

## TRADITIONAL USES OF SOME COMMON MEDICINAL PLANTS BY THE LOCAL PEOPLE OF KOTDWARA REGION, UTTARKHAND (INDIA)

Mehnaz Bano<sup>a\*</sup> and Bilal Ahmed<sup>b</sup>

<sup>a</sup>Department of Botany, University of Jammu, Jammu

<sup>b</sup>Department of Botany, Dr. P.D.B.H. Govt. College, Kotdwara, HNB Garhwal University, (UK).

Email: [mehnazhaider123@gmail.com](mailto:mehnazhaider123@gmail.com)

Received-05.11.2017, Revised-25.11.2017

**Abstract:** Present communication embodies the traditional knowledge of medicinal plants used by the locals of Kotdwara region, Uttarkhand (India) and the ethnomedicinal data gathered from traditional healers (vaid) who inhabit the study area. During the present study, a total of 70 medicinal plants have been identified that belongs to 44 families. Apart from being used for medicinal purpose; some of these providing vegetables and fruits were cultivated on large scale for commercial purpose viz. *Beta vulgaris*, *Citrus aurantifolia*, *Carica papaya*, *Embllica officinalis*, *Musa paradisiaca*, *Syzygium cumini*, *Punica granatum*, *Psidium guajava* and *Momordica charantia*. Some other plants namely *Coriandrum sativum*, *Cuminum cyminum*, *Curcuma longa* and *Zingiber officinale* were used by the local peoples as spices and flavoring agents. Further studies on these medicinal plants can lead to the isolation of various photochemicals from them that can be used for health care.

**Keyword:** Kotdwara, Medicinal, Traditional, Extract, Decoction

### INTRODUCTION

Medicinal plants naturally synthesize and accumulate some secondary metabolites like alkaloids, glycosides, tannins, volatile oils and contain minerals (Kalemba & Kunika, 2003, Edeoda *et al.*, 2005). Indian subcontinent is being inhabited by over 53.8 million tribal people in 5000 forest dominated villages of tribal community and comprising 15% of the total geographical area of Indian landmasses, representing one of the greatest emporia of ethno-botanical wealth (Chowdhuri, 2000). In India, use of these medicinally important plants as traditional medicines is well known (Sandhu & Heinrich, 2005, Gupta *et al.*, 2005). In many developing countries like India, traditional knowledge has been used by poor people such as farmers, people of small villages and tribal communities for the treatment of common diseases (Rojas *et al.*, 2006). However, decades back, due to the quicker effect of synthetic medicines, the herbal medicines got replaced and lost their attention. As allopathic medicines are known to produce various side effects, people have now-a-days become more interested in natural way of living and the necessity of green medicines is now being realized due to their cheaper and more effective nature than modern medicine.

Though different workers have documented the ethnomedicinal uses of plants in relation to their unutilization and conservation from different parts of India (Islam, 1996, Rao, 1997, Joy *et al.*, 2001, Dutta & Dutta, 2005, Lyle, 2007, Shankar *et al.*, 2010), information regarding the traditional and cultural practices of Kotdwara (Uttarkhand) is unavailable. To fill these gaps, present survey was undertaken in this region (Kotdwara, Uttarkhand) which is highly

rich in biodiversity belonging to different climatic conditions varying from subtropical to temperate zones and inhabits numerous medicinally important plants. Besides, attempts were made to explore, identify, collect information and document the traditional knowledge of some common medicinally important plants used by the local people of the region under study.

### MATERIAL AND METHOD

**1. Study area:-** Kotdwara is the gateway to Garhwal and lies in 29° 46' North latitude & 78°32' East longitude. It is the main entrance points in the state of Uttarakhand. It is located at the foothills of Shivalik ranges in Himalayas. The river Khoh flows through this region. The vegetation of Kotdwara is of sub-tropical rain forest type and includes herbs, shrubs & trees having broad & deciduous leaves. Detailed survey was conducted at different sites of Kotdwara from 2012-2013.

