



# ROLE OF RURAL WOMEN IN CONSERVATION OF PLANT RESOURCES AND ITS MANAGEMENT IN DISTRICT MANDI, HIMACHAL PRADESH

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**Abstract:** Himachal Pradesh is the land of rich floral wealth and the lives of folks of Himachal revolve around the diverse forest produce available in their neighborhood that they use for the fulfillment of their day-to-day basic livelihood needs. District Mandi is known for the rich cultural heritage and history represented by its temples. The altitude variation (600 m asl to 4000 m asl) in the district also makes it a floristically very rich district. This floral diversity is the mainstay of the socio-cultural practices in the district with women being the major players who play a very vital role in using and conserving this biodiversity. Most of the fuel wood and fodder is collected from the wild by the women. Women have great faith in the local plants used as for healthcare especially for the newly born children and other primary health care issues. Plants are also used in various rituals, ceremonies, marriages by women as sacred and essential part in the villages of the district. Some plants are even worshipped by women as an ethical practice. Women in the district also take steps to propagate the plant species used in rituals, religious practices and for medicinal purposes. In this paper, total 40 species belonging to 29 families are reported. The most used parts are leaves (29%) and twigs/stem (29%).

**Keywords:** Biodiversity, Himachal Pradesh, Mandi, Rural women, Plant resources, Ethics, Custodians.

## I. INTRODUCTION

The relation of man with nature is since immortal. The life cycle of human being revolves around the utilization of plants and plant resources in one way or another. Life, nature and planet Earth have been generally portrayed with the female features throughout different civilizations. In Greek Mythology, Demeter was the Goddess of grains, agriculture, harvest, growth and nourishment<sup>1</sup>. Tethys was the Titaness of fresh water, rivers, springs, clouds. In ancient Roman religion, Pomona was the Goddess of fruits. Flora was the Goddess of flowering plants<sup>2</sup>. Even in Hindu Mythology, Devi Annapurna is the Goddess of food. Devi Shakambhri is the Goddess of vegetables and herbal plants. Nature has dependably been nurturing figure for being benevolent and of offering nature to the humankind. Females are talented by Nature with the richness, imagining and to support the progression of species on Earth. Most economical advancement endeavors, including biodiversity activities get from a gendered vision of fragmented manageability that isolates home, territory and working environment into discrete areas, with ladies at 'home', men in the 'work environment' and secured 'living spaces' without people. Subsequently being a guardian of the children and other relatives, the ladies turn into the essential clients of the plant assets as nourishment, fiber, flavors, medications, magnificence, customs and some more. Ladies, through their employments of characteristic assets for developing, rearing, feeding and mending, have protected and built up the information of organic assorted variety. This conventional information has been exchanged from age to age, improving employment security as made the ladies as 'Caretakers of Biodiversity'.

Himachal Pradesh is the land of rich floral wealth and the lives of folks of Himachal revolve around the diverse forest produce available in their neighbourhood that they use for the fulfillment of their day-to-day basic livelihood needs. District Mandi is known for the rich cultural heritage and history represented by its temples. The altitude variation (600 m asl to 4000 m asl) in the district also makes it a floristically very rich district. This floral diversity is the mainstay of the socio-cultural practices in the district with women being the major players who play a very vital role in using and conserving this biodiversity. Status of women in hill states is quite different due to prevailing geographical condition where women are involved in more physical activities outside home like collection of fuel wood, work in the fields, rearing animal and also engaged in other activities like sewing, making of artifacts. Most of the rural women are involved in the animal rearing and collection of fuel wood from forests. They also play a vital role in conserving the biodiversity by storage of seeds and other practices. The present paper highlights the role of rural women as custodians of plant resources in District Mandi. Besides exploring floristic diversity<sup>3-7</sup> and of plant resources of Himachal Pradesh documentation of traditional knowledge on the utilization of plants has also been initiated by several workers<sup>8-12</sup>. Previously, the ethnobotanical works on District Mandi has been done<sup>13-15</sup> but no work is reported from the District with special reference to the women and their role in the conservation of biodiversity.

