemicals found in these herbal medications, and they can help treat a variety of ailments [1]. The medicinal plant diversity is abundant in the Seraj valley in the State's Mandi district [2]. There are numerous opportunities to promote medicinal plant production and conservation, as well as medicinal plants in general. The area's diverse climatic circumstances have given rise to a diverse range of medicinal and other helpful plants [3]. The majority of these plants have traditional medicinal, folk, and industrial used in the Himachal Pradesh [4]. *Aconitum hetrophyllum, Ajuga bracteosa, Angelica glauca, Podophyllum hexadrum, Sweritia chirayita, Dioscorea deltoidea, Picrorhiza kurooa, Valeriana wallichi, Selinum vaginatum, Tymus linearis, Trillium govanianum, Polygonatum verlkillstum* and *Acorus calamus. Seraji indigenous* people rely on these medicinal herbs that are readily available in the area to treat their ailments [5].

Fig 1: Map of Seraj Valley [6].

Materials and Methods

Sample collection and preservation

In the month of August, the plant will be harvested from the Seraj valley, herbarium, and stored in the pharmacognosy laboratory of the Government Pharmacy College Seraj. Field excursions were organised in August 2021 in Seraj valley, Mandi, Himachal Pradesh, India, to collect information regarding the ethnomedicinal use of plants by the local people. The gathering, drying, mounting, preparation, and preservation of plant specimens were all done according to standard methods (WHO standards). Medicinal plant voucher specimens were collected, processed, and identified. Plants were arranged by family name, common name, and ethnomedicinal applications, with the right nomenclature [7]. The Flora of Himachal Pradesh, India was used to identify and name the listed plants.

Methodology

Traditional healers, medicine men and women in the Tehsil Thunag of this Mandi district were contacted as knowledgeable elders/informants (typically 40-70 years old). Geographical information, key roads, woods, tribal communities, language and dialects, and so on were gathered. They also went on the field study with the researchers to collect plant samples. To acquire information regarding ethnomedicinal plants and plant products, local plant names, methods of preparation and dosage, time of administration, and other topics, discussions and personal interviews were held [8].

Ethnomedicinal knowledge

The ethnomedicinal knowledge was documented using a questionnaire method. The interviews were conducted in the local community, with approximately 500 people being chosen at random and interviewed. As reference specimens, indigenous medicinal plants with a long history of use among the people were chosen [9].

Table 1: Ethnomedicinal usage of plants in Seraj Valley, Mandi, and Himachal Pradesh, India. A brief description of these plants is given below.