**2. Data collection and techniques:-** In order to document the utilization of medicinal plants, many field surveys were carried out in many localities of this region and nearby areas, across various seasons so as to get maximum information of plants from local people. Some people performing the duties/works of medicinal practitioner "vaid" had enormous knowledge of traditional uses of medicinal plants. Information about the local name of plants were recorded with regards to their vernacular names, plant part used for curing various ailments and the process of preparation of medicine were recorded. Later short field visits were organized along with the vaid to assure the correct identity of plants. All the voucher specimens were identified using relevant floras and standard literature,

\*Corresponding Author

herbarium were prepared (Jain & Rao, 1967, Bennet, 1970) and deposited in the Department of Botany, Dr. P.D.B.H. Govt. P.G. College, Kotdwara, HNB Garhwal University, (UK).

## RESULT AND DISCUSSION

During present investigation, a total of 70 species of medicinal plants belonging to 44 families were identified (Table 1). For each species the botanical name, family name, local name, plant part used and usage were recorded. The results of the present study provide evidence that medicinal plants continue to

play an important role in the healthcare system of these community.

Several plants namely *Beta vulgaris*, *Citrus aurantifolia*, *Carica papaya*, *Embllica officinalis*, *Musa paradisiaca*, *Syzygium cumini*, *Punica granatum*, *Psidium guajava* and *Momordica charantia* were cultivated for home consumption of fruits/vegetables and also for commercial purpose. Apart from this, four plants namely *Coriandrum sativum*, *Cuminum cyminum*, *Curcuma longa* and *Zingiber officinale* were cultivated by the locals for their use as spices.

**Table 1.** List of some Medicinal Plants of Kotdwara region along with their local names, family and plant parts used

S. No	Botanical Name	Local name	Family	Parts used	Mode of preparation and traditional medicinal uses
1.	<i>Abrus precatorius</i> Linn.	Ratti	Leguminosae	Seeds, roots, leaves	Leaves grounded with lime are applied on acne sores, boils and abscesses; seeds are used to cure diabetes; scratches, sores and wounds.
2.	<i>Acacia catechu</i>	Khair	Mimosaceae	bark, heart wood	Heart wood extract is used during bathing to treat skin diseases; cures diabetes and urinary problems; wood is used as toothbrush by the tribal people.
3.	<i>Adhatoda vasica</i> Nees.	Basinga	Acanthaceae	Leaves seeds	Leaf juice treats dysentery jaundice, diabetes and cough; Seed oil is purgative, antidote for snake bite.
4.	<i>Adina cordifolia</i>	Haldu	Rubiaceae	Bark, root	Root decoction is used to treat fever, dyspepsia, urinary problems, dysentery & burning sensation.
5.	<i>Aegle marmelos</i>	Bael	Rutaceae	Fruits, root, leaves	Root decoctions treat diarrhea, dysentery, dyspepsia, fever & swellings; Leaves are laxative, cures diabetes, asthma and inflammation; Fruit pulp treats diarrhea & dysentery, well for heart and brain.
6.	<i>Acyranthus aspera</i>	Chirchita	Amaranthaceae	Whole plant	Treats asthma, cough, bronchitis, inflammations, vomiting, piles, dysentery, abdominal pain & blood diseases; Root extracts used against skin diseases
7.	<i>Ageratum conyzoides</i>	Mist flower	Asteraceae	whole plant	Aqueous plant extract relieves fever, coughs, pneumonia & burns; is bactericidal & anti-dysenteric
8.	<i>Asparagus racemosus</i>	Shatavari	Asparagaceae	Leaves root	Baked leaves along with ghee are applied over abscesses; Leaf juice with milk reduce body heat; tuber juice mixed in water relieves burning sensation in foot sole & abdomen; jaundice, diarrhea, indigestion; mixed with milk increase breast milk after delivery.
9.	<i>Argemone mexicana</i>	Peeli kateri	Papavaraceae	Whole plant	It is diuretic, relieves stomach pain, cures leprosy, skin diseases, inflammations and fever; juice treats eye problems; seeds yield non-edible toxic oil that is purgative & sedative; treats problem of tape-worms.
10.	<i>Azadirachta indica</i>	Neem	Meliaceae	Bark, leaves, flower Twig, seeds.	Young twig used as tooth-brush; dried leaves are insecticidal; leaf juice purifies blood; Leaves & bark dipped in water yield tonic to treat diabetes; Flowers are purgative & treats stomachache; seeds "neem oil" eradicate ring worm, wounds, rheumatism.
11.	<i>Artemisia japonica</i>	Kunja	Asteraceae	Aerial parts, roots	It is anti-cancerous; used as spasmodic during pregnancy; treats stomach, circulatory and menstrual problems, vomiting, diarrhea, constipation, nose bleeding, asthma, snakebites and worm infestation.
12.	<i>Aloe barbadensis</i>	Aloe vera	Asphodelaceae	Whole plant	Leaf extract treats diabetes, insect bites, sun burns, cuts & wounds; reduces pain & inflammation in joints; Leaf paste mixed with lemon juice cures acne; leaf juice treats respiratory disorders, purifies blood.
13.	<i>Artocarpus heterophyllus</i>	Kathal	Moraceae	Fruits, leaves,	Leaf extract treat fever, boils & skin diseases; fruit latex treats eye-problems; when mixed with vinegar cures

