

Medicinal Plants Used By Tribal Communities: A Study of Uttarakhand Himalayan Region

Ram Prakash

Research Scholar Department of History B.B.A.U., Lucknow, U.P

ABSTRACT : *The present paper is a study of the traditional medical practices by the tribes of Uttarakhand Region. Forest and forest products have historically played a significant role in the economy as well as culture and religious in this region since ancient time. Forest has played an important part in history of civilization. They have affected the distribution of mankind over the earth surface and have influenced the religious life of primitive people. In India, the Indigenous people are predominantly composed of the large and diverse tribal population scattered across several states. In Indian language, there is no exact equivalent for “Tribe”, but close synonyms are “Vanavasi (forest dwellers)” or “Adivasi”. Tribal people and medical practices are co-related with forest ecology. Tribal communities in this region like Bhotias, Rajees, Tharu, Boxas, and Jaunsarees are distinct in cultures, traditions, languages and customs but have an intimate attachment with forest for their basic needs such as food, fruits, edible roots, leaves, medicinally important plants etc. Their primary health care system is depending on traditional knowledge of medical practices and medicinal herbs. The research and utilization of the traditional medicinal system has become an essential part of the contemporary health care planning, report of world health organization 1978. Therefore the objective is to analyze the paper in two sections. Firstly, the importance of medicinal plants and secondarily, medicinal plants used by tribal communities in this Himalayan region. It is a combined study of historical and scientific approach of traditional medical practices in Uttarakhand.*

KEY WORDS : *Traditional knowledge, Ethno-medicine, primitive people, Tribal Communities; Uttarakhand*

I. INTRODUCTION

India is rich in its tribal population from the immemorial time with their traditional knowledge system which deals with the many significant aspects and the health issues of tribal communities. The tribal people get their cure with the help of their traditional knowledge & understanding of nature and local practitioners and own herbal homework. The use of herbal medicines by tribal communities is inclined by distinct socio-cultural practices, religious, beliefs, support of traditional ability and services of traditional medicine men. These people have close relationship with their ambient environment and ecology and basically depend on it for primary health care system, because of they live in remote areas as compared to modern facilities. Tribal people are the environment people who live in close harmony with the nature and sustained by the tribal and other forest dwellers throughout the World. The records of traditional knowledge on medicinal plants have been considered to support the discoveries of new drugs for the advantage of mankind. Medicinal plants are the base of many societies, for their primary health care system. In primary health care, about 80% of traditional medicines are used which derived from plants.

The tribal community and their habitation constitute very important parts of our country environment and ecology. About half of the total tribal population of the world lives in India. They include about 18% of country's land and 8.2% cent of its population. In Uttarakhand Himalayan region, as per 2011 census, 291903 tribal people constituted about 3% to the total population of the state. This state gives about 0.83 % to the total population and 0.3% to the tribal population of India. In this state, there are five major tribal communities, namely Bhotia, Jaunsari, Raji, Tharu and Buksa. In the Indian context, a tribe is defined as a group with traditional territory, their own political organization, specific name, lack of technology, common language, strong kin relations, association with clan structure and rigid inclination to religion and belief, economic backward. Functional independence, homogeneity, primitive means of exploiting resources, economic backwardness, their own rituals and belief, social-political value, rich culture and tradition and least desire to change are some of the other characteristics governing among the tribes. In Indian language, the aborigines mean “Adibasi” Adi and basi standing for “original” and “inhabitants”, respectively. Constitutionally these human community or groups are known as Scheduled Tribes (S.T.), “Anusuchit Jati”, “Vanjati”, “Vanbasi”, “Pahari” and “Adimjati”, etc.

Historically plants have played a vital role in medicine system. Throughout observation and experimentation, and understanding of nature, human beings have learnt that plants encourage health and well-being. The use of these herbal remedies is not only cost effective, easily available in environment or surrounding, but also safe and almost free from serious side effects as compared to modern medicine. The village elders and headmen, local people, farmers and tribal have fantastic traditional knowledge about for health reasons happening thousands of years ago and is still part of medical practices by folks of various states of Indian sub-continent as well as many other countries including China middle East, Africa Egypt, South America and other developing countries of world. India has a long ritual of wise conservation strategies and management that are useful to people and society. Biodiversity is the most valuable part of nature and society but least appreciated resource, and it can be a key to the protection of the world.