## II. METHODOLOGY:

The area selected for the study was rural areas of district Mandi with special emphasis on women. Mandi district is situated 76°37' - 77°23' East longitudes and 31°13' - 32°04' North latitudes in the lap of Western Himalaya. The district has total geographical area of 3950 square kilometers and constitutes 7.095 per cent of the total geographical area of the state. It is the cleanest district of India. The altitude varies from 600 m asl to 4000 m asl at Nargu peak. Topographically, the district can be categorized as Shivalik region (ranging from 600 m asl to 1500 m asl) and Mid Himalayan Mountain (ranging from 1500 m asl to 4500m asl). The main occupation of rural people is agriculture. Mostly the rural women are involved in collection of fuelwood, fodder, collection of wild vegetables and fruits, handicrafts making etc. The district is mainly known for its temples and belief in divine cultural heritage. There are many local festivals and rituals celebrated in district Mandi by the women in which they worship the local plants as well. Mainly the people speak *Mandiyali* dialect frequently although Hindi and English are the main official and communicating languages. The ethnobotanical survey was carried out from June, 2016 to August, 2018. The villages were randomly selected and the surveys were done<sup>16-17</sup>. The women were divided according to the age groups. They were interviewed informally through group discussions on various topics concerned with the utilization of various plant sources. All the discussions were done in local pahari dialect although they understand Hindi as well. Since the emphasis was on old aged women so it had been more than 25 years or so for them to leave their parents home and to stay with their in laws family. This was a good thing for us as they shared some knowledge of their maternal villages too. Specific questionnaire was designed and the information was documented.

## III. RESULTS:

In light of the overviews done, after plants have uncovered their significance in everyday existence of country ladies of District Mandi. In the present investigation, 40 species having a place 29 families as trees, bushes and herbs are accounted for as appeared Table 1. Amid the review it is seen that leaves and stems (29% each) are utilized most by the ladies as examined by pie outline (fig.6). Among 40 species, 28 species are dicotyledons, 8 are monocotyledons, 2 speak to gymnosperms and 1 is pteridophyte. Based on usage of the plant assets, it was seen that out of 40 species, 17 species (25%) have therapeutic esteem, 15 (22%) have consumable esteem, 12 species (17%) have ceremonial esteem, 12 (17%) have incidental angle pursued by 9 species (13%) fuelwood and 4 species (6%) have feed use.

Table 1. List of locally used plants by rural women

Sr. No.	Botanical Name	Local Name	Family	Part/ Parts Used	Traditional Use
1	<i>Achyranthus aspera</i> L.	Phutkanda	Amaranthaceae	Leaves.	Plant is worshipped in “Kajatriya Poojan”, Fresh leaves are crushed and applied against stings.
2	<i>Aesculus indica</i> (Colebr. ex Cambess) Hook.	Tutakhar/ Khanor	Hippocastanaceae	Seeds	Flour is made from the seeds and cooked with desi ghee by women to relieve pain and weakness during menstruation and post pregnancy. Also taken during fasts.
3	<i>Anethum graveolens</i> L.	Kaudi Saunf	Apiaceae	Seeds	Used to relieve stomach pains, increase milk in lactating mothers.
4	<i>Asparagus racemosus</i> Willd.	Saharsapaii, Shatavar	Asparagaceae	Whole plant, Tubers	Plant is used in marriage; powder of tubers given to lactating mothers.
5	<i>Bauhinia variegata</i> L.	Karyale, Kachnar	Fabaceae	Buds, Petals, Twigs	Petals are eaten as vegetable, buds are pickled by women. Twigs are used as Fuelwood.
6	<i>Cannabis sativa</i> L.	Bhaang	Cannabaceae	Leaves, hemp fibres	Leaves are offered to Lord Shiva, fibres are used to make “Pullah” and ropes.
7	<i>Cedrus deodara</i> (Roxb. Ex D.Don) G.Don	Deodar, Kelo	Pinaceae	Twigs, Cones	Twigs are used as fuelwood; cones are used for decoration purpose.
8	<i>Celtis australis</i> L.	Khidak	Cannabaceae	Leaves, Twigs	Leaves are used as fodder, twigs are used as fuelwood
9	<i>Citrus maxima</i> (J. Burm.) Merr.	Galgol	Rutaceae	Fruit, Leaves	Fruits are eaten raw, as pickles. Leaves used as toothbrush. Peels are used to clean face.
10	<i>Colocasia esculenta</i> (L.) Schott.	Paatar, Arabi	Aracaceae	Rhizomes, Leaves, Wh ole plant	Plant is worshipped in “Kajatriya Poojan”, Leaves are used to make local dish called “Patrodu”, Rhizomes taken as vegetable.