	Lam.			root	snakebites, glandular swellings & ulcers.
14.	<i>Berberis asiatica</i> Roxb.	Kingoda	Barberidaceae	Root, bark, fruit.	All parts are used against diabetes, lower blood pressure & purify blood; decoction is used for sore throat, diarrhea, skin problems and eye irritation.
15.	<i>Bauhinia variegata</i> Linn.	Kachnar	Caesalpinaceae	Root, bark, buds.	Bark juice treats dysentery, diarrhea, stomach disorder, cuts, wounds, ulcers; Dried buds treat piles & worms in children; Root decoction is antidote to snake poison & dyspepsia.
16.	<i>Bryophyllum pinnatum</i> (Lam.) Oken	Ghamari	Crassulaceae	Leaves.	It is antimicrobial, anti-fungal, anti-inflammatory & anti-cancerous; roasted leaves cure inflammations; Leaf juice with coconut oil relieves headache, fever, earache; treats blood sugar level and kidney stone.
17.	<i>Beorhavia diffusa</i> Linn.	Punarnava	Nyctaginaceae	whole plant	Fresh root juice treats night blindness and conjunctivitis; Plant extract is applied on wounds & swellings; Leaf paste cures anemia, urinary diseases, piles, asthma & abdominal cancer.
18.	<i>Bombax ceiba</i> Linn.	Semal	Bombacaceae	Bark, Root, Flower	Flowers are used for boils, sores and itching; Root powder mixed with milk treats gonorrhea and seminal weakness; roots have aphrodisiac properties, relieve dysentery & used as tonic; aqueous extract of stem & bark is antibacterial & antifungal.
19.	<i>Brassica campestris</i> Linn.	Sarson	Brassicaceae	whole plant	Seeds treat cancer and tumors; Roots are diuretic; leaf juice is used in chronic cough and bronchial catarrh.
20.	<i>Bambusa bambos</i> (L.) Voss	Bans	Poaceae	Leaf, buds, stem.	Leaf buds cures ulcers; Stem & leaf juice used as blood purifier, tonic for cough, asthma; cure blood vomiting; Burnt root treats ringworms, painful joints.
21.	<i>Beta vulgaris</i> L.	Chukandr	Chenopodiaceae	Leaves, root, seeds.	Root juice treats digestive problems & fever; seed decoction treats intestinal & genital tumors; leaf Juice treats breast and uterus cancer, anemia, jaundice, kidney stone.
22.	<i>Butea monosperma</i> L.	Dhak	Leguminosae	Leaves, lower bark, seed	Flowers cure eye diseases, chronic fever, elongation of spleen, epilepsy, inflammation, liver disorders; Powder from plant treat diabetes, skin diseases, intestinal worms; Seeds grounded, mixed with lime, treats ringworms, pimples, ulcers, swellings and piles.
23.	<i>Calotropis procera</i> (Ait.) R.Br.	Madar	Asclepiadaceae	Leaves, lower root, Latex.	Latex treats leprosy, eczema, inflammation, syphilis, malarial fever; roots treat cold, cough, elephantiasis; Leaves are anti-inflammatory and antimicrobial; Flowers are anti-malarial, cures asthmas and piles.
24.	<i>Centella asiatica</i> (L.) Urban	Brahmi	Umbelliferae	Leaves, roots.	It is diuretic, used as tonic & blood purifier, treats skin diseases, eczema, ulcers, piles, cholera; Leaves treat dysentery in children; leaf powder mixed with milk, given in small doses improves memory; Leaf juice with milk purifies blood; cures jaundice, fever.
25.	<i>Catharanthus roseus</i> (L.) G. Don	Sadabahar	Apocynaceae	Whole plant	The plant is anti-cancerous, anti-diabetic; Leaf extract is antibacterial, used against wasp stings; Roots are used as tonic.
26.	<i>Cupressus torulosa</i> D. Don	Surai	Cupressaceae	Wood	It is resistant to termites & insects; an essential oil extracted from it is antiseptic, used to cure inflammatory pains, wounds.
27.	<i>Carissa carandus</i> Linn.	Karanda	Apocynaceae	fruits, bark, leaves	Leaf decoction cures fever, diarrhea, hemorrhages, and toothache, bed wet in children, inflammation, earache, scabies, intestinal worms and biliousness.
28.	<i>Cannabis sativa</i> L.	Bhang	Cannabiaceae	Flower leaves, seeds.	It is anti-inflammatory, antispasmodic, diuretic & sedative; treats asthma, diarrhea, dysentery, gonorrhea, and malaria, relieves nausea and vomiting.
29.	<i>Cassia fistula</i> L.	Amaltas	Caesalpinaceae	Fruits, leaves, root.	Fruit pulp mixed with tamarind treats constipation, purifies blood; fruit paste relieves acidity by massaging it on navel area for 10 min; Root extracts used as tonic, cures fever, cold; leaf extracts cure swellings, pains, skin irritation, relieves symptoms of asthma, ringworm, fever and heart related diseases.
30.	<i>Coriandrum sativum</i> L.	Dhaniya	Umbelliferae	whole plant	Equal amounts of dhaniya & cumin seeds are boiled, liquid consumed is effective for diabetes; bone related and digestive problems, diarrhea, colon ulcers.
31.	<i>Cuminum cyminum</i> L.	Jira	Umbelliferae	fruits, seeds	Fruit mixed with lime given to pregnant women cures nausea, promotes milk secretion; purifies blood; seed powder & water is applied on boils, swellings, itchiness;

