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Full Length Research Paper

An Ethnobotanical Study of Medicinal Plants in Atal Nagar (New Raipur) of Chhattisgarh, India

Abhishek Kumar Pandey

Department of Botany, Kalinga University, Raipur, India

Correspondence email: abhishek.pandey@kalingauniversity.ac.in

Abstract

An ethnobotanical study was performed from Oct 2017 to Dec 2018 to investigate the diversity of medicinal plants growing in New Raipur also known as Atal Nagar 30 km away from the city of Raipur, Chhattisgarh, India. The ethnobotanical study was carried out by using semi-structured interview in which participatory rural appraisal (PRA) and Rapid rural appraisal methods used to obtain ethnobotanical knowledge of plants of their surrounding form local tribes. The quantitative data were also analyzed by the relative frequency of citation, use value and informant consensus factor. The present paper reports 103 medicinal plants belonging to 90 genera representing 40 families. These plants are used by local people to treat different ailments including diabetic, itching, purifying blood, toothache, asthma, fever, low pressure, ulcer and urinary discharge and many other diseases. The highest relative frequency of citation (RFC) was recorded for *Ficus religiosa* (0.92), *Ziziphus marutiana* (0.92) followed by *Ocimum sanctum* (0.90), *Murraya koenigii* (0.89), *Withania somnifera* (0.88) and Tinospora cordifolia (0.84). The highest use value recorded for *Moringa oleifera* (1.78) followed by *Ocimum sanctum* (1.75), *Murraya koenigii* (1.62), *Punica granatum* (1.56) and *Mangifera indica* (1.55) Highest Informant Consensus Factor (ICF) was recorded for the gastro-intestinal disorder ailment category. Present study provides useful information about vegetation and its therapeutic uses of different communities residing in different villages of Atal Nagar. This study is based on data obtained from survey, field trip and discussion with traditional medicinal practitioner.

Keywords: Ethnobotanical study, Medicinal properties, Tribal uses, Conservation, Atal Nagar region.

INTRODUCTION

India is very rich in plant biodiversity. India is a home of 7284 species of algae, 14883 species of fungi, and 2523 species of bryophytes, 1267 species of pteridophytes, 74 species of gymnosperm and 18043 species of angiosperm (Chapman, 2009; Singh et al., 2014). A wide variety of plant diversity is found in India. The total forest cover of India is 708,273 km^2, which is 21.54 percent of the total area of the country, according to the India Report. Chhattisgarh is also rich in plant vegetation. According to the Indian state of forest report-2018 Chhattisgarh has 55,547 km^2 forest cover which is 41.33% of total geographical area of the state. Due of occurrence of numbers of medicinal plants and herbs in Chhattisgarh, it is also known as herbal state. In various part of Chhattisgarh ethnobotanical survey conducted to diagnose vegetation diversity and uses of plant. The ancient medicine system treating human diseases by using plants popularly known as Ayurveda appeared and developed between 2500 and 500 BC in India. (Subhose et al., 2005). According to World Health Organization (WHO), about 80% of the world population still uses herbs and other traditional medicines for their primary health care needs. (Alok, 2015; Yadav, 2008) Ethnobotanical studies are very popular and accepted worldwide. It does provide input to researcher to diagnose unknown medicinal property. In India villagers and tribes believe in their indigenous uses of plants. Several plants are utilized to cure numbers of diseases. In Ayurveda which is ancient medicine book of India based upon the uses of medicinal Plants. There are several technique described regarding use of plants. These techniques are Ras (plant or plant part juice), Choorna (powder of plant part), Quath (decoction of plant or plant parts), Awaleh (plant and its part boiled in milk and clarified butter), Asav (decoction of plant part with jeggary or honey kept in a pot for fermentation). Most of the tribes more or less use this technique to cure diseases. Above all system of traditional medicine arise or developed from the Ayuveda in India (Rao, 1987)

Ethnobotany and ethnopharmacology are important field to discover new drug and medicine which can be used to

treat variety of ailments and diseases. Ethnopharmacology was properly explained as "the interdisciplinary scientific exploration of biological active agents traditionally employed or observed by man" (Holmsted and Bruhn, 1983). Another definition was provided by (Etkin & Elisabetsky 2005): "By one, compelling logic, ethno- (Gr.culture or people) pharmacology (Gr.drug) is about the intersection of medical ethnography and the biology of therapeutic action." *Based on the previous definitions, ethnopharmacology can be seen as the study of traditionally used, biologically active natural products, with the aim of understanding their therapeutic actions".* According to (Sofowora, 1996) approximately 60-85% of population of developing country is using traditional medicine for the cure of their health problem at primary level because of limited health care facility. Chhattisgarh is also one of the states with limited health care facilities. Chhattisgarh is not only home for various herbs but also different ethnic communities residing here. This combination is evolving various home remedies and traditional medicinal uses of plants. Instead of this limited and small scale ethnobotnical study has performed in this area performed by (Vinodia et al 2019; Madharia et,al 2018; Hussain et al 2017).