11	<i>Coriandrum sativum</i> L.	Been	Apiaceae	Leaves, Seeds	Leaves used for garnishing, Seeds believed to relieve morning sickness in pregnant women.
12	<i>Curcuma longa</i> L.	Haldi	Zingiberaceae	Rhizomes	Powdered rhizomes are given with milk to heal internal wounds.
13	<i>Cynodon dactylon</i> (L.) Pers.	Drubb	Poaceae	Stem	Considered auspicious; used in all rituals. During solar eclipse and lunar eclipse, the stem is put into milk to keep the negative vitality of eclipse away.
14	<i>Diplazium esculentum</i> (Retz.) Sw.	Lingad	Athyriaceae	Frond	Eaten as vegetable, also used as pickle
15	<i>Grewia optiva</i> Drumm.	Beul	Tiliaceae	Leaves, Twigs	Leaves are used as fodder, twigs are used as fuelwood. Young shoots of <i>Grewia optiva</i> (Beul) are used as splints for bandaging fractured limbs and the fresh green bark is used as bandage. Fibre is used to make ropes.
16	<i>Impatiens balsamina</i> L.	Tiur/ Gulmehndi	Balsaminaceae	Leaves, Flowers.	Leaves are crushed and applied as Mehendi during Saavan month. Flowers are offered to deities.
17	<i>Juglans regia</i> L.	Akhrot, Khod	Juglandaceae	Fruit, Twigs	Fruits edible; used in "Sair"; twigs used as toothbrush/ daatun.
18	<i>Mallotus philipensis</i> (Lam.) Mull. Arg.	Kambhal, Sindoori	Euphorbiaceae	Twigs, Fruits	Twigs are used as fuelwood, Sindoori is extracted from fruits.
19	<i>Mentha spicata</i> L.	Pudina	Lamiaceae	Leaves	Fresh and dried leaves used as Chutney, as remedy for stomach disorders.
20	<i>Morus alba</i> L.	Toot, Chimu	Moraceae	Leaves, Twigs, Fruits	Leaves are used as fodder, twigs are used as fuelwood, fruits edible.
21	<i>Murraya koenigii</i> (L.) Spreng.	Gandhla, Gandhela	Rutaceae	Leaves, twigs	Leaves are used to make curry, twigs are used as oral toothbrush.



