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Research Article

Indigenous Uses of Economically and Commercially important Medicinal Plants Use to Cure Gynecological Diseases by Ethnic People of Bodmalla Village, Almora District of Western Himalaya, India

Amit Pandey*, Shweta Singh[1]

*Department of Natural Resources, the Energy and Resource Institute (TERI University), New Delhi, India

[1] Post Doctoral Fellow, University Grant Commission, New Delhi

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ABSTRACT

Plants have been used as a source of medicines from ancient times to the present day. Initially this constituted folk or ethno medicine practiced in India, China, Middle East, Africa and South America. Later considerable amounts of this indigenous knowledge was formulated, documented and eventually incorporated into organized systems of medicines *viz*., Ayurveda, Yunani and Siddha [10]. A large number of medicinal plants of great commercial value grow abundantly in the study area.Findings are based on a field survey of the Bodmalla village of district of Almora, Uttarakhand to identify plants of medicinal value and the indigenous uses of 10 medicinal plants species which are frequently used by the local healers of the village to cure various gynecological ailments which forms one of the major sources of their livelihood.

Keywords: Almora district, Ethno-medicine, Indigenous uses, Livelihood

Introduction:

The Himalayan region of Uttarakhand is a well-known treasure of medicinal plants diversity, since antiquity as many plant species of this area have medicinal value and are being used by local people for curing a variety of ailments [16]. The traditional societies are adapted to live in a hostile environment and use their available natural resources to earn their livelihood and also to run their lives. The medicinal properties of plant species have played an important role in the origin and evolution of many traditional herbal therapies in the developing countries particularly in India. The traditional communities of mountain region of Uttarakhand are still dependent upon wild plants for their primary health care system and for the treatment of a variety of diseases. These useful plants collected from various habitats such as forests, grasslands, cultivated fields for using them as raw components in drugs. These communities have acquired fairly good knowledge of both the useful and harmful properties of plant resources due to their constant and close association with forest and agro-ecosystems [5]. Every culture, irrespective of its simplicity and complexity has its own beliefs and practices concerning diseases. Primitive people acquire knowledge of economic and medicinal properties of many plants by trial and error and thus have extensive knowledge of the properties and use of plant resources prevalent in their environment which inevitably leads them to became the store house of knowledge of many useful plants. This knowledge has been accumulated and enriched and passed on from one generation to the next without any written documents[2], [20], [6], [7]. People of the present study area are enriched in ethno-botanical knowledge owing to their close affinity with the surrounding vegetation. Medicinal plants form the basis of traditional or indigenous systems of healthcare used by the majority of remotely located people. Religious inspiration, inaccessibility and lack of modern medical facilities in the selected village seem to be the main reasons for using these medicinal plants species in their daily lives. Traditional systems of medicine are a wise practice of an indigenous knowledge system, and have saved the lives of poor people in the region. The usage of medicinal plants naturally varies according to the disease. In some cases most of the plant species are not used alone but

*Corresponding author: AmitPandey| E-mail: amitpnd746@gmail.com

are mixed with other herbs in specific amounts. Most of the decoctions are made by just crushing the plant parts with a pestle and others by boiling plant parts in water, decanting the liquid and drinking after cooling. Some plant decoctions are also used directly on the wound or the infected part of the body. The present study is an attempt to document the indigenous knowledge of the local medicinal practitioners known as *Vaidhyas* and other knowledgeable people using these wild resources for different purposes. It can be accreted that different areas of the Almora district have great altitudinal variations. Due to these great altitudinal variations, wide array of climatic zones are available which favors the luxuriant growth of diversified and rich vegetation which also has a number of raw drugs described in Ayurvedic texts, that's why this value of biodiversity as a source of pharmaceutically important substances[4], [11], [17], [15]. Presently, 95% raw materials required by pharmaceuticals and drug manufactures are collected from the wild and remote areas [8]. The pharmaceutical sector is using 280 medicinal plant species, out of which 175 are from the Indian Himalayan Region [3]. The present research intends to document various formulations used to treat gynecological problems in Almora district of Western Himalaya.

Women are considered as the backbone of hill economy in Uttarakhand State. Health of women is directly related to the wellbeing of the entire family. The literature indicates that rural women face higher risks of morbidity and mortality because of strenuous physical work [19]. A study has reported that overwhelming population of hill women were in grip of severe to moderate malnutrition [14]. Keeping the above facts in mind, the present study was planned with the objective to assess various herbal remedies to cure women related diseases in order to help them attain a good nutritional status leading to a good health condition. This work is a pioneer in Bodmalla village, Almora, Uttarakhand, India with the aim to document the knowledge of the local healers present in the area.