					Cumin & cardamom powder boiled in water & filtered is applied on ulcers; Cumin powder mixed with honey cures indigestion.
32.	<i>Chenopodium album</i> L.	Bathua	Chenopodiaceae	whole plant	Leaves & branch extract is blood purifier, cures anemia, kidney stone; boiled leaves are applied on swellings; mixed juices of bathua and giloi cure Jaundice; mixture of bathua, ajwain, methi and jaggery cures infection after delivery.
33.	<i>Curcuma longa</i> L.	Haldi	Zingiberaceae	Rhizome	When cooked with milk treat asthma, cough; relieves shoulder pain, menstrual cramping, jaundice, liver problems; with neem leaves treats ringworm, scabies; heals cancer lesions & scars; powder with warm mustard oil cures inflammations and swellings.
34.	<i>Cinnamomum tamala</i> NEEM & EBERM	Tejpat	Lauraceae	Bark	Cinnamon & black-pepper decoction with honey treats sore throat, nausea, malaria, as mouth freshner; Paste of cinnamon applied checks headache; used with lime treat pimples, spasmodic affliction, asthma, excessive bleeding during menstruation.
35.	<i>Citrus aurantifolia</i> (CHRISTM.) SWINGLE	Nimbu	Rutaceae	Fruits	Leaf infusion treats fever, jaundice, sore throat; Root decoction relieves gonorrhoea, dysentery, diarrhea; Fruit juice rejuvenates skin, treats gastrointestinal diseases, diabetes, cold, is antidote to poisons; seeds treat intestinal worms; bark is used for indigestion.
36.	<i>Carica papaya</i> L.	Papaya	Caricaceae	Fruits	Ripe fruits treat stomach pains, piles, skin diseases digestive and kidney problems, spleen enlargement.
37.	<i>Datura innoxia</i> Mill.	Dhatura	Solanaceae	Seeds, leaves, flower	Treat skin eruptions, cough, cold, fevers, asthma; used as pain killer in case of insect bites. It is narcotic and therefore should not be used in high doses.
38.	<i>Dioscorea bulbifera</i> L.	Genthi	Dioscoreaceae	Bulbil, tubers	Bulbils treats cancer & goiter; stomachache, diarrhea, dysentery, sore throats, diabetes, jaundice, fractures.
39.	<i>Emblica officinalis</i> L.	Amla	Euphorbiaceae	Fruits, Seed leaves.	Amla juice treat diabetes; Fruits are diuretic, used as blood purifier, controls hair growth, cures fever, dysentery, hemorrhages; Seed infusion cures asthma, indigestion; Leaves treat abdominal pain.