Herbal base medicine have been basis for the cure of various diseases and physiological condition in Ayurveda, Unani, and Siddha Ayurveda, Unani, and Siddha by exploiting the traditional methods practiced. The aim of present study to prepare inventory of medicinal property and to derive ethnobotanical knowledge within different communities residing in the different villages of Atal Nagar Raipur district.

MATERIAL AND METHOD

Study area

Atal Nagar is newly formed city that touch its boundary Raipur, Arang, Mahasamund, Rajim and Abhanpur. Atal Nagar has an area of about 80 km^2 which includes a total of 41 villages out of which 27 villages form the core of Atal Nagar (Figure 1).

Atal Nagar has a warm environment; impact can be clearly seen on the type of vegetation growing in this area. Generally summer starts from the month of March and remains till the month of July. June is mostly recorded the hottest month of the year. In these days temperature has reached around 48-50 °C. At the mid of July to mid of September rainy season occur. The city receives about 1,300 millimeters (51 inches) of rain annually, mostly in the monsoon season from late June to early October. Winters last from November to January and are mild, although lows can fall to 15 °C. The geographic location of Atal Nagar is 21.1650° N latitude, and 81.7753° E longitude. City is divided into many sectors. The plants have been collected from various locality of Atal Nagar including Sector-1 to sector-40. Several villages of Atal Nagar had been covered in this study. All type of plants (aquatic, terrestrial) is observed in this category. Medicinal plants were recorded in several villages including Rakhi, Nawagaon, Uparwara, Jhanjh, Khapri, Cheriya, Pauta, Kurru, Pachera, Palaud, Kotni, Parsada, Chatauna, Nawagaon, Riko, Chicha, Barauda, Kendriya, Kuhera, Kotrabhata, Tuta, Tendua, Khandwa. The whole area has limited healthcare facility and Outdoor patient department facility such as no orthopedic surgeon had available in this area to treat bone related problem. Most of the healthcare facilities available in this area are almost closed at 4:00PM so therefore, due to the lack of emergency medical services, local residents have two options, and either goes to hospitals in Raipur, which is thirty kilometers away, or trusts the herbal medicinal practitioner or home remedies near them. In the absence of a critical medical condition, he believes more on these home remedies and traditional medicinal practitioner for getting immediate treatment. People of different ethnic groups believe that this treatment based on Ayurvedic method is more effective than allopathic medicines. Numbers of ethnic community such as kewat urav, paharikorba, gaud,

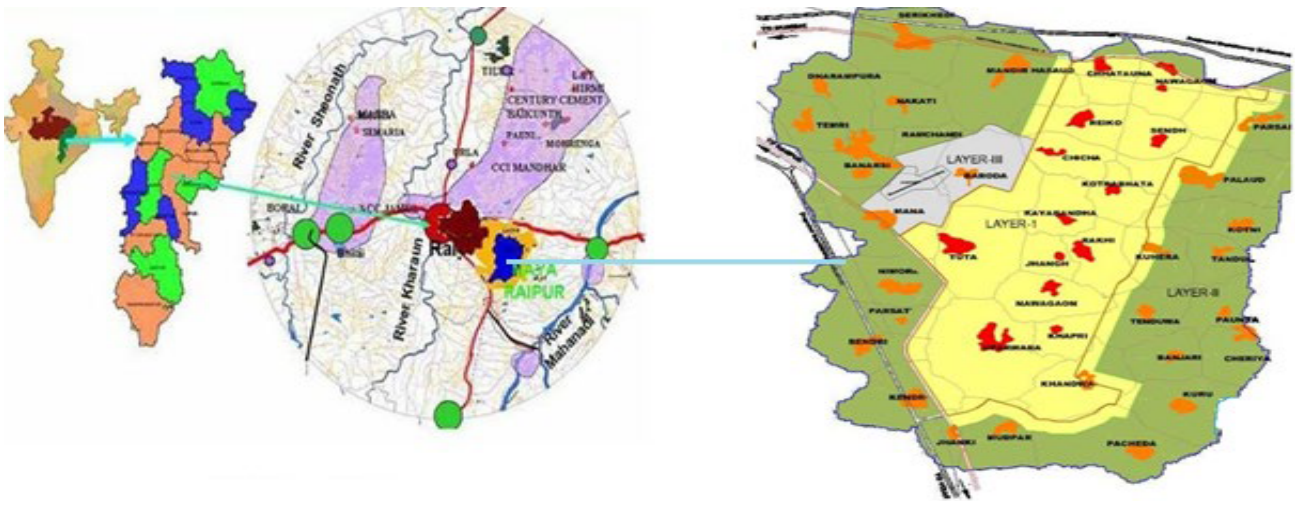

Figure 1: Map of Study Area (Atal Nagar) Sources: maps of India and Naya Raipur Development authority.

baiga are residing here. No previous study has concluded in this area so it is important to note down ethnic uses of different community residing here. The present study aims to identify and prepare an inventory of various medicinal plant species used by the villagers of Atal Nagar area to cure their various ailments.