Methodology

Study Area

Almora is located at 29.62°N 79.67°E. It has an average elevation of 1,861 meters (6,100 feet). It is located on a ridge at the southern edge of the Kumaon Hills of the Himalaya range. In the shape of a horse saddle shaped hillock, it is surrounded by thick forests of pine and fir trees. Flowing alongside the city are rivers of Koshi, (Kaushiki), and Suyal (Salmale). The snow-capped Himalayas can be seen in the background. Almora got its name from "Kilmora" a short plant found nearby region, which was used for washing the utensils of Katarmal Temple (Almora- Alchetron: The free encyclopedia).

Bodmalla is a small village ($29^0$39'01.52"N, $79^0$40'33.03"E) present in Kasuli-Site, Mohaan Range, Almora division, Uttarakhand, India, at the elevation of 5983 ft. which is 14 km far from Almora city [1]. Positioned at an elevation of 345 m, Bodmalla village has an enjoyable but sometimes cold climate all the way through the year. It has an average annual maximum temperature of around 23° C and average minimum temperature of approximately 10°C. The annual average rainfall hovers more or less around the figure of 1,152 mm. The village has medium deep, loamy-skeletal soils, moderately eroded and strong stoniness associated with shallow loamy soils, moderately eroded and moderate stoniness which caters many important medicinal plant species (table 1 and 2). The literacy rate of the village is poor in which males are literate as compared to the females. Males also get many additional advantages like education, working, and right to speak in family affairs. Females are mostly confined to the kitchen activities and also rarely get any opportunity to voice their opinion in the family related decisions.

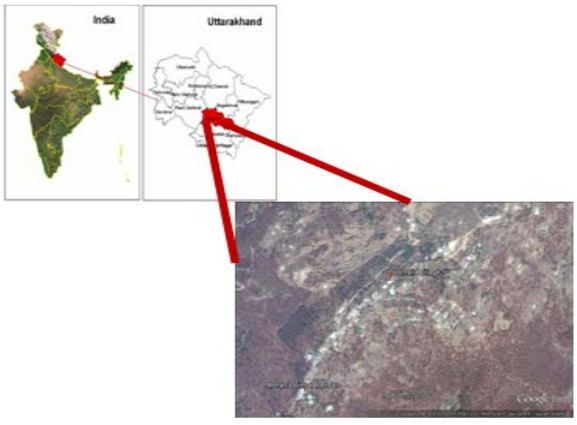

Figure 1: Study Area

Methods

The present study is based on a field survey of Bodmalla village of Almora, to find out the plants of medicinal values. The work was conducted among local people, rural persons, farmers and *Vaidhyas* to know the local names and medicinal importance of plants mentioned by them (table 1.). A workshop related to sustainable collection of medicinal plants was conducted by State Medicinal Plant Board, Uttarakhand in association with FRLHT, Bengaluru in Bodmalla village where the local healers, residents of the village, people from village panchayat were invited. The people under reference were interviewed using a structured questionnaire to have information about the plants with their local names, their parts used, mode of preparations of used plants. These plants with medicinal values were collected from local populace and studies were made to know their medicinal uses. The collection of plants was done in order to document the resources available in their natural environment. During the period of work, four healers from the age group 40-80 year of age were interviewed. Out of the documented healers, 3 were female healers and 1 male healer. The questionnaire was written in Standard English but the healers were interviewed in Hindi as per their convenience. The healers were mostly nomadic tribes who knew Hindi language because of their incessant migration.

Result and discussion

A large number of medicinal plants of great commercial value grow spontaneously in the study area. The present study deals with the indigenous uses of 10 angiosperm plants of medicinal values in gynecological diseases. The documented plants belong to 10 different families out of which 5 are herbs and 5 are shrubs.

Table 1:List of plants documented along with their family, habit, local name, part used and formulations used as herbal remedy to cure various gynecological diseases

