

Medicinal Plants of Bhadohi District, Uttar Pradesh and a note on their Biodiversity and Conservation

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Abstract- The present paper describes for the first time an illustrated account of some medicinal plants of Bhadohi district. In the present study, nearly 52 medicinal plant species belonging to 28 families and 44 genera collected. The plants have been extensively collected from different parts of the district. Their biodiversity, taxonomy, ecology, economic uses and conservation have been discussed in detail.

Keywords: Herbaria, medicinal plants, conservation, bhadohi.

Introduction:- Medicinal plants have always been a fundamental bioresource for mankind since time immemorial. In spite of enormous revolution in modern health care practices, about 80% of the world population still depends on the phytomedicines for health care. India represents one of the twelve centers of megabiodiversity in the world (Cox et al. 2010). The country occupies a geographical area of about 7500 km along with its rich natural resources like flora and fauna, minerals, water and fertile land. The total number of species of flowering plants in India known so far are about 17,527 (Singh et al 2013). In India also, about 70% of modern medicines are derived from herbal products, due to its easy accessibility, effectiveness, multicultural acceptability, fewer side effects and relatively low cost. The plants are known as one of the most important sources for the medicines since ages (Agharkar 1954, Chopra 1982, Jain 1996, Mishra et al 2016). Medicines in contemporary India is a unique fusion of traditional system with conventional one and often been used. Even though the rate of medicinal plant utility is ever increasing, very little is known about its use patterns Chopra, (1982). Therefore it is very important to document, analyze and evaluate this knowledge, not only for their multicultural reasons, but also for their commercial value. In recent years due to sedentary lifestyles, stress, and unhealthy food habits, diseases like diabetes, hypertension, asthma is an emerging serious health problem. It is characterized by increase blood glucose concentration resulting from insufficient insulin secretion and resistance, which leads to metabolic abnormalities in functioning of important biomacromolecules like carbohydrates, lipids and proteins (Jain, 1996). These are a chronic diseases and is highly fatal for the survival of the human race which leads to multi organ failure, if not treated properly and timely. A very sporadic work has been done on the phytochemistry of medicinal plants in Gyanpur, which help in treating diabetes in recent years (see Mishra et al. 2017). Medicinal plants may enhance the provision of ecosystem services that might benefit farmers and owners of rural properties. The immense diversity of medicinal lies due to the varied climate, topographical, rainfall, terrestrial heterogeneity and ecological habitats in the Bhadohi District. The inhabitants of this district and its adjoining areas, used these plants product extensively

as a source of food, fodder, fruit, timber and other material for construction of housing, clothing, medicine, fiber, gum, resin and oil, and many other miscellaneous purposes.

The present work has been taken therefore to fulfill the gap in this regard for the first time. Studies helped in the documentation and illustration of some important medicinal plants of Bhadohi district. Very little work had been done in this regard on the biodiversity of Bhadohi district, (Lal & Singh 2000). The medicobiodiversity of Gyanpur region, Bhadohi has been discussed in detail (Mishra et al. 2016). Bhadohi represents as one of the eastern district of Uttar Pradesh. It is one of the largest carpet industry of India. This District has huge geographical significance and position attached to it, due to its location between two culturally important and rich heritage cities of Prayagraj and Varanasi. Ganges, Varuna and Morva are the main rivers of the Bhadohi. It is surrounded by Jaunpur district to the north, Varanasi district to the east, Mirzapur district to the south, and Prayagraj district to the west. With an area of 1055.99 km² Bhadohi is the smallest district of Uttar Pradesh area wise. This district is divided into three tehsils, viz. Aurai, Bhadohi and Gyanpur tehsil (Fig – 1), with six blocks, Bhadohi, Suriyawan, Gyanpur, Deegh, Abholi and Aurai. The traditional system of medicine, especially the herbal medicine, in Bhadohi is directly linked to its rich floral diversity. Several attempts have been made to document the vast ethnobotanical information from the region in the form of general documentation. Only handful of references are available, which have attempted to study and understand medicinal plants used in treatment of various ailments. The present work is an effort to document and analyze the traditional knowledge regarding the practice and use of plants in treatment of various diseases.

Material and methods- The medicinal plant species have been collected from different parts of Bhadohi district, namely Bhadohi, Suriyawan, Gyanpur, Deegh, Abholi and Aurai (Figure-1) covering three seasons, summer, winter and rainy season. . Collected plants were processed and their herbaria were prepared by standard Lawrance methods (Lawrance, 1951) with slight modifications. Plants were properly dried up by changing a number of newspapers and poisoned with mercuric chloride solution in alcohol. Later on, the dried specimens were mounted on standard herbarium sheets, labelled properly and arranged alphabetically according to their botanical names. . These plant specimens have been identified with the help of Keys and regional Floras and confirmed with the authentic herbarium specimens at BSI Prayagraj and Duthie herbarium at University of Allahabad, Prayagraj. The voucher specimens were deposited in the Deptt of Botany KN Govt. PG college Gyanpur, Bhadohi District.

