Indian Journal of Ecology (2025) 52(4): 688-694
DOI: https://doi.org/10.55362/IJE/2025/4557

Manuscript Number: 4557
NAAS Rating: 5.38

Traditional Phytotherapies with Medicinal Plants in Outer Seraj Area of the North Western Himalayas

Anita Kumari and Nitesh Kumar[1]

Department of Botany, G.B. Pant Memorial Govt. College, Rampur Bushahr-172 001, India
[1]Department of Biosciences, Himachal Pradesh University, Shimla-171 005, India
E-mail: ak7912053@gmail.com

***Abstract*:** In the current study, survey was carried out on ethnic uses of therapeutic plants in the Outer Seraj area of Kullu distract of Himachal Pradesh. The purpose of the study was to gather information related to therapeutic plant species commonly used in that area to cure common diseases. The data was gathered through interviews with traditional healers, Vaidyas, and other well-informed individuals. The study lists 39 plants from 32 different families. The highly represented families were Asteraceae, Rosaceae, Polygonaceae, Apiaceae, Saxifragaceae, and Fabaceae. Most of the plants from the region are used to cure multiple ailments and used in the form of paste, powder and decoctions. However, the overexploitation of these therapeutic plants has posed a threat to their extinction. Seven plant species from the region were reported to be endangered. Therefore, the need of the hour is to document the precious knowledge of indigenous practices and take steps for the *in-situ* and *ex-situ* conservation of these plants. Strict biodiversity conservation laws needs to be enforced along with community participation for the sustainable utilization of the natural resources including plant wealth.

***Keywords*:** Medicinal plants, Conservation, Indigenous uses, *in-situ, ex-situ,* Sustainable utilization

The Indian Himalayan Region is an extensive and ecologically vital mountainous area, encompassing around 16% of the nation's total land area, and has been recognized as a key biological diversity hotspot (Myers et al., 2000). The IHR is characterized by diverse ecosystems, rich biodiversity, and cultural uniqueness. The 1748 therapeutic plants in IHR have cultural, folk, and modern therapeutic applications. Himachal Pradesh is one of the most biologically diverse areas within the Indian Himalayan landscape (Badola and Pal 2003). The vegetation of Himachal Pradesh is diverse ranging from subtropical to alpine due to its varied agro-climatic conditions. Kullu district is well known for rich plant wealth and source of natural remedies for various illnesses for the local populations of the region. Numerous studies have been conducted on the therapeutic plants of the Indian Himalayan Region (Singh and Rawat 1998, Samant et al., 1998, Dhaliwal and Sharma 1999, Singh 2004, Kala 2006, Kumar et al., 2021). However, the studies on the therapeutic plants of Outer Seraj (District Kullu, H.P.) are fragmentary. Hence, the current research focused on examining the distribution, variety, utilization patterns, and indigenous usages of therapeutic plants employed by the local population in their traditional healthcare practices in this area.

MATERIAL AND METHODS

Study area: The area of the present study comprised of local villages of Outer Seraj of District Kullu. The geographical coordinates of the study area lie between 31^0 58'88" N latitude and 77^0 25' 4" E longitudes. The altitudinal range varies from 700 - 4000 m above sea level. The climate of the region is subtropical to temperate with a temperature range of 25 -30^0 C.

Ethnobotanical survey: Comprehensive field surveys were carried out across various seasons to get maximum information on the therapeutic herbs of the study area. The survey area included different localities covering Jalori, Khanag, Bhainal, Chawai, Kandugad, Anni, Luhri, and Dalash. Structured questionnaires and participatory observation were employed to collect data on the traditional uses of therapeutic plants. Several local knowledgeable persons from each village were consulted to authenticate the information on indigenous uses of significant plants (Table 1). The respondents were interviewed in their local language to make them comfortable and understand easily. The information regarding vernacular names, parts used, diseases cured, and mode of use was provided by local healers/Vaidyas. Fresh samples were collected and identified with the help of local flora (Collett 1902; Aswal and Mehrotra 1994; Dhaliwal and Sharma 1999).