Collection of plants

The plant species were collected, and herbarium specimens were prepared by pressing with the help of herbarium press and drying in the field using a natural drying technique (Forman and Bridson 1989) with some modification. All the plant species were recorded and deposited in Herbarium of Kalinga University for future references and studies. Several field visit done by author to record data with his assistant staff and students. During field visit certain plant species which are known to be threatened were also being cultivated in Botanical Garden of Kalinga University.

Questionnaire

Author had discussed uses of many medicinal plants to the local people and traditional medicinal practitioner. Total 37 male respondents who were working as a traditional healer and medicinal practitioner in their respected societies and tribes, participated in the interview, their answer recorded by author carefully. The entire practitioner belongs to age group of 30 to 75 years. Out of 37 respondents, 15 have completed their graduation 8 have completed matriculation and 14 only completed their primary schooling. Maximum numbers of informants were participated in interviews belong to Paharikorba communities (17) followed by Gaud (9), Baiga (7) and Madiya communities (4). Numbers of medicinal plants were recorded in this region and documentation has been done by author. The method used for ethnobotanical data collection were semi- structured interviews as described by (Cotton, 1996) field observation, preference ranking and direct-matrix ranking according to (Alexiades, 1996). The questionnaire were prepared according to the works of (Bussmann et al., 2006; Yineger et al., 2007; Holroyd et al., 2008; Rokaya et al., 2010 and Wodah et al., 2012). Questionnaire is based upon the usage of plants parts, type of diseases in which the plants are being using, seriousness and condition of diseases, method of making drug, dosage, and time required to treat diseases. All the answers regarding local name, mode of usage, method to treat diseases were recorded carefully. Inventory prepared according to the (Tripathi et al., 2013). Observation table was prepared according to (Bala, 2016) with slight modification

Identification

Plant species were identified on the basis of morphology and taxonomic characters. The identities of several plants were confirmed by experts from various institutions. Anatomical sections were also taken to confirm species identity. Voucher specimens were deposited in herbarium of Kalinga University for future reference.

QUANTITATIVE ETHNOBOTANICAL DATA ANALYSIS

Relative frequency of citation (RFC):

The relative frequency of citation RFC was used to evaluate the relative importance of plant species cited by respondents or informants. Its higher value show the local acceptance of that particular medicinal plant

Calculated by formula used by previous investigators (Shaheen et al., 2017; Pradhan et al., 2020) and by the following formula.

RFC= FC/N

Where FC is the number of informants reporting the ethnomedicinal use of a particular plant and N is total number of informants participated in study.\

Informant Consensus Factor (ICF):

(Heinrich et al., 1998) was calculated using the following formula:

IFC=Nur−Nt/ (Nur−1)

Where, “Nur” refers to the total number of use reports for each disease cluster and “Nt” refers the total number of species used for that cluster. This formula was used to find out the homogeneity in the ethnomedicinal information documented from the traditional informants.

Use Value:

The use value of plant indicated how particular remedies are being in practice in that particular. Higher use value also indicates how particular community is familiar with medicinal property of plant. (Rokaya et al., 2010) for particular plant species to measure the importance of individual plant species by using the following formula

UV= /n

Where V is the number of use report (use report indicate the number of medicinal properties a particular plant)

Prior informed consent

Author met the local authorities introduced the purpose and objectives of study with the local people, authorities, and relevant stakeholders of RM (rural municipality) of different villages and authorities of Atal Nagar. Preliminary informed consent about the documentation and dissemination of local knowledge of ethnobotanical uses of plant species was taken from all participants who were involved in PRA and RRA participatory interviews and discussions. As per the respondents’ request, their name and the doses of plant extract preparation for medication were kept confidential (Figures 2,3 and 4).