Observation, Results and Conclusion:- In the present study, nearly 52 medicinal plant species belonging to 28 families and 44 genera collected, from various parts of the Bhadohi district, have been enumerated and documented and described with their botanical name, vernacular name, family, habit, phenology and taxonomical description. See Table- 1, Figure- 1, 2,3 & 4 and Plates -1.

The medicinal property of these plants is due to the presence of these organic chemicals in the plant tissues of some chemical substances that produce a definite physiological action on the human body. The most important of these substances are essential oils, glucosides, resins, mucilages, tannins, steroids and alkaloids. Increased human activities, large scale deforestation, road constructions, biodegradation, gyanpur and its adjoining areas of bhadohi are hub of carpet industries, more and more carpet industry are mushrooming which is responsible for the depletion of plant biodiversity of that region and other ecological pressures are posing a direct threat to the medicinal plants of gyanpur,

if suitable measures are not taken immediately, some of the rare forms will vanish soon. Proper planning is needed to conserve the natural resources. State government should take urgent initiative to conserve the biodiversity by developing botanical gardens, reserve areas etc. in present scenario there is urgent need to conserve these diuretic medicinal plants and in view of this, suitable measures for their ex-situ and in-situ conservation should be taken. The traditional system of medicine, especially the herbal medicine, in India is directly linked to its rich floral diversity. Several attempts have been made to document the vast ethnobotanical information from the region in the form of general documentation. Only handful of reference are available, which have attempted to study and understand medicinal plants used in treatment of various ailments. The present work is an effort to document and analyze the traditional knowledge regarding the practice and use of plants in treatment of various diseases.

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Table-1

S.No.	Botanical name/ family	Vernacular name	habit	Plant parts	Pharmacological uses
1	<i>Abutilon indicum</i> (L.) <i>malvaceae</i>	Kanghi	herb	leaves	diuretic and anti-inflammatory activities
2	<i>Abrus precatorious</i> (Linn)/ Fabaceae	Ratti	climber	seed	Seed powder in small amounts cure asthmatic pain
3	<i>Acalypha indica</i> L. Euphorbiaceae .	Kuppi	herb	leaves	leprosy,jaundice
4	<i>Achyranthes aspera</i> L. Amaranthaceae	Apamarg	herb	leaves	leprosy, ulcer
5	<i>Acorus calamus</i> (Linn.)/ <i>Araceae</i>	ghorbuch	herb	leaf	Decoction of Leaves used for curing cough & bronchitis
6	<i>Acacia catechu</i> (Linn)/ <i>Fabaceae</i>	katha	tree	wood	Wood is used for treating respiratory disease
7	<i>Aegle marmelos</i> (L.) Rutaceae	Bel	tree	fruit	ophthalmia
8	<i>Allium cepa</i> L. Liliaceae	Pyaz	herb	rhizome.	Cures jaundice and bone fractures.
9	<i>Allium sativum</i> L Liliaceae.	Lahsun	herb	rhizome	carminative, aphrodisiac
10	<i>Acacia sinuate</i> (Lour)/ Fabaceae	shikakai	shrub	fruit	Fruit is used for curing cough and cold, hair fall

11	<i>Acalypha hispida</i> (Burm.)/ Euphorbiaceae	kuppi	herb	leaf	Leaf paste with pepper cures cold & cough
12	<i>Achyranthus aspera</i> (Linn.) / Amaranthaceae	latjeera	herb	leaf	Leaf juices used for curing bronchitis
13	<i>Adina cordifolia</i> L./Rubiaceae	Kadamba	tree	Bark	Cures urinary burning
14	<i>Aloevera(L.)</i> Liliaceae	Ghritkumari	herb	leaf	Heals skin problems
15	<i>Alpinia galanga</i> (Willd.)/ Zingiberaceae	kulinjan	herb	Leaf, root	Leaves and root are used for cough & cold
16	<i>Amaranthus viridis</i> L. Amaranthaceae	Chaulai	herb	leaf	gonorrhoea and menorrhoea
17	<i>Andrographis paniculata</i> (Burm.) Acanthaceae	Kalmegh	herb	leaf	dysentery, dyspepsia
18	<i>Argyreia speciosa</i> (Sweet)/ Convovulaceae	samudrasokh	shrub	leaf	Decoction of leaves treat cough
19	<i>Argemone maxicana</i> L./Papaveraceae	Peeli kateri	herb	Leaf	Cures Leucorrhoea
20	<i>Artocarpus heterophyllus</i> (Lamk.)/ Moraceae	kathal	shrub	root	Root paste is used in asthma
21	<i>Aristolochia indica</i> L./Aristolochiaceae	Iswarmul	herb	Root	Menstruation
22	<i>Asparagus racemosus</i> Willd./Liliaceae	Satavar	climber	Root	Promotes milk secretion, uterine problem
23	<i>Azadirachta indica</i> L. Meliaceae	Neem	tree	Leaf, stem, root	rheumatism, skin disease
24	<i>Bacopa monneiri</i> (Linn.)/ Poaceae	brahmi	herb	leaf	Powdered dried leaves cures asthma