II. GEOGRAPHY OF UTTARAKHAND

Uttarakhand is the youngest mountain state of the Republic of India and it was earlier part of Uttar Pradesh. It was carved out of Uttar Pradesh on the 9th of November 2000. It consists of two words “uttar” meaning north and “khand” meaning “part”. It occupies 17.3% of India’s total land area with 53,483km² of which 92.57% is under hills and 7.43% under plains. It is situated between 77°34’27” to 81°02’22”E longitude and 28°53’24” to 31°27’50”N latitude. This state has different kind of geographical condition and vast biodiversity ranging from the snow bound peaks of the Himalayas with the highest Nanda Devi (7817m) to the sub-tropical Terai region. The border of state touches with Nepal in the East and China in the North. The Population of this state according to census of 2011 is 10,116,752. Out of these, the males represent of 5,154,178 and females comprise of 4,962,574. The state had a growth rate of 19.17% over the last census. The sex ratio in this region is 963 i.e. for each 1000 male and the population density is 189 per square kilometer. Out of the total population of this state 69.45% resides in the rural areas.

III. HISTORY OF THE AREA

Uttarakhand is separated into two administrative divisions, Garhwal and Kumaon. The Garhwal region extends from 29°26’ to 30° 28’ North latitude and 77°49’ to 80°06’ East longitude. It is situated between the tributaries of Ganges- Alaknanda and Mandakini. It was nominated by Aryans as the celestial land or “Dev Bhoomi”. In reality, heaven (Swarg) in those days was sought to be recognized with the region of Garhwal Himalaya, where the mountains (like ‘Meru’, ‘Kailash’, ‘Gandhmadan’) and blessed habitat (like ‘Kuvera’, ‘Shiva’, and ‘Vishnu’ (Mahabharata)) were found. Later the ‘Vedic Age’, this tract had been known as ‘Brahmarishi Deha’ (Manu:11.1919). It was known as ‘Panchala Desha’ during epic period. Later, the region was known as Garhwal which is made from two words Garh (territory) and wal (the name of the king in that period). The Kumaon region expands from 28°44’ to 30°49’N (latitude) and 78°45’ to 81°1’E (longitude). The word Kumaon can be traced back to the 5th century BC. The Kassite Assyrians left their homeland ‘Kummah’, on the banks of river Euphrates and settled in the northern part of India. These inhabitants formed Koliyan tribes, as they settled newly in ‘Kumaon’. Lord Buddha’s mother, Mayadevi belonged to this clan. As another description of the origin, the word Kumaon has been believed to derive from “Kurmanchal” a hill near Champawat which was the old capital of the Chand kings. Kurmanchal was the land of the Kurmavata (the tortoise incarnation of Lord Vishnu, the preserver according to Hindu mythology). The earliest historical source to the region is found in the Vedas. The existence of the mountains was particularly addressed in the Mahabharata, old back to about 1000 BC, when the central characters of the epic, the Pandavas, are said to have ended their life on earth by climbing the slopes of a peak in Western Garhwal called Swargarohini – literally mean, the ‘Ascent to Heaven’.