40.	<i>Euphorbia hirta</i> L.	Asthma plant	Euphorbiaceae	whole plant	Leaf extract is anti-cancerous; leaf juice with turmeric & coconut oil treats itchy soles, wounds, other skin diseases; Latex applied on eyelids cures eye sore; Root decoction benefits nursing mother's deficient in milk.
41.	<i>Eupatorium citriodora</i> Hook.	Kalabasa	Asteraceae	Leaves	Leaves are used to stop bleeding, and treat dandruff.
42.	<i>Eucalyptus citriodora</i>	Safeda	Myrtaceae	Bark, oil.	Oil is used to cure asthma, sore throat, fevers, typhoid; ulcers, wounds & gouts
43.	<i>Ficus religiosa</i> (L.)	Peepal	Moraceae	Root, bark, fruit, leaves.	Ripe fruits have cooling property, reduce burning sensation, remedy for blood & heart diseases; Root cures inflammation of joints; bark treats cancer; Leaves soaked in water, are used to stop vomiting.
44.	<i>Ficus palmate</i> Forsk.	Bedu	Moraceae	fruits, latex	Used to release stings/spines
45.	<i>Lawsonia inermis</i> L.	Mehndi	Lythraceae	Leavesf lower	Fresh leaves treat burning feet; Leaf powder cures relapses of rectum and vagina; Infusion of flowers is used to cure bruises, skin lesions and scar.
46.	<i>Myrica nagi</i>	Kaphal	Myricaceae	Bark	Bark decoction treats stomach disorders, chest pains; mixed with honey cure digestive problems, vomiting.
47.	<i>Mimosa pudica</i> Linn.	Chui-mui	Mimosaceae	Leaves root,	Pulped leaves cure swellings, piles, ulcers & joint pains; Roots treat snakebite & kidney stone; warm leaf paste applied on abscess, releases pus; Root paste fried in ghee treats toothache; Leaves increase sexual potency in man.
48.	<i>Melia azadirachta</i> L.	Bakain	Meliaceae	Bark, leaves, seeds, flowerfruit.	Leaves, flower & fruits cure eye disorders, ulcers, hemorrhoids, diabetes, fever, wounds, urinary diseases; Bark treats malaria, stomach pains, skin diseases; seed oil treats leprosy, intestinal worms, birth control; Twigs used as toothbrush.
49.	<i>Momordica charantia</i> L.	Karela	Cucurbitaceae	fruits	Leaf juice controls nausea, vomiting, liver problems; rubbed on soles to stop burning feet; Fruits & leaves treats piles, jaundice; Roots treat hemorrhoids; Fresh fruit extract is useful against diabetes and snake bite.
50.	<i>Mentha arvensis</i> L.	Podina	Lamiaceae	whole plant	Plant infusion is given in fevers & dyspepsia, relieves stomach & muscular pains, intestinal disorders.
51.	<i>Mangifera indica</i> L.	Aam	Anacardiaceae	Leaves,	Dried leaf powder treats diabetes, diarrhea, dysentery, hemorrhages (nose), intestine, uterus & lungs.