S. No.	Scientific Name	Family	Common Name	Habit	Part Used	Formulations used as herbal remedy to cure diseases
1.	*Acoruscalamus*Linn.	Acoraceae	Vach	Herb	Rhizome of the plant	5 grams of rhizome is dried and grinded to make a decoction. 2 ml of decoction of rhizome is given twice a day in abdominal pain during menstruation.
2.	*Berberisaristata*DC.	Berberidaceae	Daruhaldi	Shrub	Stem	5 grams of stem is dried for one week in sunlight and grinded with one cup of water. 3 ml of the decoction of stem bark is very useful in vaginal discharge.
3.	*Cajanuscajan*(Linn.) Millsp.	Fabaceae	Chana	Shrub	Leaves and twigs	2 grams of leaves are mixed with 3 grams of roots of *Withaniasomnifera* (Ashwagantha) and the mixture is taken twice a day to control the milk flow during lactation.
4.	*Euphorbia hirta*Linn.	Euphorbiaceae	Dudhi	Herb	Entire Plant	About 4-5 teaspoonful of plant juice and one teaspoonful sugar in one cup of warm milk is taken once daily for 7-8 weeks as a remedy for lactation.
5.	*Hydrocotyle sibthorpioides*Lam.	Araliaceae	Khulkhuri	Herb	Leaves, Roots	2 grams of leaves are dried in sun for one week, grinded in pestle and mortar and the powder is taken once a day with lukewarm water during menstrual flow. 5 grams of roots are dried and grinded in pestle mortar and

						the powder is mixed with olive oil and the mixture is taken with warm water twice a day for three days to cure menstrual flow.
6.	*Macrothelypterisornata (*Wall. ex Bedd.) Ching.	Thelypteridaceae	Shodhganga	Shrub	Leaves	5 grams of tender leaves of this plant is cooked with chicken to feed mother during pregnancy in order to increase milk production during lactation.
7.	*Mimosa pudica*Linn.	Mimosaceae	Lajwanti	Herb	Roots	10 grams of roots are grinded with lukewarm water and two teaspoon of the mixture is taken thrice a day to treat menstrual problem.
8.	*Plumbagozeylenica*Linn.	Plumbaginaceae	Chitrak	Shrub	Root	Half cup of root decoction once in a day for three days is prescribed to 2-3 months pregnant woman, if abortion is necessary.
9.	*Polygonatumcirrhifolium*(Wall.) Royl.	Asparagaceae	Mahamaida	Herb	Root	2-3 grams of roots are grinded and then 2 teaspoonful of the decoction prepared is taken once in a day to treat afflictions from menopause.
10.	*Valerianahardwickii*Wall.	Caprifoliaceae	Tagar	Shrub	Bark and Leaves	5 grams of bark is grinded and the powder is taken with milk to regulate menstruation. 2-3 grams of leaves are boiled and grinded to a mixture which is mixed with mustard oil and one teaspoonful of the mixture with one cup of milk is taken thrice a day to treat the slow process of menstruation.

Acorus calamus Linn.

Berberis aristata DC.

Cajanus cajan (Linn.) Millsp.

Euphorbia hirta Linn.

Hydrocotyle sibthorpioides Lam.

Macrothelypteris ornata (Wall. ex Bedd.) Ching.

Figure 1: Photographs showing the medicinal plants documented during the study

The utilization pattern of the plant species indicated that roots of 4, rhizome of 1, stem of 1, leaves of 4, whole plant of 1, twigs of 1 and bark of 1 were used in the preparation of herbal formulations used to cure diseases, which is presented in Figure 2. This research article has documentation of five different gynecological diseases for which a total of 12 different herbal formulations have been documented by interviewing healers who are practicing in Bodmalla village, Almora. Number of formulations for the 5 different diseases is presented in figure 3. Out of the 12 formulations documented for 5 different diseases 10 formulations use single plant whereas 2 formulations use the mixture of two plants for the preparation of the herbal medicine. Despite of various modern techniques the people of the studied village prefer to go to the *Vaidhyas* to diagnose their problem although they know some medicinal plants themselves. Healers said the effectiveness of the herb was connected to the knowledge of the exact nature of diseases. They also added that dose response differs from person to person and also for the same person from time to time because the cause and effect varies.

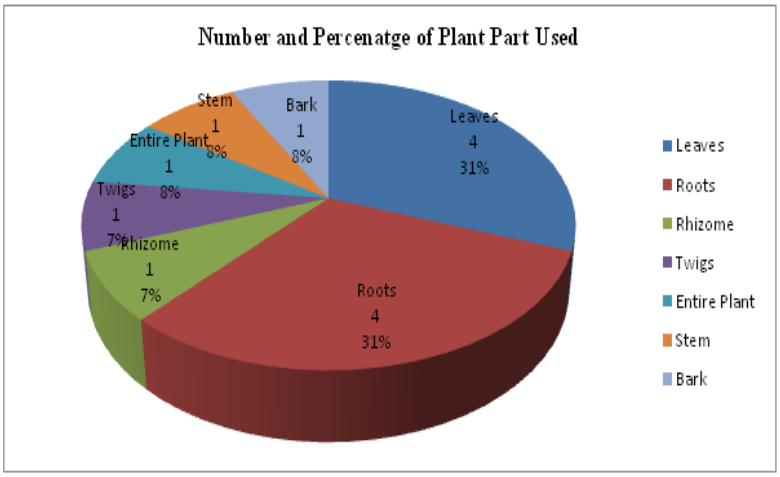

Figure 2: Number and percentage of plant part used in the preparation of various herbal formulations