RESULTS AND DISCUSSION

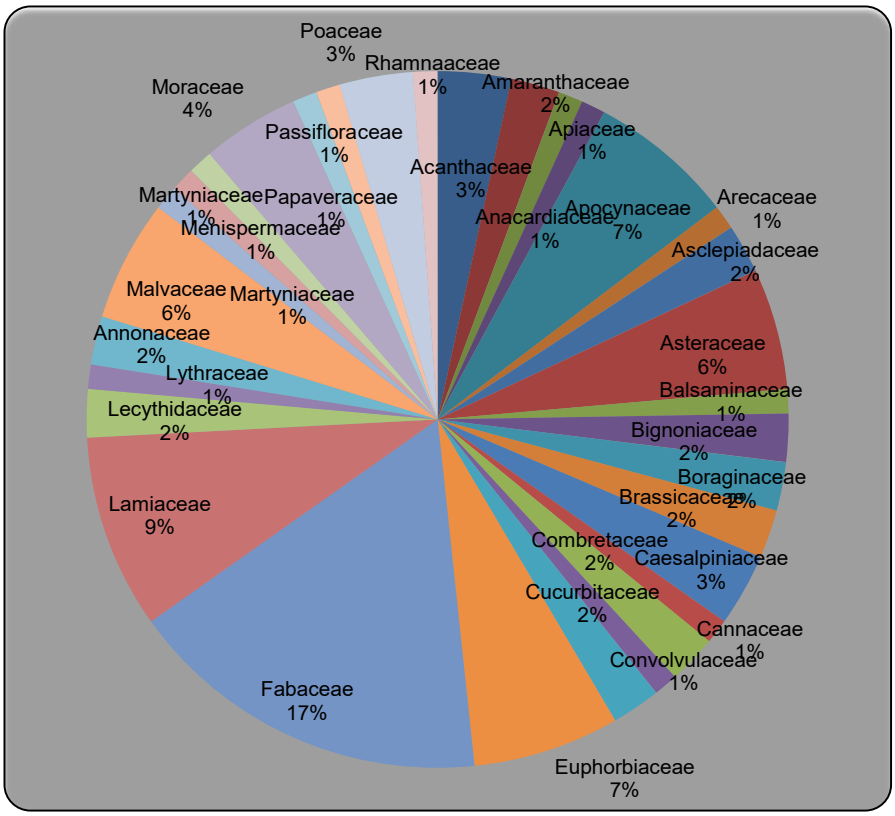

Figure 2: Distribution of Families.

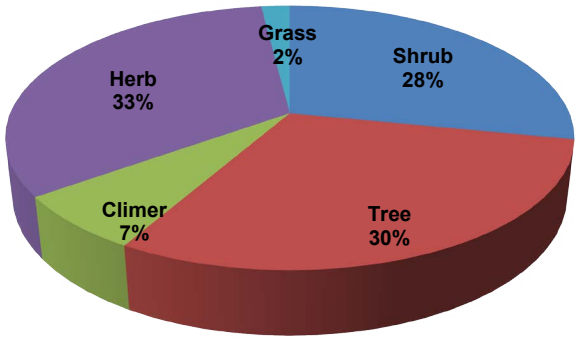

Figure 3: Distribution of Habit.

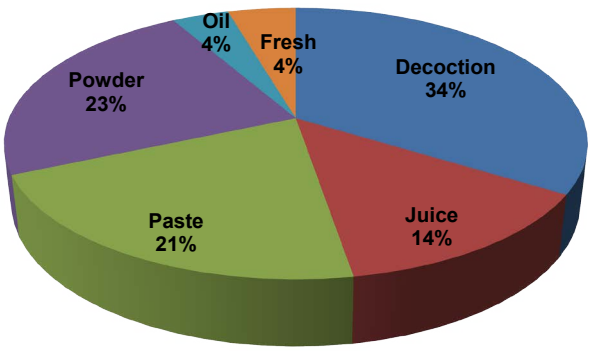

Figure 4: Distribution of mode of preparation.

Table 1. Plants listed with their botanical name, local name, and family description along with medicinal properties