S. no.	Botanical origin	Local name	Active parts	Ethnomedicinal uses	Dose
1.	*Achyranthes aspera* L.	Putkanda/ Umalkudi/ Latjeera	Whole plant	Dried roots powder paste is used in pimples and ringworm. Leaves juices is act against the poisonous insect and snake bite. [10].	5-8 grams powder of the whole plant.
2.	*Aconitum heterphyllum* Wall.	Patish /Atish	Root and tubers	The dry root powder is used to treat the fever and stomachaches [11].	Root powder dose for adults-1-3 grams per day and for children-1 gram per day in divided doses.
3.	*Acorus calamus* Linn.	Barin/Bauch	Rhizome	Dried rhizome's power in the paste form is to be used to treat cuts and wounds. Oral rhizomes powder is used for local stomachaches [12].	60-125 mg as a powder of leaves per day.
4.	*Adiantum venustum* G. Don.	Damtuli	Whole plant	Paste of the aerial part of the fern is used in the treatment of leucorrhoea [13].	1-2 grams of whole plant part crushed powder.
5.	*Aesculus indica Colebr*	Khanor, Kanor and Kuthakhar	Seed and fruits	Dried fruits powder is used as a health tonic for ladies' stomach problems. Bark powder in paste form is used in joint dislocation. Fruit powder is also used to cure the excessive bleeding and pain during menses [14].	Aescin 20 to 120 mg taken orally tablet form has been used for venous insufficiency. Oral tinctures and topical gels containing aescin 2% are also available.
6.	*Ainsliaea aptera* DC	Sath jeri, karvi-buti	Roots	Decoction of dry root and its powder is used in the stomachache [15].	1-2 grams of the root powder.
7.	*Ajuga bracteosa* Wall. ex Benth.	Neelkanth, Rathpacha	Leaf and roots	The juice of the leaves is given to children who suffer from stomach pain and fever. The root and leaves powder in paste form is used for the treatment of the piles by local people. Leaves are also used to cure the mouth ulcer [16].	0.5 - 1.0 gram of leaf and roots powder.
8.	*Allium humile Kunth.*	Faran / Duno	Leaves	Fresh leaves juices along with the milk are given in the treatment of tonsillitis [17].	1.5 - 2 grams leaves powder.
9.	*Angelica glauca edgew.*	Chora	Dried roots	The dried root powder is used in the stomachache. Chora powder along with the jiggery used to cure the cold and fever [18].	2 - 4 grams of dried root powder.
10.	*Arnebai benthami* Wall.	Ratanjot	Roots	The dry root is soaked in the warm water for a week used in the treatment of arthritis and similarly, dry root powder is soaked in oil for a week to prevent the hair fall-related problem [19].	2-4 grams root powder.
11.	*Asparagus abscendens Roxb.*	Sainsarbuti	Roots	The root powder is helpful to enhance milk production in the cattle and also enhances the quality of the milk [20].	3-6 grams of root powder.
12.	*Berberis asiatica Roxb. ex.* DC.	Kashmal and Chunchri	Roots	The roots are used for curing diabetes and jaundice [21].	5-10 grams root powder and Rasaunt 0.5-1 gram.
13.	*Berberis lycium Royle*	Kashmal, Daru –haldi	Root, bark and stem	Decoction of root powder is used to cure jaundice, cough, and cold. While stem extract is to be used for skin-related problems [22].	5-10 grams root powder and Rasaunt 0.5-1 gram.
14.	*Bergenia ciliate* (How.) Sternb	Pashanbhed, Pathan Bella	Root, bark, leaves and rhizomes	The root powder is to be taken orally to dissolve the stone inside the kidney bladder stones. While leaves juices are given to the children for relieving the fever [23].	10-20 ml (for decoction), in powder 3-6 grams daily dose
15.	*Cannabis sativa* Linn.	Bijya, Bhang, Charas and Ganga	Seeds	The seed oil is to be used to treat arthritic joint pain [24].	N.A
16.	*Chenopodium album* Linn.		Leaf and seeds	Leaves juices are applied to depigmented skin repairing. While the seed powder in high dose induce the abortion in women, while someone help to cure the cough [25].	20-30 grams (as fresh) leaves powder.
17.	*Codonopsis ovate Benth & Codonopsis rotundifolia Benth.*	Shardandi, Shardanda, khiri	Roots	This plant root powder is to be used as a good physical and sexual tonic. Roots powders are having a cooling nature and produce calm to the brain [26].	1-2 grams of the root powder.
18.	*Cynodon dactylon (L.) Persoon*	Drub	Aerial part	Aerial parts juices are used to cure the nasal bleeding [27].	3-5 gram powder of entire aerial part of plant
19.	*Dactylorrhiza hatagirea* (D. Don.) Soo	Salam - Panja	Root and tubers	Roots powder is used to cure the fever. Root powder of the drug is given to treat the cuts and wounds, while the decoction of the root powder is given the treat the cough and cold [28].	1-2 grams of the root powder.