IV. TRADITIONAL MEDICINE SYSTEM AND MEDICINAL PLANTS

The traditional knowledge of medical systems of northern India (such as Ayurveda and Tibetan) is a part of time tested culture. Medicinal plants have strong acceptance in religious activities and ritual & belief system of north Indian native communities, who worshiped the plants in the form of god, goddesses, and minor deities. The name of some, *Origanum vulgare*, *Saussurea obvallata*, *Ocimum sanctum*, *Cedrus deodara*, *Cynodon dactylon*, *Aegle marmelos*, *Juniperus communis*, *Musa paradissica*, *Nardostachys grandiflora*, *Zanthoxylum armatum*, *Ficus benghalensis*, and *Ficus religiosa* are examples of the medicinal plants used commonly for medicinal as well as a religious purposes by the Hindus and local people in northern India. Despite of human use, different plant species were also application in animal husbandry as the primary source of healthcare. Plants are one of the most valuable sources of medicines system. The used of plants as medicines date back to prehistoric period. In India the references to the healing properties of some herbs in the Rig-veda seems to be the earliest account of use of plants in medicines. The medicinal plants are broadly utilized all over the world in two distinct areas of health management; traditional system of medicine and modern system of medicine. The traditional system of medicine mainly functions through two distinct streams (1)

Local or folk or tribal stream and, (2) Codified and structured Indian system of medicines like Ayurveda Siddha and Unanni etc. More than the centuries, the use of medicinal herbs has become an important part of daily life despite the progress in modern medical system. Around 3000 plants species are known to have medicinal properties in India. The Rigveda (3700 B.C.) mentions the use of medicinal plants. Our traditional systems of medicines, for primary health care viz., Ayurveda, Yunani, Siddha and Homeopathy etc. use herbs for treatment. It is likely that 40% of the humankind populations depend directly on plant based medicine for their health care. In India, medicinal plants offer low cost, easily available, less side effects as compared to modern medicine and safe health care solutions. The medicinal characteristics of many plants are found in leaves, used as alterative, tonic diuretic, blood purifier and antiphlogistic. They are used as remedy against chronic eczema, chronic ulcers, chronic rheumatism, chronic nervous diseases, madness, cholera amenorrhoea, piles and fistula. Recent approximation suggests the over 9,000 plants have known medicinal uses in various cultures and countries, and this is without having conducted comprehensive research amongst numerous indigenous and other communities. Medicinal plants are used at the family or household level by women taking care of their families at the village level by medicine men or tribal community. According to the world Health Organization, over 80% of the world's population or 4.3 billion people rely upon such traditional plant based systems of medicine to provide them with primary health care.

MEDICINAL PLANTS USED IN AYURVEDIC MEDICINES

Local name	Botanical name	Part used	Used to cure
Kalonji	<i>Nigella sativa</i>	Seeds	Diarrhoea, dysentery
Neem	<i>Azadirachta indica</i>	Root, bark, flower	Arthritis, bronchitis, cough, diabetes
Dhatura	<i>Dhatura stramonium</i>	Leaves and fruits	Asthma, cardiac pains
Tulsi	<i>Ocimum sanctum</i>	Leaves	Antiallergic, antidiabetic
Anar	<i>Punica granatum</i>	Seeds, flowers	Syphilis, bronchitis, stomachic
Khajoor	<i>Phoenix dactylifera</i>	Fruit	Genito-urinary ailments, diarrhea
Methi	<i>Trigonella foenum</i>	Seeds	Constipation, diabetes
Paiya	<i>Prunus cerasoides</i>	Bark, fruit	Antipyretic, leprosy
Ajwain	<i>Thymus vulgaris</i>	Seeds	Antiseptic, antispasmodic
Peepal	<i>Ficus religiosa</i>	Bark, leaves, fruit, seeds, latex	Skin diseases, neuralgia, constipation and gynecological diseases

Source: Anthwal et al. (2006).

MEDICINAL PLANTS USED BY TRIBES OF THE UTTARAKHAND

Medicinal plants and the methods to use the medicinal plants, varies community to community as per the location of the tribal community and the availability of the medicinal plants in surrounding.