Botanical Name, Habit, Conservation Status, Voucher Number	Local Name	Family	Parts Used	Name of Village & (Tribes) where ethno-medicinal data was collected	RFC	UV	Parts used, mode of preparation, ethno-medical uses some other plants used as ingredients	Other usage
Achyranthes aspera (L.) (Herb) ATKU04	Apmarg	Amaranthaceae	Root, Leaves,	Kotni (Kewat)	0.45	0.72	Root paste has healing properties, used to treat wounds. Leaves of *Achyranthes aspera* with seed of *Piper nigrum* and jaggery is taken orally to treat malaria	NA
Acalypha indica (L.) (Herb) ATKU95	kuppikhokhali	Euphorbiaceae	Leaves	Navagaon (Kewat)	0.25	0.65	Fresh Leaves are taken orally to treat cold, cough Asthma and Pneumonia	NA
Aegle marmelos (L.) A.Lyons (Tree) ATKU08	Bel	Rutaceae	Fruit, Leaves	Kotni (Urav)	0.72	1.26	Fruit is nutritive with Leaves of *Dalbergia sissoo* it is used to treat heat stroke, Fruit treat indigestion, Leaves decoction is used to treat diabetic. Squash of fruit is used to treat constipation.	Fruit is edible
Aeschynomene aspera (L.) (Shrub) Least Concern ATKU09	Shola Pith	Fabaceae	Stem, seed	Palaud (Paharikorba)	0.16	0.36	Diuretic	NA
Ailanthus Excelsa (Roxb.) (Tree) ATKU10	Maharukh	Simaroubaceae	Leaves	Tendua (Madiya)	0.25	0.42	Fresh Leaves are taken orally to treat stomach pain	NA
Albizia lebbeck (L.) Benth. (Tree) ATKU12	Sirisa	Fabaceae	Seed, Stembark, Flower	Khapri (Baiga)	0.33	0.56	Stem bark is used in respiratory problem. Flower paste is used in snake bite. 10gms *Albizia lebbeck* seeds with 5gm seed of *Terminalia chebula* with salt are taken to treat Constipation.	Fruit is edible
Allamanda cathartica (L.) (Shrub) ATKU13	Pilaghanti	Apocynaceae	Leaves, Stem bark	Kotni (Gaud)	0.32	0.64	Leaves and stem bark paste and decoction are used in washing of wounds. The infusion of the Leaves is given for abdominal pain.	NA
Alstonia Scholaris (L.) R.Br. (Tree) Least Concern ATKU70	Satparni	Apocynaceae	Leaves, Stem bark	Sec-27 (Gaud)	0.45	0.76	4gms of the bark powder of the *Alstonia scholaris* is,use to treat malarial fever without sweating .Latex has wound healing properties. Bark powder is very effective if it given to patient with stem powder of Giloy and Bark powder of Neem in case of Maleria fever.	Ornamental plant

Alternanthera Sessilis (L.) R.Br. ex DC. (Herb) Least Concern ATKU55	Matyasaki	Amaranthaceae	Leaves, Root, Stem	Kotni (Paharikorba)	0.56	0.86	As a herbal medicine, the plant has diuretic, cooling, tonic and laxative properties.. The plant is also believed to be beneficial for the eye diseases, used in cold and cough. Root and Leaves powder is used in skin diseases.	NA
Andrographis paniculata (Burm.f.) Nees (Herb) Least Concern ATKU17	Kalmegh	Acanthaceae	Leaves	Sec-26 (Gaud)	0.76	1.12	Leaves are antidiabetic, Leaves tea used to treat malaria and cold and cough. Leaves (1gm) decoction prepared with seeds of (2gm) *Phyllanthus emblica*,(1gm) *Glycyrrhiza glabra* is used to treat jaundice.	NA
Annona squamosal (L.) (Tree) ATKU25	Seeta fal	Annonaceae	Leaves, Fruit. Root bark, Seed	Rakhi (Paharikorba)	0.55	0.96	Used to treat diarrhoea and dysentery. Root, bark is used in toothache. Seeds Leaves, young fruits have got insecticidal activity. Seed powder with goat milk applies in the hair. It removes dandruff, and promotes germination of hair. Leaves paste treat Abscess.	Fruit is edible
Annona Reticulata (L.) (Tree) ATKU05	Ramphal	Annonaceae	Fruit,	Rakhi (Madiya)	0.49	0.92	Fruit is very useful to treat immature. This fruit is Taken orally to prevent abortions and labor pain during pregnancy.	Fruit is edible
Argemone maxicana (L.) (Herb)ATKU98	Satyanashi	Papaveraceae	Root, flower	Kotni (Kewat)	0.66	1.26	1gm root powder should be taken with milk to treat asthma and bronchitis. Root extract used to treat sterility in human. Plant sap (3-5ml) with clarified butter is taken to treat abdominal pain. Leaves decoction (100 gm) with (60gm) of jeggery and (20gm) *Shorea robusta* resin are used to treat Asthma	Root is used in making Chawanprash (An ayurvedic formulation)
Arundinella pumila (Hochst. ex A. Rich.) (Grass) ATKU01	Bali Ghas	Poaceae	Whole plant	Nawamgaon (Kewat)	0.29	0.52	One cup decoction of plant is taken twice a day in burning sensation and general debility. Plant extract is used externally in insect bites. Cooked grains are used with butter milk as a digestive food and in flatulence. Chapatti (bread) prepared from the flour of grains is used to cure dysentery.	NA