52.	<i>Musa paradisiaca</i> L.	Kela	Musaceae	flowerfruits	Fruits treat diarrhea, diabetes, anemia, inflammation, blood pressure, dysentery; intestinal lesions & ulcers; Unripe fruit & cooked flowers treats diabetes.
53.	<i>Murraya koenigii</i> (L.) Spreng.	Curry patta	Rutaceae	bark, leaves, roots	Leaves, bark & root are used as a tonic; cures stomachache, dysentery, diarrhea, vomiting, ulcers, skin eruption and bites of poisonous animals.
54.	<i>Morus alba</i> L.	Shehtut	Moraceae	Fruit	Fruit juice cures sore throat, dyspepsia & fever.
55.	<i>Ocimum sanctum</i> L.	Tulsi	Lamiaceae	whole plant	Treats lung infection, coughs, earache, vomiting; Fresh leaves taken with black pepper treats malaria and gastric diseases in children.
56.	<i>Oxalis</i> sp. L.	Khatta meetha	Oxalidaceae	whole plant	It has a cooling effect, relieves stomach pains, dysentery, prolapse of rectum & vagina; Leaf juice given as antidote to poison of insects & other plants.
57.	<i>Punica granatum</i> L.	Anar	Punicaceae	Fruits	Fruit juice having cooling effect internally relieves many internal disorders, fevers & dyspepsia.
58.	<i>Psidium guajava</i> L.	Amrood	Myrtaceae	Buds, leaves, fruit	Buds treats mouth ulcers; Leaves cure diarrhea, vomiting, dysentery, fever and diabetes; Fruits are a rich source of vitamin A.
59.	<i>Piper betle</i> L.	Pan	Piperaceae	Leaves	Leaf extract treats respiratory problems, back pain, breast inflammation, ulcer and indigestion.
60.	<i>Ricinus communis</i> Linn.	Arand	Euphorbiaceae	Seeds, leaves	Seed oil treats diarrhea, constipation, conjunctivitis, anemia; Leaves applied on head relieves headache.
61.	<i>Rosa indica</i> (Linn.)	Gulab	Rosaceae	Flower	Flower juice "gulab-jal" used as cooling agent for eyes, relieves irritation; mixed with lime, applied on face to remove pimples, skin rashes during winter.
62.	<i>Rhus parviflora</i> Roxb.	Toong	Anacardaceae	Fruits, bark	Bark powder used for cleaning teeth; Fruit powder eaten with boiled egg treats diarrhea; fruit decoction treats liver & urinary disorders; Bark infusion treats eye infection.
63.	<i>Sapindus mukorossi</i>	Reetha	Sapindaceae	Nuts,	Nut powder used as hair wash to keep hairs healthy, free of lice & dandruff; a poultice of soap nut is prepared & applied externally to treat eczema, freckles, itchiness; relief from joint pains.
64.	<i>Solanum nigrum</i> L.	Makoi	Solanaceae	Seeds, leaves.	Leaf juice treats inflammation of kidneys & bladder, jaundice, fever, liver enlargement gonorrhoea, piles, heart diseases; Hot leaves applied over the swollen & painful organs; Seeds are used as tonic, in fever.
65.	<i>Saraca indica</i> (Roxb.) de Wild	Ashoka	Caesalpinaceae	Flower	Dried flowers treat diabetes, hemorrhage & dysentery; Seeds treat bone fractures; Bark has anti-microbial properties & cures fever and cold.
66.	<i>Syzygium cumini</i> (L.) Skeels	Jamun	Myrtaceae	bark, leaves, fruits	Bark and leaves cure indigestion, intestinal problem, stomachache; Fruits are antidiuretic, antidiabetic; fruit juice is blood purifier, helps in urine retention, treats chronic diarrhea, sore throat, ringworms.
67.	<i>Tinospora cordifolia</i> (Willd.) Miers.	Giloi	Menispermaceae	stem, leaves	It is anticancerous, anti-diabetic & anti-inflammatory, useful in digestive & liver disorders, makes immune system stronger & reduces weakness; treats malaria, fevers, vomiting, stops bleeding after child birth.
68.	<i>Withania somnifera</i> (Linn.) Dunal	Ashwaganda	Solanaceae	all plant parts	Ashwaganda oil, almond oil and rose water are used as skin ointment; It is anticancer agent and also useful for cold, cough, ulcers, diabetes and conjunctivitis.
69.	<i>Zanthoxylum armatum</i> DC.	Timru	Rutaceae	stem, seeds	Used as mouth freshner; stems "miswak" used to clean teeth; Seeds, crushed and mixed with other ingredients, applied on sores of domestic animal's body to get rid of the worms and microbes.
70.	<i>Zinger officinale</i> Rosc.	Adarak	Zingiberaceae	rhizome	Used to treat arthritis, rheumatism, indigestion, constipation, ulcer, vomiting, diabetes and cancer.