Quantitative Analysis

Use value: It reflects the relative significance of locally known plants. It was determined using the following formula (Phillips et al., 1994):

$$UV = \sum U/n$$

Where UV represents the use value of a species, where 'U' stands for the number of use reports provided by each informer for a specific plant species, and 'n' refers to the total

number of informers interviewed about that plant. The UV is used to identify the plants most commonly cited for treating specific ailments, while the use report (U) records the usage for each species.

RESULTS AND DISCUSSION

Diversity and distribution pattern: The total of 39 therapeutic plant species belonging to 38 genera and 32 families were recorded which are usually found and used in the study area. Amongst the different families, the highly represented families are Asteraceae, Rosaceae, Polygonaceae, Apiaceae, Saxifragaceae, and Fabaceae (Table 1) The 17 plant species were herbs, 11 plant species were shrubs, 10 plant species were trees and 1 species were climbers. The highest number of therapeutic herbs (39) was at an altitude of 1000-2000 meters, followed by some plants in the 2000-3000 meter range, while only 1 plant was found above 4000 meters. In terms of habitat-wise distribution, maximum plant diversity (20 sps.) was in cool, shaded, and moist areas, followed by sunny areas (12 sps.), dry hillsides (4 sps.), open slopes (2 sps.) with the lowest diversity (1 sps. each) in forest edges, rocky surfaces, and roadsides.

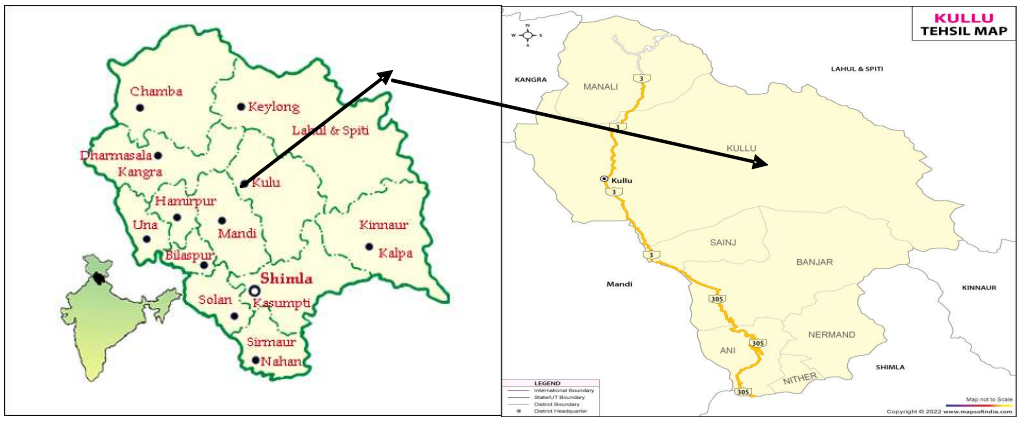

Fig. 1. Study area

Fig. 2. Some important plants 1. *Acorus calamus 2. Angelica glauca 3. Bauhinia variegata 4. Berberis lycium 5. Bergenia ciliata 6. Bombax ceiba 7. Cirsium wallichii 8. Cuscuta reflexa 9. Hypericum perforatum 10. Oxalis corniculata 11. Pistacia integerrima 12. Prinsepia utilis 13. Rhododendron arboreum 14. Rubus ellipticus 15. Rumex hastatus 16. Rumex nepalensis 17. Withania somnifera 18 Zanthoxylum armatum*

Table 2. Ethnobotany of some important medicinal plants of Outer Seraj, District, Kullu