Azadirectica indica (A.Juss.) (Tree) ATKU03	Neem	Meliaceae	Leaves, Bark, Seed	Kotni (Madiya)	0.85	1.50	Leaves ash is used to treat kidney stone. Bark decoction is used to treat malaria. Seed oil act as painkiller. Oil has vermicidal activity also.	NA
Bambusa vulgaris (L.) Voss (Tree) ATKU07	Bans	Poaceae	Leaves	Palaud (Urav)	0.54	0.90	Leaves decoction is used to treat irregular menstrual cycle. It is also use to treat frequent urination.	Stem is used in making furniture
Barringtonia asiatica (L.) Kurz (Tree) ATKU14	Amari bhaji	Lecythidaceae	Leaves, Bark	Uparwara (Baiga)	0.59	0.96	Backaches and sore joints can be treated using its bark, Leaves and fruits. Rheumatism can be treated using the fresh Leaves while their juices are used to treat Diarrhoea	Leaves are edible and eaten by communities present in Raipur
Barringtonia acutangula (L.) Gaertn. (Tree) ATKU02	Hijagal, Samund fal	Lecythidaceae	Leaves	Barauda (Paharikorba)	0.58	0.84	Fresh Leaves should be taken by diabetic patient. Leaves are also nutritious in nature and eaten as a food by tribes	NA
Bauhinia divaricata (L.) (Tree) ATKU06	Kachnar	Fabaceae	Bark	Chicha (Urav)	0.60	0.96	Bark decoction is used to treat fungal infection, abscess. Bark powder taken with honey to treat asthma. 5gm of bark powder with 250ml of buttermilk is taken to treat piles.	Leaves are edible and eaten by communities present in Raipur
Benincasa hispida (Thunb.) (Climber) ATKU16	Pethakaddu	Cucurbitaceae	Fruit	Kuhera (Baiga)	0.60	0.55	Fruit is taken to treat frequent urination, It is also used to treat arthritis and jaundice	NA
Boerhavia diffusa (L. nom. cons.) (Herb)ATKU15	Punarnava	Fabaceae	Root	Kotrabhata (Baiga)	0.76	1.12	Decoction of root with bark of *Moringa oleifera* is taken to treat liver infection and inflammation. Root decoction with turmeric powder is also taken to treat Asthma. Root decoction with ginger and camphor is used to treat Arthritis.	NA
Butea monosperma (Lam.) Taub. (Tree)ATKU18	Palash	Fabaceae	Seeds, Flower	Pauta (Baiga)	0.67	0.98	Seeds paste with honey is used to treat joints pain. Juice of flower is used to treat Conjunctivitis.	Flower used in making herbal colour
Caesalpinia pulcherrima (L.) Sw. *(Tree)* ATKU19	Guletera	Caesalpiniaceae	Leaves, Seed	Parsada (Baiga)	0.72	1.12	Leaves with bark of *Azadirectica indica* is used to treat malaria, seed powder is used to treat cold and cough	NA