BY THARU TRIBE

FAMILY	BOTANICAL NAME	LOCAL NAME	DISEASE CURED	PU
Euphorbiaceae	<i>Acalypha indica</i> L.	Kuphi	Ear Problem	LF
Amaranthaceae	<i>Achyranthes aspera</i> L.	Chattisa/Chircita	Boils	LF,RT
Rutaceae	<i>Aegle marmelos</i> (L.) Corea	Bel	Cholera	FR
Mimosaceae	<i>Albizia lebbek</i> (L.) Benth	Siris	Boils	LF
Lilaceae	<i>Allium sativum</i> L.	Lehsun	Diarrhoea	BU
Apocynaceae	<i>Alstonia scholaris</i> (L.) R.Br	Chitwan	Cholera	BRK
Lamiaceae	<i>Anisomeles indica</i> (L.) Kuntze	Basingo	Gastric complaints	LF
Annonaceae	<i>Annona squamosa</i> L.	Sitaphal	Boils	LF
Papaveraceae	<i>Argemone maxicana</i> L.	Pili kantiya	Digestive disorder	SD
Euphorbiaceae	<i>Balioselia retusa</i> (pernum monnatum (Willd) Mull-Arg	Danti/Vanchura	Asthama	LF
Acanthaceae	<i>Barleria prionitis</i> L.	Pila bansa	Skin ailment	LF
Basellaceae	<i>Basella rubra</i> L.	Poy	Cold and cough	LF
Bombacaceae	<i>Bombax ceiba</i> L.	Semal	Burns	RT
Euphorbiaceae	<i>Bridelia retusa</i> (L.) Sprengel	Khaja	Abdominal pain	RT
Euphorbiaceae	<i>Bryophyllum pinnatum</i> (Lam) Oxen	Patharchut	Headache	LF
Asteraceae	<i>Caesulia axillaris</i> Roxb	Gorghanta	Cuts	FLW

Fabaceae	Cajanus cajan (L.) Huth	Arhar	Cholera	LF
Asclepiadiaceae	Calotropis procera (L.) Dryander	Aankha	Boils	LF,FLW
Cannabinaceae	Cannabis sativa L.	Bhang	Dysentery	LF
Caesalpiniaceae	Cassia tora L.	Kasonji	Cold and Cough	LF
Menispermaceae	Cissampelos pareira L.	Madrachi	Bodyache	LF
Verbenaceae	Clerodendrum viscosum Ventenat	Bhatar	Cuts	LF
Cucurbitaceae	Coccinia grandis (L.) Voigt	Kanduri	Cholera	LF
Cucurbitaceae	Cucumis sativus L.	Kheera	Fever	LF

Abbreviation: Lf-leaf, RT-root, FRT-fruit, BRK-bark, SD-seed, FLW- flower, PU-parts used.

Source: Sharma et al 2011, "Medicinal plant used for primary health care by Tharu tribe of Udham singh nagar"; international journal Med. Arom. Plants.

BY BHOTIA TRIBE

PLANT NAME/LOCAL NAME	FAMILY	USES
Aconitum heterophyllum Wall.(Atees)	Ranunculaceae	Half tablespoon ground dry root is taken with boiled water during fever. Root is also chewed and sucked twice a day to control abdominal pain and vomiting.
Acorus calamus L. (Gurbach)	Araceae	Dry root boiled with mustard oil is applied on the sprain region
Allium cepa L.(piyaj)	Liliaceae	Water extract of crushed/ground onion is given to control vomiting
Allium sativum L.(lehsun)	Liliaceae	Till (<i>Sesamum indicum</i> L) oil heated with spilled bulbs of garlic after cooling is poured in to the ear to reduce earache.
Allium stracheyi Baker. (Jambu)	Liliaceae	A clean cloth dipped into leaf decoction is applied on wound
Brassica campestris L. (Sarsoun)	Brassicaceae	Hot mustard oil is applied on the burns
Bergenia ligulata (Wall) Engl. (Pashanbhed)	Saxifragaceae	Dry rhizome is chewed to remove kidney stone
Capsium annum L.(Mirch)	Solanaceae	Paste is applied on the part of the body bitten by dog.
Carum carvi L. (Thoya or kala jeera)	Apiaceae	Fried powdered seeds is taken with boiled water to relieve from indigestion.
Morus alba L. (Shahtoot)	Moraceae	Fruit juice is taken against cough and cold.
Myristica fragrans Houtt. (Jayphal)	Myristicaceae	Fruit paste is applied on neck or chest to get relief from cough.
Psidium guajava L. (Amrood)	Myrtaceae	Leaves are chewed to get relief from blisters in mouth.
Punica granatum L. (Anar)	Lythraceae	Leaves are boiled in half litre of water with ten rose leaves till the extract is reduced to half of its volume. Filtered extract with some butter is given for curing epilepsy / hysteria.
Rosa sp. (Gulab)	Rosaceae	Leaf paste is applied on boils and ulcers. Juice extracted from leaves of red rose is taken against urine infection of children.
Saussurea obvallata Wall. (Brahmakamal)	Asteraceae	Seed oil is applied on the head twice a day as a remedy for headache and mental problems. Flower is also cooked with taga misri and taken against urine tracts infection.