20.	*Dioscoria deltoidea* Wall. ex Kunth.	Shigli- mingli	Tubers	Dried tubers powder is used to treat dysentery and piles [29].	10-20 grams of tubers and 0.5-1 gram of the (Extract)
21.	*Eleusine coracana Gaertn*	Koda, Kodra amd Mandua	Seeds	This drug is used in acute stomachache, in whooping cough, common colds etc [30].	20-50 rams of seeds powder
22.	*Ficus palmate Forsskal*	Fagad and Fagar	Stem	Dried latex of the stem is applied on aching teeth and gums act as a toothache [31].	20-30 grams fruits powder and 3 - 5 grams of stem and bark powder.
23.	*Genatian kurroo* Royle	Kudu, Karu and Indian gentian	Leaves and root	Decoction of the leaves is given to reduce the fever. While the root powder act as a bitter tonic to reduce the blood sugar level [32].	1 - 3 grams root powder.
24.	*Geranium neplense Sweet*	Lalijari, Ratanjot and Laldori	Root	Roots are used locally to cure diarrhea, dysentery, fever, snake bite, and vomiting [33].	N.A
25.	*Hedychium spicatum* Buch.	Kachoor	Rhizomes	Dried rhizomes powder is used to cure the acidity in the stomach [34].	Rhizomes powder of 3-5 grams.
26.	*Herbacleum lanatum* Michx	Patrala	Root	The dry root powder is to be used in the treatment of leucoderma [35].	N.A
27.	*Jasminum dispermum* Linn.	Banmalti, Chameli	Flower and leaf	Dried flower and leaves powder is used to treat acidity and gastric-related disorder [36].	Flower and leaf powder of the 3-5 grams.
28.	*Mentha longifolia* (L.) Hudson.	Jangli pudina and Chachri	Leaf and Top- shoot	Plant aerial part powder is to be apllied on the body joint to reduce the joint pain. Powder in the paste form is used in the skin related problem and wound treatment [37].	Leaf and aerial part powder of 3-5 grams.
29.	*Origanum vulgare* Linn.	Ban tulsi and Jakham – buti	Whole plant	Juices of ther fresh leaves are used to cure the cuts and wound of the skin [38].	5-10 drops (as leaves juice).
30.	*Phytolacca acinosa Roxb.*	Jhakra	Whole plant	Fresh leaves are boiled and consumed during body ache and wasting conditions [39].	N.A
31.	*Picrorrhiza kurrooa* Royle.	Kutki	Leaves	Leaves of herb is crushed in jiuces and put inside the nose 2-3 drop to stop the nose bleeding [40].	1-3 grams (as powder) and 125-250 mg as an extract.
32.	*Pistacia integerrima*	Kakare, Kakar singhi	Fruits and gall	Ash powder od the gall is taken to cure whooping cough. Dried leaves along with kali mirch are used to cure headaches [41].	1-2 grams powder of the fruits and gall of daily dose.
33.	*Podophyllum hexandrum* Royle	Bankakri, Kanda-ri-mokri, Rikhpat and Papra	Rhizomes and roots	Dry roots powder is given in the treatment of the snake bite and stomachache. While the leaves juices are to be given for the jaundice treatment [42].	125-250 mg per day daily dose, not to be given the children of the age below 5 years.
34.	*Polygonatum verticillatum* L.	Salam- mishri	Roots	Roots powder of the drug is to be kept in biol water overnight. This water is used two three days for the treatment of the spermatorrhaea and piles [43].	5-10 grams of roots powder.
35.	*Prinsepia utilis* Royle	Bhekhal, Bhekla and Bhenkal	Seeds	The seed oil is to used to treat the arthritic joint pain [44].	N.A
36.	*Prunella vulgaris* L.	Khubani, Khurbani and Khumani	Seeds	The seed oil is to used to treat the arthritic joint pain [45].	1-2 grams powder daily dose.
37.	*Rheum moorcroftianum* D. Don.	Chukri	Aerial part	It is used to cure the swelling arises due to fracture of the bone [46].	0.5- 1 grams leaf power and 1- 2 grams root and stem powder as a daily dose.
38.	*Rhododendron arboreum* Sm.	Brash and Burash	Flowers	Flower is crushed and snuff to stop the nasal bleeding [47].	8-10 grams of dried flower powder daily dose. Harmful if consumed more.
39.	*Rhododendron campanulatum* D. Don.	Shalgar	Leaf	Fresh leave juices are used in the paste form to treat the Small - pox infection [48].	N.A
40.	*Rumex hastatus* DN.A .Don	Almoru	Leaves	Leaves are believed to have cooling properties and help in stopping nasal bleeding [49].	N.A
41.	*Rumex nepalensis* Sprengel	Albar	Leaves	Leaves are crushed and applied on wounds as an anti- allergic [50].	10-20 grams of dried leaves powder (Not recommended for children below 5 years).
42.	*Salavia moorcroftiana* Wall. ex Benth.	Kalijari,Shobri, Thuth, Halu and Papra	Roots	Locally the Root powder is to be used for gastro-intestinal related problem treatment [51].	1-2 grams of Seeds powder and 3-5 grams (as leaf powder).