22	<i>Nasturtium officinale</i> W.T. Aiton.	Chuchh	Brassicaceae	Leaves	Used as vegetable.
23	<i>Ocimum sanctum</i> L.	Tulsi, Selly	Lamiaceae	Whole plant	Plant considered very sacred, worshipped by women. Leaves used as medicine for cough and cold.
24	<i>Oryza sativa</i> L.	Dhaan	Poaceae	Seeds	Plant is worshipped in “Kajatriya Poojan” and “Sair festival”; seeds taken as staple food.
25	<i>Paspalum scrobiculatum</i> L.	Kodra	Poaceae	Seeds	Used as cereal.
26	<i>Phoenix sylvestris</i> (L.) Roxb.	Khajre	Palmaceae	Stems, Fruits	Stems are used as brooms; fruits are edible.
27	<i>Phyllanthus embelica</i> L.	Amla	Phyllanthaceae	Fruits	Fruits are pickled, “Murabba” is also prepared.
28	<i>Pinus roxburghii</i> Sarg.	Chil	Pinaceae	Pine needles, Twigs	Needles are used as Cattle beds, used to make little brooms used to clean Chullah; twigs used as fuelwood.
29	<i>Prinsepia utilis</i> Royle	Bhekhhal	Rosaceae	Twigs	Considered auspicious by lactating mothers; keeps the child away from evil effects.
30	<i>Punica granatum</i> L.	Daaru	Punicaceae	Fruit	Fruits are edible in fresh and dried form; considered very sacred plant.
31	<i>Quercus leucotricophora</i> A.Camus	Baan	Fagaceae	Leaves, Twigs	Leaves are used as fodder and Cattle bed. Twigs are used as fuelwood.
32	<i>Rhododendron arboreum</i> Sm.	Buransh, Braah	Ericaceae	Flowers, Twigs	Twigs used as fuelwood, flowers used to extract juice, considered as coolant in summers.
33	<i>Rumex hastatus</i> D.Don	Marole	Polygonaceae	Leaves	Fresh crushed leaves are applied on minor burns.
34	<i>Sapindus mukorossi</i> Gaertn.	Reethe, Dode	Sapindaceae	Fruits	Fruits are used as shampoo; also used to wash warm clothes.
35	<i>Trigonella foenum-graecum</i> L.	Methi	Fabaceae	Seeds	Increase milk in lactating mothers.

36	<i>Verbascum thapsus</i> L.	Jungali tambakhu	Scrophulariaceae	Leaves	Leaves are used for the treatment of minor ailments of cattle.
37	<i>Viola serpens</i> Wall.	Banafsha	Violaceae	Flowers	Petals are used as decoction for cough and cold.
38	<i>Vitex negundo</i> L.	Nirgundi, Bana	Lamiaceae	Leaves, Twigs	Twigs used to keep the evil away; leaves are used as pain reliever
39	<i>Zanthoxylum armatum</i> DC.	Tirmira	Rutaceae	Stem, twigs	Stem is kept in houses to keep the evil away; twigs used as local toothbrush.
40	<i>Zingiber officinale</i> Roscoe	Adra, Adrak	Zingiberaceae	Rhizomes	Used in tea as remedy for cough and cold.



Fig.1 Karjatriya Poojan



Fig.2 Tulsi Vivah



Fig.3 Sair Poojan Saamgri



Fig.4 Women making rope of Cannabis sativa



Fig.5 Haat Bazar

#### IV. DISCUSSION:

In view of the overview and the gathering exchanges it is uncovered that the country ladies are more moral than guys with respect to the usage of plat assets. They have a decent information of grain species, fuel wood having great burning productivity and restorative plants utilized for the treatment of various infirmities. The primary explanation behind talking the ladies was to record the moral learning with respect to plants. A portion of the neighborhood celebrations celebrated especially by ladies which include the nearby plants are talked about as beneath:

**Kajatriya Poojan (Fig. 1):** This celebration is bound in the Mandi, Sunder Nagar and Balh locales of the region. This one day celebration is praised by the wedded ladies for the wellbeing and life span of their spouses. The ladies fast for the entire day and worship the *Oryza sativa* (Dhaan), *Achyranthus aspera* (Phutkanda) and *Colocasia esculenta* (Kachalu). They trust that revering *A. aspera* gives insurance to their spouses, while venerating *O.sativa* will never keep them hungry.

**Tulsi Vivah (Fig.2 ):** This five days festival is considered very auspicious by the women of the District Mandi and celebrated twenty days after Diwali. Since *Ocimum sanctum* (Tulsi) is being worshipped in each house of the district; it is celebrated like the daughter's marriage. *O.sanctum* is decorated with the stems of *Saccharaum officinalis* (Ganna), *Phyllanthus emblica* (Amla) and *Tagetes erecta* (Gatt Phool).