Botanical name	Family	Habit	Altitudinal range	Habitat	Part (s) used	Threat status	Indigenous uses and practices	UV value
Abies pindrow (Royle ex D.Don) Royle	Pinaceae	Tree	2000-3500 m	Cool, Moist areas	Bark		Middle layer of bark is removed and ground with oil or ghee to make a paste. This paste is applied with a bandage for one month for the setting of dislocated joints.	0.037
Acorus calamus L.	Araceae	Herb	1000-1500 m	Near water sources	Roots		Rot paste is applied on the forehead, nose, and chest for common cough and cold in children. Decoction of roots is made and gargles are taken to get relief from toothache.	0.104
Aesculus indica (Wall. ex Cambess.) Hook.	Sapindaceae	Tree	1500-2700 m	Moist area	Bark and fruits		The bark paste is employed at dislocated joints. Fruits are dried and washed in water several times to eliminate bitter taste, ground into flour, and used for curing stomachaches and dysentery.	0.08
Ainsliaea aptera DC.	Asteraceae	Herb	2000-3500 m	Moist areas	Roots	Endangered	Decoction of dried roots is taken for stomachache.	0.022
Ajuga parviflora Benth.	Lamiaceae	Herb	1000-2500 m	Moist area ,especially near water sources	Leaves		Leaves are ground with ghee to make a paste. One spoonful of this paste is taken at bedtime for one month for treatment of Hernia. Paste of leaves is used for curing boils and sores.	0.044
Angelica glauca Edgew.	Apiaceae	Herb	2000-3600 m	Moist areas	Roots	Endangered	Used for flavoring of dishes. Paste of roots relieves leg pain.	0.052
Arnebia benthamii (Wall. ex G.Don) I.M.Johnst.	Boraginaceae	Herb	3000-4500 m	Open slopes	Roots	Endangered	Dried roots are immersed in mustard oil for a week until the oil turns reddish pink. This oil is then massaged into the scalp and hair to help reduce hair fall.	0.074
Bauhinia variegata (L.) Benth.	Fabaceae	Tree	1100- 1500 m	Sunny areas	Bark and flowers		Floral buds are eaten as a vegetable. Decoction of bark is used for controlling diarrhea.	0.059
Berberis lycium Royle	Berberidaceae	Shrub	1200-2400 m	Dry hillsides	Root and leaves		Leaves are chewed to control high Blood pressure. Roots are boiled and kept overnight. The extract is filtered and 2-3 drops of it is drippled into eyes twice a day for about one week to get rid of eye troubles. Decoction of roots is taken at bed time for treating Piles.	0.126
Bergenia ciliata (Haw.) Sternb.	Saxifragaceae	Herb	1900-2600 m	Moist rocks and under forest shade	Roots		The dried roots are simmered in water, and this decoction is administered in the early morning to help dissolve kidney and bladder stones.	0.089
Bombax ceiba L.	Malvaceae	Tree	1200- 1600 m	Dry open places	Bark		Bark paste is applied for joint pains and piles.	0.111

Cont...

Table 2. Ethnobotany of some important medicinal plants of Outer Seraj, District, Kullu