Source: Prasanna k Samal ,et al 2010, “Indigenous medical practices of Bhotia tribal community in Indian central Himalaya”, Indian Journal of Traditional Knowledge Pp,140-144

By Jaunsari Tribe.

BOTANICAL NAME	FAMILY	VERNACULAR NAME	AILMENTS	PARTS USED
Abrus precatorius Linn.	Fabaceae	Ratti	Fever, asthma, chest pain, tuberculosis.	Leaf, seed and root decoction.
Aconitum atrox (Buehl) Mukherjee	Ranunculaceae	Meetha Bish	Rheumatism, neuralgia, paralysis, puerperal fever	Rhizome paste fried in Ghee is externally used.
Aegle marmelos Correa	Rutaceae	Bel	Diarrhoea	Leaf paste and fruit decoction.
Anemone polyanthes D Don	Ranunculaceae	Ratanjot	Food poisoning.	Seed decoction.
Berberis chitria Lindl.	Berberidaceae	Kingore/Chotar	Jaundice, eye disorders (ophthalmia).	Fruit, bark and root.
Bergenia ciliata (Haw.) Sternb.	Saxifragaceae	Silphara	Kidney stone, Sores, Swellings	Root decoction, Leaf juice.
Centella asiatica (L.) Urban	Apiaceae	Brahmi	Mental disorder, skin disease, blood purifier, diuretic.	Plant extract, leaf paste.
Emblica officinalis Gaertn.	Euphorbiaceae	Amla	Stomach problem.	Fruit extract.
Evolvulus alsinoides L.	Convolvulaceae	Sankhpushpi	Cough,cold, asthma, bronchitis.	Plant and flower extracts.
Nardostachys jatamansi DC.	Valerianaceae	Jatamasi	Epilepsy, Hysteria.	Rhizome.
Rauvolfia serpentina Benth.	Apocynaceae	Sarp Gandha	Fever, anxiety, epilepsy, intestinal & nervous disorders.	Roots.
Syzygium cumini (L.) Skeels	Myrtaceae	Jamun	Diabetes.	Fruit and bark.
Terminalia bellirica Roxb.	Combretaceae	Bahera	Stomach problem.	Fruit extract.
Withania somnifera Dunal	Solanaceae	Ashwagandha	Urinary disorders, fever, Insomnia.	Leaf juice Root powder.
Zanthoxylum armatum DC.	Rutaceae	Timru	Toothache, Tooth decay.	Fruit-powder, Stem bark.

Source: G.C.S. Negi et al, “Ethnomedicinal plant resources of Jaunsari tribe of Garhwal Himalaya, Uttranchal, Indian Journal of Traditional Knowledge , July 2006

V. BY RAJI TRIBE

In the medicine system of rajis, a different type of classification or concept prevails which classifies diseases in to different categories. Rajis have classified in to three categories of diseases on the basis of their knowledge of disease and illness. They have placed different diseases and illnesses under sub-head, which are particular their own culture. Deity-linked diseases include genetic abnormality(sar bada, muhkata), boils(phuria), chicken pox(devi ka aana), weak eye sight (bhoot chadna), sudden bleeding with cough(khoon pheknna), and leprosy(kodh). Spirit-linked diseases include high fever(bushaar), severe headache(saro dard), and severe headache with red eye(lalimaa). Body-linked diseases include cough and cold(khansi), cut and wounds(chot aur khoon nikalna), dysentery and diarrhea(panni aana), ear ache(kaan pakna), stomachache(peit dard), eye ailments(aankh dukhana), toothache(daant pirana), asthma(saana phoolna), urinary disorders, i.e. painful urination(peeshaab me dard) and internal injuries, i.e. bleeding from the nose(nakseer phootna).