Calotropis procera (Ait.) Dry. (Shrub)ATKU32	Madar	Asclepiadaceae	Latex, Root, Leaves	Chatauna (Baiga)	0.75	1.15	Hemorrhoids may get comfort to burning dry leaf smog of *Calotropis procera*. Leaves paste is applied over joint pain. Plant sap is used to treat fungal infection Make these roots dry and form the powder. Mix ginger juice and black pepper powder in this powder and prepare small tablets. For a few days, take one tablet with one spoon of mint juice in every two hours. It will eradicate cholera.	NA
Cayratia trifolia (L.) (Climber) ATKU38	Amalbel	Vitaceae	Root, Leaves	Palaud (Baiga)	0.35	0.70	Root has wound healing properties, Root paste with *Azadirachta indica* Leaves is applied over the wound	NA
Canna indica (L.) (Habit)ATKU44	Sarvajjaya	Cannaceae	Root	Tendua (Kewat)	0.45	0.85	Root powder can be taken orally to increase eyesight.	NA
Capsella bursa-pastoris (L.) Medik. (Herb) ATKU57	Toree Ghas	Brassicaceae	Leaves	Palaud (Kewat)	0.32	0.56	Leaves paste is applied externally to prevent bleeding	NA
Thevetia peruviana (Pers.) K. Schum. (Shrub), ATKU71	Peela Kaner	Apocynaceae	Leaves	Uparwara (Gaud)	0.46	0.90	Wound healing, Leaves decoction externally is used to treat hair fall, Leaves paste of *Cascabela thevetia* and *Azadirectica Indica* is used to treat piles	Ornamental plant, flowers used in performing rituals
Cassia tora (L.) Roxb. (Herb) ATKU73	Chakwad	Caesalpinioideae	Seeds, Leaves	Barauda (Kewat)	0.75	1.10	The seeds and Leaves are used to treat skin disease. Leaves paste has fungicidal activity.	NA
Cassia Fistula (L.) (Tree) ATKU11	Amaltas	Fabaceae	Leaves, Fruits	Chicha (Paharikorba)	0.56	0.92	Leaves paste is used to treat fungal infection	NA
Cassia occidentalis (L.) (Shrub)ATKU21	Kasunda, Bari kasondi	Fabaceae	Leaves and root	Palaud (Baiga)	0.45	0.78	Leaves paste is applied to treat arthritis and joint pain, decoction is used to treat arthritis	NA
Centella Asiatica (L.) Urban (Herb) **Least concern** ATKU28	Brahmi, Gotu kola	Apiaceae	Root and Leaves	Uparwara (Madiya)	0.78	1.32	Dried Leaves powder with honey is taken to treat memory loss	NA
Cleome gynandra (L.) (Herb) ATKU27	Jakhiya	Brassicaceae	Leaves	Tendua, (Madiya)	0.38	0.61	Leaves paste is used to treat diarrhoea	NA
Combretum Indicum (L.) DeFilipps ATKU58 (Climbing (Shrub)	Madhumalti	Combretaceae	Leaves	Khandwa (Baiga)	0.28	0.45	A decoction of the Leaves or flower with Ocimum Leaves and clove is used to treat fever cold and cough	NA
Crotalaria pallida (Ation) (Herb) ATKU56	San, Ghunghunia	Fabaceae	Leaves, Seed	Tendua (Kewat)	0.65	1.32	Decoction of Leaves is used in washing of wounds	NA
Crotolaria verrucosa (L.) (Shrub) ATKU67	Banshana, Jhanjhania	Fabaceae	Leaves, Seed	Palaud (Baiga)	0.26	0.42	Leaves are used to treat cold and cough; Seed powder is used in snakebite.	NA
Cryptolepis buchananii (R.Br. ex Roem. & Schult.) (Climber) ATKU77	Kala bel	Apocynaceae	Leaves	Riko (Madiya)	0.40	0.72	Leaves paste is used in swelling, sprain and injury. Leaves powder is also used to treat piles.	NA

Cynadon dactylon (L.) Pers (Grass) ATKU54	Doob	Poaceae	Leaves	Chicha (Kewat)	0.56	0.72	Decoction of whole plant is used to boost the immunity. Leaves juice is used in Anemia. Grinding the *Cynadon dactylon* and mixing it in curd helps in piles	Upper aerial parts used in rituals
Datura stramonium (L.) (Herb) ATKU52	Dhatura	Solanaceae	Fruit, Flower, Leaves	Parsada (Paharikorba)	0.66	1.25	Grind its fruits and make the powder and mix it with ghee and honey and feed it helps in pregnancy. Dissolving the Leaves of Datura Leaves in the inflammation of the lungs and grafting on the back or the decoction of Leaves is beneficial.	Fruit used in worshipping of Shiva
Delonix regia (Boj. ex Hook.) Raf. (Tree) ATKU81 **Least concern**	Gulmohar	Fabaceae	Leaves	Uparwara (Gaud)	0.35	0.62	2gms flower powder is taken twice in a day to treat Diarrhoea until the symptoms become disappear	Ornamental plant
Echinops spinoissimus L. (Herb) ATKU50	Usnakantaka	Asteraceae	Leaves, Fruit	Barauda (Gaud)	0.45	0.72	Root powder is used as sexual stimulant. Stem powder used as wound healer.	NA
Eclipta Prostrata L. (Herb) **Least concern** ATKU103	Bhrigraj	Asteraceae	Leaves	Chicha (Paharikorba)	0.32	0.64	Dried 50gms Leaves of *E. prostrata* and 5 gms of seeds *Piper nigrum* grind together. Small tablet of this mixture is used to treat piles. Leaves decoction is also used to control high blood pressure. Leaves paste applied to treat hairfall problem	NA
Euphorbia hitra L. (Herb) ATKU59	Bada Dudhi	Euphorbiaceae	Whole Plant	Kotni (Kewat)	0.46	0.72	Breathing disorders including asthma, bronchitis, and chest congestion.	NA
Euphorbia Indica Lam. (Herb) ATKU60	Aliparnika	Euphorbiacae	Leaves, Root	Palaud (Gaud)	0.75	1.32	Decoction of plant treat Asthma, cold and cough	NA
Euphorbia Prostrata Aiton (Herb)ATKU20	Rongoalathi	Euphorbiaceae	Leaves	Tendua (Gaud)	0.56	0.92	Treatment of bleeding hemorrhoids. Decoction of Leaves is used to treat Asthma, Branchiotis	NA
Ficus benghalensis L. (Tree)ATKU22	Bargad	Moraceae	Leaves, Fruit, Stem Bark	Khapri (Paharikorba)	0.45	0.78	Fruit used as sexual stimulant. 2gm Fruit powder with sugar and milk increase sexual potency in man. Latex of plant provides relief in sprain and injury. Bark powder is used to prevent frequent urination.	Tribes performing rituals under this tree
Ficus benjamina L. (Tree) ATKU23	Pukar	Moraceae	Fruit, Stem Bark,	Kotni (Kewat)	0.78	1.22	Latex and fruit extract is used to treat inflammation, piles. Leaves are taken orally to treat malaria.	NA