Botanical name	Family	Habit	Altitudinal range	Habitat	Part (s) used	Threat status	Indigenous uses and practices	UV value
Calotropis procera (Aiton) W.T.Aiton	Apocynaceae	Shrub	700- 1200 m	Dry areas	Milky Latex		Milky latex is applied on the scalp to treat the baldness.	0.067
Cotoneaster microphyllus Wall. ex Lindl.	Rosaceae	Shrub	1200- 2000 m	Sunny areas	Fruits		Fruits are eaten to replenish the blood in case of deficiency and it also has anthelmintic properties.	0.029
Cirsium wallichii DC.	Asteraceae	Herb	1400-3500 m	Moist areas	Roots		One spoonful of Root powder is given orally with lukewarm water to relieve cough. Decoction of roots is given to children once a day for about 1 week for the treatment of abdominal worms.	0.067
Cuscuta reflexa Roxb.	Convolvulaceae	Herb	1000-2000 m	Dry areas	Stem		Paste of the stem is utilized to cure skin disorders.	0.052
Dalbergia sissoo Roxb.	Fabaceae	Tree	800-1200 m	Sunny areas	Leaves		Leaves powder is mixed with geru to form a paste and applied for relieving sprains.	0.022
Dicliptera bupleuroides Nees	Acanthaceae	Herb	1500-2000 m	Moist semi evergreen forests	Stem and leaves		Decoction of stem and leaves is taken for relieving pain, fever, and cough.	0.097
Euphorbia hirta L.	Euphorbiaceae	Shrub	1000-2000 m	Dry areas	Latex		Latex is used for curing toothache.	0.141
Ficus palmata Forssk.	Moraceae	Small tree	1000-1600 m	Open sunny areas	Latex from stem		Latex of the plant has antiseptic property and when applied to thorn pricked area it results in automatic removal of the thorn. 3-4 drops of the latex when applied relieve aching gums and teeth.	0.186
Hypericum perforatum L.	Hypericaceae	Shrub	1000- 2200 m	Moist areas	Flowers and Leaves		Flowers and leaves are boiled in mustard oil till the color of oil changes. This oil alone or in combination with olive oil acts as good analgesic and is also applied on boils and wounds	0.082
Jasminum officinale L.	Oleaceae	Herb	1200-3000 m	Moist areas	Leaves		Juice of leaves is effective for fistulas.	0.022
Juglans regia L.	Juglandaceae	Tree	1000-2000 m	Moist areas	Bark		Bark of the tree is used for brushing of teeth and also for toothache.	0.164
Melia azadirachta L.	Meliaceae	Tree	1000-2100 m	Dry Sunny places	Fruit		Fruit powder is mixed with warm water to form a paste and is employed to the skin in the form of a pack for skin diseases.	0.029
Oxalis corniculata L.	Oxalidaceae	Herb	1200-2300 m	Common lawn and garden weed	Leaves	Endangered	Juice of leaves is extracted and dropped into the eyes twice a day for eye troubles.	0.194
Pistacia integerrima J.L.Stewart ex Brandis	Anacardiaceae	Tree	800-2000 m	Sunny areas	Pod		Pod is roasted and the ash formed is mixed with honey uniformly to make a paste. One spoon of this paste is administered orally once daily to treat cough.	0.208
Potentilla argyrophylla Wall. ex Lehm.	Rosaceae	Shrub	2200-4000 m	Moist and cool areas	Leaves		Leaves are chewed for toothache and also used as a toothbrush for cleaning of teeth.	0.067
Prinsepia utilis Royle	Rosaceae	Shrub	1800-2500 m	Sunny open places	Seeds		Oil extracted from seeds is massaged on joints at bed time in rheumatism. Oil is applied on forehead at night for cough and cold.	0.134

Cont...

Table 2. Ethnobotany of some important medicinal plants of Outer Seraj, District, Kullu