43.	*Saussurea costus* (Falc.) Lipsch.	Kuth, Pachak, Kusthana and Kooth	Roots	The drug root powder is traditionally used to cure the bronchial asthma. Root paste is applied externally to cure joint pains [52].	3-5 grams root and rhizomes powder (Not recommended for children below 5 years) and Oil of 5-10 drops.
44.	*Selinum tenuifolium* Wallich ex C.B. Clarke	Matoshal	Roots	Root is powdered and mixed with mustard oil and applied on the body of women to cure swelling which develops after delivery [53].	1-3 grams dried root powder.
45.	*Taraxacum officinallis* Wigg.	Dugdhapeni, Dulal, Barau, Kanphul and Dudhii	Roots	It is given locally for chronical ailment of the liver and kidneys [54].	1-2g dried root powder.
46.	*Taxus baccata* Zugc.	Thuno, Thuner, Rakkyala, Rakhal, Himalayan yew and Thoon	Young shoot chiefly needles /Leaves and Inner bark	The heartwood of this plant is used to make the tea by tribal people of Himachal Pradesh [55].	1-3 grams of powder of leaves powder and 3-5 grams of powder of bark.
47.	*Thalictrum foliolosum* DC	Barmot	Roots	Dried root powder mixed with Thymus linearis in equal proportion is taken regularly to cure stomach pain and gastric trouble [56].	1-2 grams of root powder.
48.	*Thymus serpyllum* Linn.	Ban-ajwain, Lepto, Masho, Hasha, Wild thyme	Entire plant	It is used as a popular drug for stomach complaint, cough & cold, infusion of leaves with the 'gur' act as diuretics [57].	1-3 grams of aerial plant part powder.
49.	*Trigonella foenum-graceum* Linn.	Methi	Seeds	Fried in desi ghee used in the stomach pain. In children to reduce the urination in the bed it is also given [58].	1-2 grams of seeds (soaked in water or germinated or roasted) and 50-100 g (as fresh) leaf.
50.	*Trillidium govanianum* (D. Don.) Kunth.	Nagchhatri	Roots	Rhizome powder is used as an analgesic and anti-inflammatory remedy in traditional medicine in northern Himalaya people [59].	1-2 grams of the dried root powder.
51.	*Urtica dioica* Subsp.	Bichu-buti	Leaves and Roots	Root and leaves powder was considered to be a rubefacient (something that causes redness), used as a folk remedy for treating rheumatism [60].	10-20 grams of leaves and root (for decoction).
52.	*Valeriana wallichi* Wall	Tagar, Sugandhbala, Mushkbala and Indian valerian	Roots and Rhizomes	Roots and rhizomes powder are used for muscle and joint pain. Some women use valerian for menstrual cramps and symptoms associated with menopause, including hot flashes and anxiety [61].	1-3 grams of root and rhizomes powder.
53.	*Viola concecens* Wall	Banfshah and Banaksha	Whole plant	Decoction of the plant is used in the cough and cold [62].	3-5 grams of whole plant and 3-5 grams of flower powder.
54.	*Zanthoxylum armatum* DC	Timber and timru	Bark	Bark powder is used in toothache [63].	1-3 grams of seed and bark powder.