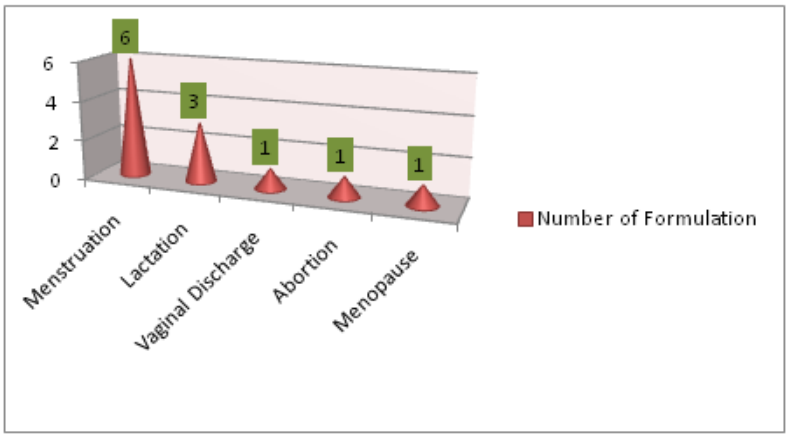

Figure 3: Number of formulations documented for various diseases

The recent trends of habitat destruction and decrease in the forest area has rendered many species to disappear from the environment for which households of the Bodmalla village are maintaining some easily propagatable of frequently used plant species such as in the backyard of their house in order to achieve their immediate needs. Of course, its former popularity and reliability has considerably decreased.

Smt. Urmila Devi

Smt. Munrika Devi

Shri. Mahender Singh (right)
Mr. Amit Pandey (left)

Figure 4: Healers who were documented during the research work

Conclusion

Women are considered as the backbone of hill economy in Uttarakhand State. Agriculture depends mostly on women folks in hills. Unlike the plain areas, the women participate in all the agricultural operations and also trek longer hilly areas to fetch much needed fuel, fodder and water. This heavy work is bound to leave its impact on the health of the women and girls in hills of Uttarakhand. Health of women is directly related to the wellbeing of the entire family. The literature indicates that rural women face higher risks of morbidity and mortality because of strenuous physical work [19]. Women with poor health and nutrition are more likely to give birth to unhealthy babies. With poor health they are also less likely to be able to provide food and adequate care to their children. Hence the present study has been an effort to focus on the treatment of various gynecological diseases using traditional healthcare practices.

Uttarakhand, on account of its unique setting within the Himalayan region, possesses luxuriant and varied vegetation. Almost every plant has economic value from a nutritional, religious [9], aesthetics or medicinal viewpoints [10]. In fact a large percentage of crude drugs in the Indian market come from this Himalayan area [2]. Ethno-medicine has no adverse effect on health. Their continuance for long, has observed that it eradicates/root out the diseases forever. More so, these medicinal plants are easily available at their door steps. Due to various reasons, the medicinal plants that are naturally grown in abundance in this hilly area are now a day's seen in extinction fast. Nearly 30 species of Garhwal Himalaya have been listed in various categories under threat in the Indian Red Data Books [13] of which 24 species are from high altitude alpine regions. Rawat et al 2001 listed 45 more species (excluding Red Data Book) which need special attention for conservation. This Red Data book list also contains as many as 30 species from high altitudes [12].

The recent trend has been to blend the traditional knowledge with modern health care practices to provide effective health care services to a wider population. The basic ingredients in the traditional medicines are the medicinal plants, which are depleting at a faster rate due to increase in consumption and indiscriminate drawl of resources from the wild. With the changing scenario, there is a need to enhance and promote the conservation and cultivation of these natural resources especially of medicinal plants. In addition to the requirement for conservation of medicinal plants it has also become essential to protect and patent the traditional knowledge [18]. Since the knowledge of various medicinal plants being used is confined to mostly local healers, it is of utmost importance to document this knowledge for future generation, otherwise it will be lost forever with the death of local healers/knowledgeable person. Therefore, there is a need to develop an appropriate mechanism for benefits sharing and also to protect the rights of

the tribal and non-tribal communities over indigenous knowledge of the medicinal plants used in healthcare system in the region. Thus, the recording of indigenous healthcare system becomes increasingly important and it is hoped that the information will be of use to plan future research in this direction.

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