### Conclusions with importance and scope of medicinal plants

After studying the traditional uses of medicinal plants in the area under study it is concluded that many plants are common and abundant in distribution namely *Ricinus comunis*, *Euphorbia*

*hirta*, *Ageratum conyzoides*, *Lantana camara*, *Azadirachta indica* etc. The plants which cure some important diseases are *Artemisia* sp. against cancer, Neem against diabetes, *Euphorbia hirta* against asthma, *Bryophyllum pinnatum* against kidney-stone, etc. Some plants are commonly used by the local

tribes e.g., *Emblica officianalis*, *Aloe vera*, *Azadirachta indica* etc. These plants, though important play a significant role in providing primary health care services to rural people and act as therapeutic agents as well as raw material for the manufacture of traditional and modern medicine.

By the information generated during the present investigation regarding the traditional use of medicinal plants, it is high time to thoroughly investigate the phytochemicals of these plant parts, isolate them and see their results on various diseases. By doing so, local people can be awaked regarding the need for conservation, enrichment of the gene bank of such economically important species and promotion of ethno-medicinal knowledge within the region before they are lost forever.

#### ACKNOWLEDGEMENT

This is a part of M.Sc. dissertation work of Bilal Ahmed and he is thankful to Dr. Diwakar Bebni, Asst. Prof., Department of Botany, Govt. PG College, Kotdwara for his valuable advice and assistance to complete this work during 2012-2013.

#### REFERENCES

- Kalemba, D. and Kunicka, A.** (2003). Antibacterial and antifungal properties of essential oils. *Current medicinal chemistry*, 1:813-829
- Edeoga, H.O., Okwu, D.E., Mbaebie and B.O.** (2005). Phytochemical constituents of some Nigerian medicinal plants. *African Journal of Biotechnology*, 4:685-688
- Chowdhuri, S.K.** (2000). From Ethnobotany. In: Mitra D, Guha J & Chowdhuri SK (eds) *Studies in Botany Vol 2*. 7th edition. Kolkata, Manasi, pp.855-867.
- Sandhu, D.S. and Heinrich, M.** (2005). The use of health foods, spices and other botanicals in the Sikh community in London. *Phytotherapy Research*, 19:633-42.
- Gupta, M.P., Solis, P.N., Calderon, A.I., Guionneau-Sinclair, F., Correa, M., Galdames, C., Guerra, C., Espinosa, A., Alvenda, G.I., Robles, G. and Ocampo, R.** (2005). Medical ethnobotany of the Teribes of Bocas del Toro, Panama. *Journal of Ethnopharmacology*, 96:389-401.
- Rojas, J.J., Ochoa, V.J., Ocampo, S.A. and Muñoz, J.F.** (2006). Screening for antimicrobial activity of ten medicinal plants used in Colombian folkloric medicine: A possible alternative in the treatment of non-nosocomial infections. *BMC Complementary and Alternative Medicine*, 6:2.
- Islam, M.** (1996). Ethnobotany of certain underground parts of plants of North Eastern Region, India. *J Econ Taxon Bot Add Ser*, 12:338-343.
- Rao, R.R.** (1997). Endangered species: Problems of assessment and conservation. *Zoo's Print*, 12(2):1-4.
- Joy, P.P., Mathew, J., Jose, S.G. and Josheph.** (2001). "Journal of Aromatic plants." *Tropical Horticulture, Calcutta*, 2:633-733.
- Dutta, B.K. and Dutta, P.K.** (2005). Potential of ethnobotanical studies in North East India: An overview. *Indian Journal of Traditional Knowledge*, 4:7-14
- Lyle, E.C.** (2007). "Medicinal and Aromatic Plants." *Future Opportunities*.
- Shankar, R. and Rawat, M. S.** (2010). "Biodiversity of medicinal plants in North East India: their systematic utilization." *Open Access J. of Medicinal and Aromatic Plants*, 1 (2).
- Jain, S.K. and Rao, R.R.** (1967). *A handbook of field and herbarium methods*, (Today & Tomorrow, Printers and Publishers, New Delhi): 33-58.
- Bennett, E.** (1970). *Tactics of plants exploration*, In: Frankel OH & Bennet E (eds) *Genetic resources in plants-their exploration and conservation*, pp. 157-159.