Botanical name	Family	Habit	Altitudinal range	Habitat	Part (s) used	Threat status	Indigenous uses and practices	UV value
Rhododendron arboreum Sm.	Ericaceae	Tree	3000-3800 m	Moist areas	Flowers		Used for making Chutneys. Juice of flowers is used for nose bleeding.	0.104
Rubus ellipticus Sm.	Rosaceae	Shrub	1000-2400 m	Dry areas	Leaves and shoots		Decoction of leaves and shoots is given to children to treat fever and dysentery. Fruits are edible and relished by children.	0.216
Rumex hastatus D.Don	Polygonaceae	Herb	1800-3600 m	Hillsides	Leaves		Used for making chutneys and brushing of teeth. Juice of leaves is applied for itchy skin.	0.126
Rumex nepalensis Spreng.	Polygonaceae	Herb	1200-3500 m	Grassy slopes	Roots and petioles		Decoction of roots and petioles is given orally once a day for 4-5 weeks for curing piles.	0.097
Saussurea lappa (Falc.) Lipsch.	Asteraceae	Herb	2500-4000 m	Cool moist area	Roots	Endangered	Decoction of roots is taken orally twice a day to control dysentery. Root paste is applied on body by ladies after delivery to keep body warm.	0.022
Tinospora cordifolia (Thunb.) Miers	Menispermaceae	Climbing shrub	800- 1000 m	Sunny places	Stem		Stem is cut into small pieces and grinded to make paste along with leaves of tulsi. This mixture is added to 1 litre water and put on stove at low flame till water reduces to 250 ml. The decoction prepared is taken 3 times a day for fever.	0.231
Trillium govanianum Wall. ex D.Don	Trilliaceae/ Melanthiaceae	Herb	2500-4000 m	Moist areas	Roots	Endangered	Decoction of roots is taken to control diarrhea and also treat asthma.	0.089
Urtica dioica L.	Urticaceae	Shrub	1200-3000 m	Dry areas	Leaves and Shoot		Paste of leaves and shoot is used to cure sprain and swelling.	0.119
Valeriana jatamansii Jones ex Roxb.	Valerianaceae/ Caprifoliaceae	Herb	1500-3500 m	Cold and shady places	Leaves and roots	Vulnerable	Leaves are grinded and small tablets are made of it (about 10 leaves are ground for one pill). One tablet is given once a day for about 25 days for the treatment of joint pains and fractures.	0.164
Viola odorata L.	Violaceae	Herb	1500-2500 m	Roadsides,shaded woody edges	Leaves		Leaves are used for curing the common cold.	0.156
Withania somnifera (L.) Dunal	Solanaceae	Shrub	700-1500 m	Dry open places	Roots and leaves		Leaf Paste is employed on the skin for various skin diseases. Root powder is used to decrease asthma.	0.141
Zanthoxylum armatum DC.	Rutaceae	Shrub	1200-2000 m	Dry Forests and Roadsides	Stem and seeds	Endangered	Twigs of plants are utilized as toothbrushes. Bark of the plant is removed and small pieces of it are chewed for 4-5 minutes in case of toothache.	0.179

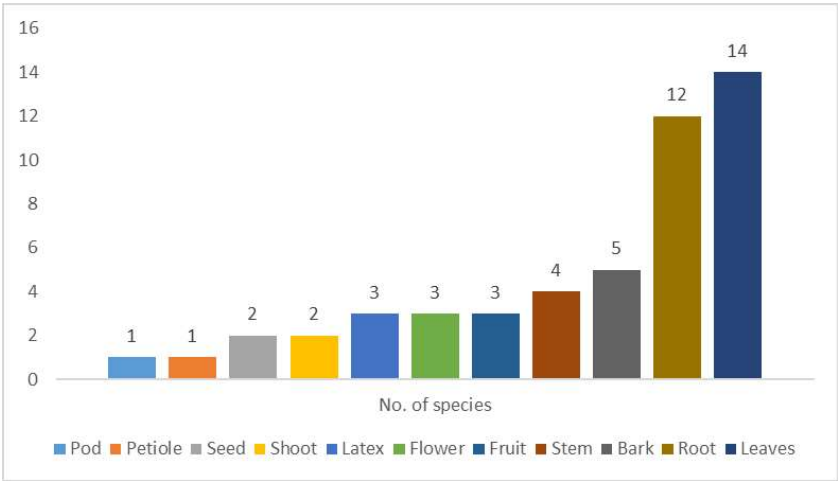

Fig. 3. Statistics of plant parts used

Utilization pattern: The therapeutic plants reported from the study area are utilized to cure diverse ailments such as fever, cough, common cold, dislocated joints, asthma, skin infections, eye troubles, diarrhea, piles, etc. Among these reported plant species, the most commonly used plant species are *Berberis aristata, Prinsepia utilis, Valeriana jatamansii, Zanthoxylum armatum, Ajuga parviflora, Abies pindrow, and Angelica glauca.* Some of the reported herbs are utilized in the management of a single illness while many possess multiple therapeutic uses. Different parts of these plants i.e. roots (12 sps.), leaves (14 sps.), bark (5 sps.), stem (4 sps.), fruits (3 sps.), seeds (2 sps.), pod (1 sps.), latex (3 sps.) and flowers (3 sps.) possess medicinal values and are utilized by the local individuals in the preparation of medicines (Fig. 3). These herbs are used as whole or their parts are used in the form of paste, powder, and decoction.