HEADACHE(sirdard)- They are use, resin of shyarhee, seed oil of dalta and root juice of khajima.

BODYACHE(badandaed)- In bodyache they are use, the oil of mahua, resin of shyarhee, root juice of khajima and seed oil of dalta.

COLD AND COUGH(khansi and sardi)- In cold and cough they are use, Root juice of binait.

CUTS AND WOUNDS(katna aur chot)- They are use, urinates over the cuts, leaf juice of dhonjan and resin of shyarhee.

BURNS(jalna)- Paste of nirbusi and wood paste is also applied.

ITCHING AND OTHER SKIN AILMENTS- Poultice of mothya leaves, paste of angyan and leaves of lampatya.

DYSENTERY & DIARRHOEA(paani aana)- Buds and flowers of kamoichan, fruit paste of timul is given with salt.

STOMACHACHE(peit dard)- Paste of entire kamoichan plant, fruit paste of timul with salt and root decoction of pyaljar.

FEVER(bushaar)- in fever these community used, aonlya seed powder,

EYE AILMENTS(aankh dukhna)- they are apply, root juice of kirmori and leaf juice of chamoree.

VI. CONCLUSION

At this time, conservation and sustaining ecological balance has become the main challenge for the world as well India. Forests in the mountainous areas are facing immense anthropogenic pressure (lopping for fuel wood and fodder, grazing, illegal harvesting for timber, forest fires, etc.) For subsistence living. Degradation of forests in many places has reached a stage where recovery is complicated. In a country where forests maintain the livelihood of 500 million people, managing forests is crucial, particularly in the Himalayan region. In this region, many tribal communities and people depend on forest resources for their livelihoods as well as primary health care system. But due to the deforestation, commercialization of agriculture and also commercialization of medicinal sector, tribal communities and other people are faced many problem. The tribal and rural people of ancient India depend on basic preparations of these medicinal herbs for a number of treatments. The use of the herbal remedy is not only cost effective but also safe and almost free from serious side effects. Over exploitation, loss of natural habitation, poor seed germination rate etc., are the major factors of decline of the important medicinal plant species. Traditional uses of medicinal plants may also decline due to increasing of tourism in this hilly state. The local practitioners are decreasing in number and there is a risk of traditional knowledge system disappearing soon as the younger generation is not interested to learn their tradition knowledge. Records of indigenous knowledge through ethnobotanical and ethnomedicine studies are very important for the conservation and utilization of biological resources. It is compulsory that, there is a need to pay attention for conservation of commercially important species of medicinal plants as well as other valuable forest resources by the local forest department and NGOs & medicinal plants board sector. The over exploitation of natural resources, fast changing tribal culture in modern period has caused the loss of such valuable knowledge.