**Sair (Fig. 3):** This is one of the most celebrated local festivals of District Mandi. This festival is celebrated as welcome note for winters. The Mother Nature is worshipped in the form of seasonal flowers and fruits. These plants include *Oryza sativa* (Dhaan), *Punica granatum* (Daaru), *Citrus sp.* (Khatta), *Zea mays* (Maize), *Cucumis sativus* (Cucumber), *Benincasa hispida* (Dhooda Petha), *Juglans regia* (Khod) and *Colocasia esculenta* (Kachalu). Moreover on this day the snack made of *Colocasia esculenta* (Kachalu) called as "Patrodu" are essential part of the ceremony.

The local old women prefer applying the natural mehndi made by crushing the leaves of *Impatiens balsamina* (Tiur/ Gulmehndi) on their hands in the month of Saavan. Old aged women still wash their hair and warm clothes with *Sapindus mukorossi* (Reetha). Normally the hilly women are hesitant to talk much but they were comfortable as the mode of communication was Pahari. Even for the treatment of their normal health problems they prefer the plants. For example: the powdered seeds of *Aesculus indica* (Tutakhar) cooked in desi ghee and sugar are considered very healthy and pain relieving during menstruation and post child birth. *Asparagus racemosus* (Shatvar), *Trigonella foenum- graecum* (Methi), *Anethum graveolens* (Kaudi Saunf) are given to lactating mothers to increase the milk. Hill women prefer eating seasonal wild vegetables like the buds and petals of *Bauhinia variegata* (Kachnar/ Karyale), flowers of *Desmodium sp.* (Kathi), frond of *Diplazium esculentum* (Lingad), leaves of *Fagopyrum sp.* (Phaphra) etc. Moreover the women are skilled enough to preserve these eatables in the form of pickles, chutney, juices and powder. In the hills the chullahs are considered very sacred place in the kitchen. So the women don't take their shoes near to it. Rather they prefer Pullah made of *Cannabis sativa* (Bhaang). Women carrying fuel wood is the most common scenario in the hills.

There are numerous neighborhood truisms with respect to nearby plants celebrated among ladies like:: *Jethi Bana*, *Bsuti*, *Bare*, *Tethi maanu kiyen mare* (Where *Vitex negundo* (Bana), *Adhatoda vasica* (Basuti) and *Acorus calamus* (Bare) are planted, no human can die.) Kodra annjan da Raja, jebe seko, tebe Taaja (*Paspalum scrobiculatum* (Koda millet) is the king of the cereals, when you heat it, it is always fresh). *Harad*, *bahera*, *amla bich paye giloye*, *jethiyun char cheejan*, *tethi maanu kijo mare* (If one consume *Terminalia chebula* (Harad), *T. bellirica* (Baheda), *Phyllanthus emblica* (Amla) and *Tinospora sinensis* (Giloye), he would carry on with a long life.)

Nowadays ladies are getting to be self ward. They are utilizing NTFPs as their wellspring of salary in this manner broadening their hands in raising the economy of family. They are moving items like pickles of *Bauhinia variegata* (Karyale) buds, *Diplazium esculentum* (Lingad), *Citrus maxima* (Galgol), lemon, chillies etc. Even they sell brooms made of *Phoenix sylvestris* (Khajre), pattal made of *Bauhinia vahlii* (Tor), juice made of *Rhododendron arboreum* (Buransh), datun/ tooth sticks of *Juglans regia* (Walnut) and so forth.(Fig. 5 )