3. Discussion

Traditional wisdom relies on the therapeutic plants presented in this work; this rich resource necessitates further research in the pharmaceutical sciences. Tribal and ethnic communities have long employed medicinal plants, but the scientific world may be unaware of their ability to treat and even cure a variety of maladies. Collaboration and cooperation between ancient and modern methods to therapeutic knowledge will most likely offer vast resources for humanity's benefit.

Plate 1

1. Achyranthes aspera L.

2. Aconitum heterphyllum Wall.

3. Acorus calamus Linn.

4. Adiantum venustum G. Don.

5. Aesculus indica Colebr.

6. Ainsliaea aptera DC

7. Ajuga bracteosa Wall. ex Benth.

8. Allium humile Kunth.

9. Angelica glauca edgew.

Plate 2.

10. Arnebai benthami Wall.

11. Asparagus abscendens Roxb.

12. Berberis asiatica Roxb. ex. DC.

13. Berberis lycium Royle

14. Bergenia ciliate (How.) Sternb

15. Cannabis sativa Linn.

16. Chenopodium album Linn.

17. Codonopsis ovate Benth and Codonopsis rotundifolia Benth.

18. Cynodon dactylon (L.) Persoon

Plate 3.

19. Dactylorrhiza hatagirea (D. Don.) Soo

20. Dioscoria deltoidea Wall. ex Kunth.

21. Eleusine coracana Gaertn.

22. Ficus palmate Forsskal

23. Genatian kurroo Royle

24. Geranium neplense Sweet

25. Hedychium spicatum Buch.

26. Herbacleum lanatum Michx

27. Jasminum dispermum Linn.

Plate 4.

28. Mentha longifolia (L.) Hudson.

29. Origanum vulgare Linn.

30. Phytolacca acinosa Roxb.

31. Picrorrhiza kurrooa Royle.

32. Pistacia integerrima

33. Podophyllum hexandrum Royle

34. Polygonatum verticillatum L.

35. Prinsepia utilis Royle

36. Prunella *vulgaris* L.

Plate 5.

37. Rheum *moorcroftianum* D. Don.

38. Rhododendron arboreum Sm.

39. Rhododendron campanulatum D. Don.

40. Rumex hastatus D.Don

41. Rumex nepalensis Sprengel

42. Salavia moorcroftiana Wall. ex Benth.

43. Saussurea costus (Falc.) Lipsch.

44. Selinum tenuifolium Wallich ex C.B. Clarke

45. Taraxacum officinallis Wigg.

Plate 6.

46. Taxus baccata Zugc.

47. Thalictrum foliolosum DC

48. Thymus serpyllum Linn.

49. Trigonella foenum-graceum Linn.

50. Trillidium govanianum (D. Don.) Kunth.

51. Urtica dioica Subsp.

52. Valeriana wallichi Wall.

53. Viola concecens Wall.

54. Zanthoxylum armatum DC

Conclusion

The study concludes that the Seraji people have a wealth of traditional knowledge, and that documenting of this knowledge has supplied new information from the area. They continue to rely on the plants for medical purposes and are concerned about their deterioration in the wild, as they must now go even further to obtain these species. The construction of highways and the development of the area as a major tourist attraction has enticed the younger population to embrace the market economy, which will undoubtedly have far-reaching consequences. As a result, the current documentation of traditional knowledge from an area where new information has been developed will not only give this knowledge respect, but will also aid in its conservation by offering pharmaceutical leads for the betterment of human civilization.

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Ethics approval and consent to participate

Not applicable.

Human and animal rights

No Animals/Humans were used for studies that are base on this research.

Consent for publication

Not applicable

Conflict of interest

The authors declare no conflict of interest, financial or otherwise.

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