REFERENCES

- [1]. Anthwal A, Sharma RC, Sharma A. Sacred groves: traditional way of conserving plant diversity in Garhwal Himalaya, Uttaranchal. *Journal of American Science*2006; 2(2):35–8.
- [2]. Anthwala, A, Gupta, N, Sharma, A, Anthwal, S, KI-Hyun Kima. Conserving biodiversity through traditional beliefs in sacred groves in Uttarakhand Himalaya, India. *Resources, Conservation and Recycling* 54 (2010) 962–971.
- [3]. Anonymous. Census of India SC/ST Population. Registrar General of India, New Delhi, 1991
- [4]. Anonymous. Census of India for the State of Uttaranchal. Bihar and Jharkhand, Registrar General of India, New Delhi, 2001
- [5]. Attisso MA. *Phytopharmacology and Phytotherapy*. In: Bannerman RH, Burton J, (eds.), *Traditional Medicine and Health Care Coverage*. 1983. World Health Organization, Geneva.
- [6]. Bhatt V.P. & Negi, G.C. Ethnomedicinal plant resources of Jaunsari Tribe of Garhwal Himalaya, Uttaranchal, *Indian Journal of Traditional Knowledge* Vol.5(3) July 2006, Pp331-335.
- [7]. Dhyani PP. Common plant species have potential for economic upliftment of rural populace – Bantulsi a case in point. *Hima-Paryavaran* 2000; 12:11–3.
- [8]. Farnsworth NR, Soejarto DD. *Global Importance of Medicinal Plants*. In: Akerle O, Heywood V, Synge H (eds.) *Conservation of Medicinal Plants*. 1991. Cambridge University Press, Cambridge.
- [9]. Gajrani S. *History, religion and culture of India*. Chawla Offset Press; 2004.
- [10]. Kala CP, Dhyani PP, Sajwan BS. Developing the medicinal plants sector in northern India: challenges and opportunities. *Journal of Ethnobiology and Ethnomedicine* 2006; 2:32.
- [11]. Kala CP. *The valley of flowers: myth and reality*. Dehradun: International Book Distributors; 2004.
- [12]. Majumdar, D.N. and Madan, T.N. *An Introduction of Social Anthropology*. Asia Publishing House, Bombay, 1970.

- [13]. Mohd,M, Ahmed Khan, T, Mohammad, F. Medicinal Plants of Rural India: A Review of Use by Indian Folks, *Indo Global Journal of Pharmaceutical Sciences*, 2012; 2(3): 286-304.
- [14]. Pandey Keya& Pandey Suresh. Indigenous Medicines of Raji Tribes Of Uttarakhand, *Indian Journal Of Traditional Knowledge* Vol.9(1). January 2010,Pp.131-133.
- [15]. Pati, R.N. *Tribal Development in India*. Ashish Publishing House, New Delhi, 1991.
- [16]. Prakasha HM, Krishnappa M, Krishnamurthy YL, Poornima SV. Folk medicine of NR PuraTaluk in Chikamagalur district of Karnatka.*Indian Journal of Traditional Knowledge* 2010; 9(1):55-60.
- [17]. Prasanna k Samal,Pitamber P Dhyani, &Mihin Dollo.Indigenous medicinal practices of Bhotia Tribal Community In Indian Central Himalaya, *Indian journal of Traditional Knowledge* Vol.9(1). January 2010,Pp.140-144.
- [18]. Samal PK, Shah A, Tiwari SC, Agrawal DK. Indigenous health care practices and their linkages with bio-resource conservation and socio-economic development in central Himalayan region of India. *Indian Journal of Traditional Knowledge*2004;3:12–26.
- [19]. Sharma Jyotsana, Gairola Sumeet,Gaur& R.D,Painuli R.M.Medicinal plants used for primary healthcare by Tharu Tribe of Udham Singh Nagar, Uttarakhand India, *International Journal Med.Arom.Plants* Vol.1,No.3,Pp.228-233, December 2011.
- [20]. Silori CS, Badola R. Medicinal plants cultivation and sustainable development: a case study in buffer zone of the Nanda Devi Biosphere Reserve, Western Himalaya,India. *Mountain Research and Development* 2000; 20:272–9.
- [21]. Wilson EO. *Diversity of life*. Norton: W.W. & Company, Inc; 1992. p. 424.
- [22]. World Health Organization. *Guidelines for the Assessment of Herbal Medicine Programme on Traditional Medicine*.Doc. WHO/TRM/91.4.WHO,Geneva, 2003.
- [23]. World Wildlife Fund. *Beyond Belief: Linking faiths and protected areas to support biodiversity conservation*. A research report by WWF, Equilibrium and the Alliance of Religions and Conservation (ARC); 2005.