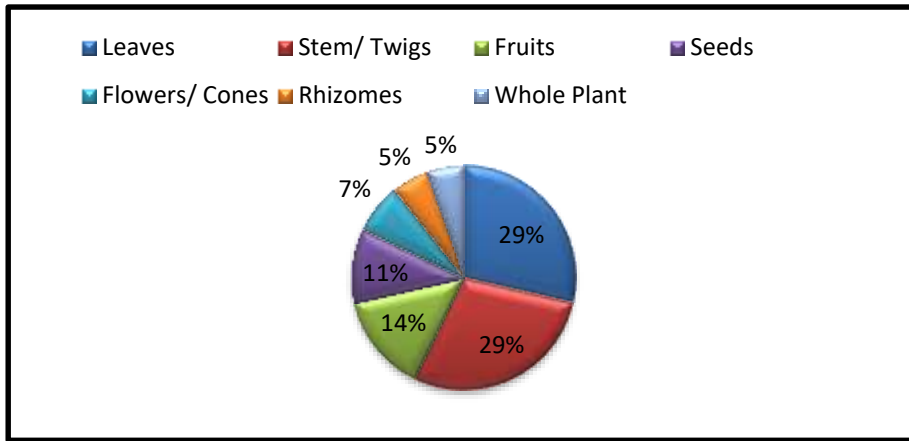


Fig.6 Pie Chart showing the percentage utilization of the parts of the reported species.

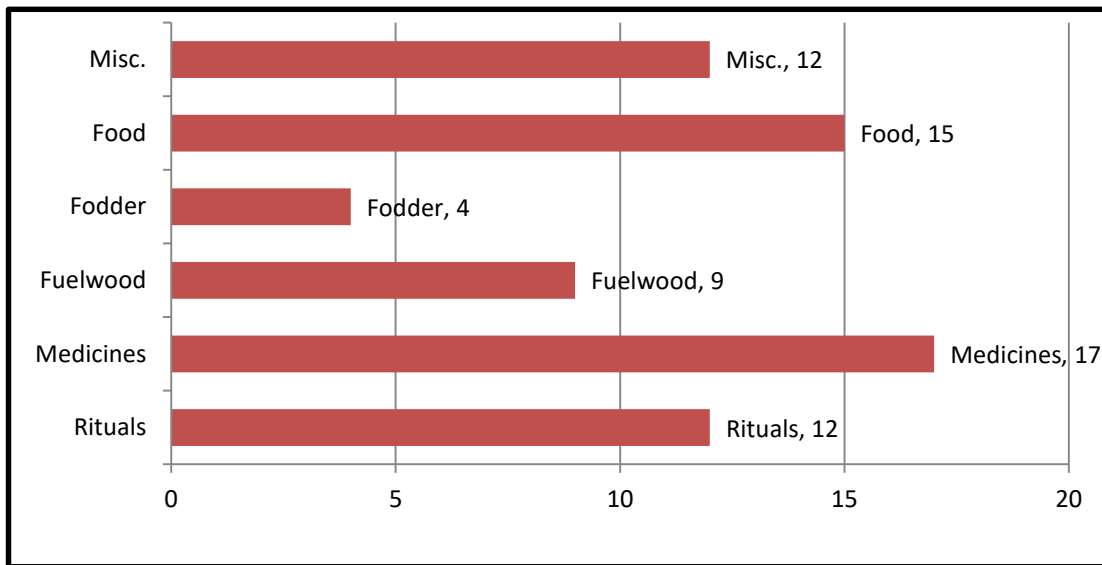


Fig. 7 Graph based on the usage of plant assets

It tends to be finished up from the study that the country ladies of the District are progressively joined to the plants. They store seeds of practically all the occasional vegetables developed in their Kitchen Garden. All the drying, husking and putting away of the grains and pulses which are the principle staple sustenance is finished by ladies as it were. Ladies are the principle guardians of dairy cattle at homes also. They have the correct learning of giving the grub at appropriate time. If the dairy cattle experience the ill effects of medical issue, the ladies know their cures as well. They are the essential clients of the plant assets as nourishment, fiber, flavors, meds, magnificence, customs and some more. Ladies, through their employments of normal assets for developing, reproducing, supporting and mending, have protected and built up the information of organic decent variety. This customary information has been exchanged from age to age, upgrading job security as made the ladies as 'Custodians of Biodiversity'.

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