25	<i>Caesalpinia crista</i> (Linn.)/ Caesalpinaceae	katila	climber	seed	Cough and cold cured by seeds
26	<i>Cassia fistula</i> (Linn.)/ Fabaceae	Amaltas	tree	root	Root pulp helps in treating respiratory diseases
27	<i>Cassia obtusifolia</i> (Linn.) Fabaceae	panwad	shrub	leaf	Crushed leaves in water , extract cures asthma
28	<i>Cassia occidentalis</i> (Linn.) Fabaceae	kasondhi	shrub	Root, stem, leaf	Decoction of plant treats bronchial asthma
29	<i>Catharanthus roseus</i> (Linn.) Apocyanaceae	sadabahar	herb	leaf	Leaf extract with other herbs cures asthma
30	<i>Chenopodium</i> <i>album</i> L. Chenopodiaceae	Bathua	herb	leaf	anthelmintic and diuretic
31	<i>Cleome gynandra</i> (Linn.)/ (Linn.) cleomaceae	hulia	herb	seed	Seeds are used for treating cough
32	<i>Cordia myxa</i> (Roxb.)/ Boraginaceae	lasora	tree	leaf	Leaves treat whooping cough
33	<i>Curcuma longa</i> (Linn.) Zingiberaceae	haladi	herb	rhizome	Dried powder rhizome is used to cure cough & cold
34	<i>Cuscuta reflexa</i> (Roxb.) Convolvulaceae	amarbel	climber	stem	Stem treats cough
35	<i>Datura metel</i> (Linn.)	dhatura	shrub	leaf	Leaf juices cures

	Solanaceae				bronchial asthma
36	<i>Dioscorea bulbifera</i> (Linn.)/ Dioscoreaceae	ratalu	climber	leaf	Powdered leaf cures cough and cold
37	<i>Diospyros melanoxylon</i> (Roxb.) Ebenaceae	tendu	tree	fruit	Ripened fruit cures cough
38	<i>Euphorbia hirta</i> L. Euphorbiaceae	Duddhi	herb	leaf	asthma and urinogenital disorders.
39	<i>Ficus carica</i> (Linn.)/ Moraceae.	anjir	tree	leaf	Leaves treats respiratory ailments
40	<i>Hemidesmus indicus</i> (Linn.) /Asclepediaceae	ananthmool	shrub	leaf	Leaves paste cures cough
41	<i>Lablab purpureus</i> (Linn.) Fabaceae	sem	climber	Leaf	Leaves treats cough
42	<i>Madhuca longifolia</i> (Koen.)/ Sapotaceae	mahua	tree	flower	Decoction of boiled flower cures cough & cold
43	<i>Moringa oleifera</i> Lamk. Moringaceae	Sehjan	tree	Leaf, stem, root	emmenagogue and diuretic
44	<i>Murraya koenigii</i> (Linn.)/ Rutaceae	Meethi neem	shrub	leaf	Leaves cures cough
45	<i>Musa paradisiacal</i> (Auct.)/ Musaceae	kela	herb	fruit	Fruit cures respiratory problem
46	<i>Ocimum sanctum</i> (Linn.) Lamiaceae	tulsi	herb	leaf	Leaves cures respiratory ailments, cures

					cough and cold
47	<i>Ocimum basilicum</i> (Linn.) Lamiaceae	Kali tulsi	herb	leaf	Leaves decoction cures cough & cold
48	<i>Papaver somniferum</i> L. Papaveraceae	Afeem	herb	fruit	analgesic, narcotic and hypnotic activity.
49	<i>Phyllanthus niruri</i> / Euphorbiaceae	Bhui-amla	herb	Leaf, root	dropsy, jaundice
50	<i>Pterocarpus</i> <i>marsupium</i> (Roxb.)/ Fabaceae	sal	tree	stem	Dried stem treats asthma and tuberculosis
51	<i>Solanum</i> <i>xanthocarpum</i> (Burm.) / Solanaceae	bhatkataiya	herb	root	Cough is cured by root extract
52	<i>Withania</i> <i>somniferum</i> L./ Solanaceae	Ashwagandha	herb	leaf	leucorrhoea and menstrual troubles