Rarity: The present study indicates that the overexploitation of these therapeutic plants has posed a threat to their extinction. Seven plants namely *Oxalis corniculata, Zanthoxylum armatum, Arnebia benthamii, Angelica glauca, Trillium govanianum, Saussurea lappa,* and *Ainsliae aptera* are endangered and 1 plant species namely *Valeriana jatamansii* is vulnerable. This data highlights the need to take steps towards the conservation and sustainable utilization of these plants.

CONCLUSION

The present paper offers detailed information on the diversity, distribution patterns, traditional uses and mode of administration of the therapeutic plants employed by the local inhabitants of the Outer Seraj area for curing various ailments. The total of 39 plant species belonging to 32 families have been listed. Most of the reported plant species possess multiple therapeutic uses. Different parts of these plants viz roots, leaves, bark, stem, fruits, seeds, flowers etc. possess medicinal values and are used by the local individuals in the form of powder, paste and decoctions. *Tinospora cordifolia, Pistacia integerrima, Rubus ellipticus, Oxalis corniculata, Juglans regia, Withania somnifera, Euphorbia hirta* and *Berberis lycium* are some of the plants which possess very high UV value indicating their high significance for the local people. However, unscientific and over- exploitation of these plants is resulting in imminent danger of extinction of these plants. Seven plants species have become endangered and 1 plant species is vulnerable facing the threat of extinction. Efforts to conserve and sustainably manage medicinal plant resources are crucial to ensure their continued availability for the future generations. There is also an urgent need to take steps for the *in-situ* and *ex-situ* conservation of these plants.

REFERENCES

Aswal BS and Mehrotra BN 1994. *Flora of Lahaul-Spiti* (a cold desert in the northwest Himalayas). Bishen Singh Mahendra Pal Singh, Dehradun pp. 1-342.

Badola HK and Pal M 2003. Threatened medicinal plants and their construction in Himachal Himalaya. *Indian Forester* **129**: 55-68.

Collett H 1902. *Flora simlensis*. Calcutta: Thacker Spink. & Co, Bishen Singh Mahendra Pal Singh, Dehradun, Reprinted 1971.

Dhaliwal DS and Sharma M 1999. *Flora of Kullu district*, Bishen Singh Mahendra Pal Singh, Dehradun pp. 1-278.

Kala CP 2006. Medicinal plants of the high altitude cold desert in India: Diversity, distribution and traditional uses. *International Journal of Biodiversity Science Management* **2**(1): 43-53.

Kumar G, Kumar N and Sharma R 2021. Economically important ethnomedicinal plants of district Kullu, Himachal Pradesh, India. *International Journal of Creative Res*earch *Thoughts* (IJCRT) **9**(5): 86-116.

Myers N, Muttermeier RA, Muttermeier CA, Da Fonseca ABG and Kent J 2000. Biodiversity hotspots for conservation priorities. *Nature* **403**: 853-858.

Phillips O, Gentry AH, Reynel C, Wilkin P and Gálvez-Durand BC 1994. Quantitative ethnobotany and Amazonian conservation. *Conservation Biology* **8**(1): 225-248.

Singh SK 2004. Ethno-medicinal plants of Kullu Valley, Himachal Pradesh. *Journal of Non-Timber Forest Product* **11**: 74-78..

Singh SK and Rawat GS 1998. Traditional versus commercial use of wild medicinal plants of Great Himalayan National Park. *Proceedings International Mountain Meet* 98.

Received 13 April, 2025; Accepted 30 June, 2025