Figure- 1. Showing Map of Bhadohi District

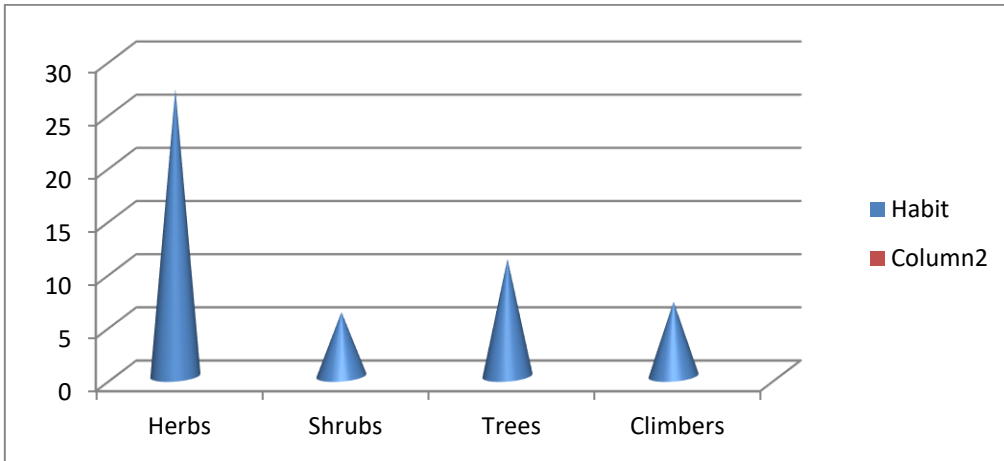


Figure -2. Habit representation of Medicinal Plants

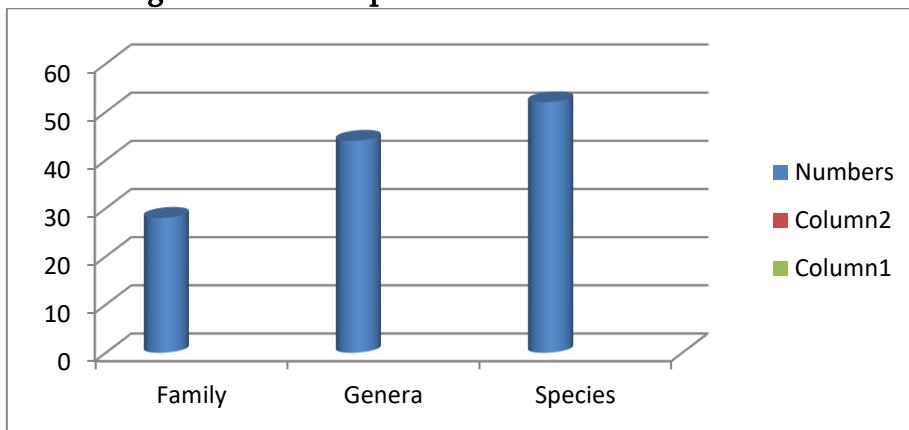


Figure-3 .Ratio of families, Genera and Species represented by Medicinal Plants

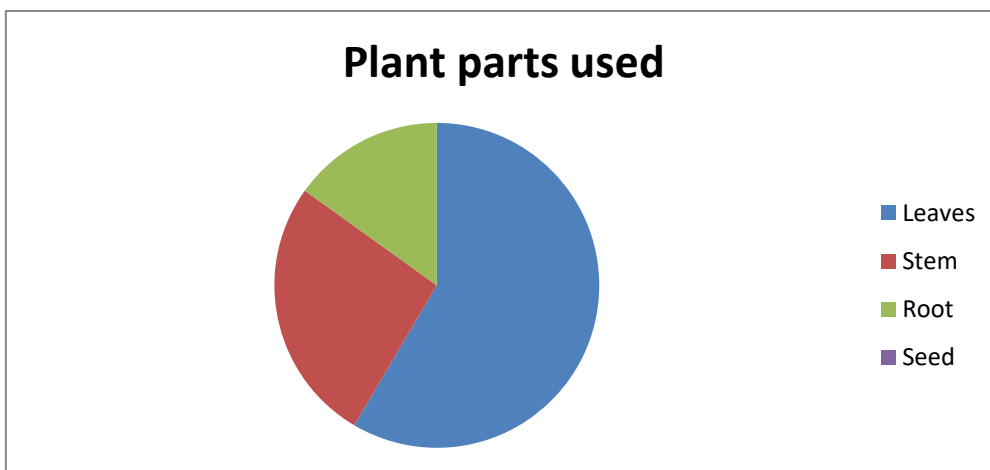


Figure-4. Ratio of leaves, stem, roots and seeds used in treating diseases



PLATE 1.A. *Abrus precatorious* L. B. *Achyranthes aspera* C. *Aloe vera* (L.) D. *Amaranthus viridis* L.
 E. *Argemone maxicana* L.
 F. *Asparagus racemosus* Willd. G. *Azadirachta indica* Juss. H. *Bauhinia variegata* L.