Ficus racemosa L. (Tree) ATKU31	Gular	Moraceae	Fruit, Leaves, Stem bark	Sec-27 (Baiga)	0.38	1.10	Decoction of fruit is helpful to control sugar level. Blood sugar is stopped by taking 20 grams of cooked fruit juice of *Ficus racemosa* with jaggery or honey. Due to the problem of blood piles, grind the syrupy fruits and grind them. Then add sugar to it. This eliminates bloody piles from the root.	NA
Ficus religiosa L. (Tree) ATKU24	Peepal	Moraceae	Leaves, Stem Bark,	Kotni (Kewat)	0.92	1.45	Leaves juice is remedy for constipation. Leaves paste is also used in wound healing,	Tribes performing rituals under this tree
Gmelina arborea Roxb. (Tree) ATKU26	Gamhar	Verbenaceae	Root, Bark	Sec-26 (Kewat)	0.45	0.92	Leaf paste is applied to relieve headache and juice is used as wash for ulcers	NA
Heliotropium indicum L. (Herb) **Least concern** ATKU29	Hathi Soodh	Boraginaceae	Leaves and Root	Rakhi (Gaud)	0.32	0.56	Leaves decoction is used to increase eyesight, abdominal cramp	NA
Hibiscus indicus L. (Shrub) ATKU33	Peela Gulhar	Malvaceae	Root, Leaves	Rakhi (Paharikorba)	0.46	0.93	Used in snake bite, taken as decoction, fresh Leaves were also taken orally	NA
Hibiscus vitifolius L. (Shrub) ATKU37	Ban Okra	Malvaceae	Root and Bark	Kotni (Gaud)	0.75	0.78	In tribes of Raipur aqueous extracts of the root bark are traditionally used for the treatment of jaundice, inflammation and diabetes	NA
Hyptis suaveolens L. Kuntze (Herb) ATKU34	Vilaiti tulsi	Lamiaceae	Leaves and Root	Nawamgaon (Kewat)	0.56	0.94	Parts of the plant were used as analgesic and decongestant, and also to avoid fever and to fuel blood circulation with a sour, minty and sweet-smellingflavour.	NA
Hygrophila auriculata Schumach. (Herb) Least Concern ATKU39	Bhankari, Gokshur,	Acanthaceae	Leaves and Flower	Kotni (Paharikorba)	0.45	0.96	Leaves extract is used for the treatment of gingivitis. Root decoction is used to treat liver diseases and jaundice	NA
Impatiens balsamina L. (Herb) ATKU40	Gulmehandi	Balsaminaceae	Leaves, Flower	Palaud (Gaud)	0.46	0.85	Leaves juice is used to treat skin diseases, Leaves with neem is used to minimize the impact of snakebite	NA
Ipomea carnea L. (Shrub) ATKU35	Besharam	Convolvulaceae	Flower, Leaves	Uparwara (Paharikorba)	0.38	0.65	Leaves paste used as wound healer.	NA
Jatropha gossypiifolia L. (Shrub) ATKU36	Jungali Arandi	Euphorbiaceae	Stem, Leaves	Barauda (Gaud)	0.35	0.72	Used in Cholera, diarrhoea, Gingivitis, decoction of Leaves used to treat kidney stone and filtering of blood	NA

Lagerstroemia speciosa (L.) Pers. (Tree) ATKU42	Jarul	Lythraceae	Bark, Leaves	Chicha (Kewat)	0.45	0.92	Kidney related diseases, In stone problem, Antidiabetic	NA
Lathyrus Sativus L. (Herb) ATKU43	Tiyura Lakhdi bhaji	Fabaceae	Leaves	Kuhera (Paharikorba)	0.55	1.05	Leaves are used in stomach pain, Leaves are nutritious in nature	Leaves are edible and eaten by communities present in Raipur
Leucaena leucocephala (Lam.) de Wit (Shrub) ATKU46	subabul	Fabaceae	Fruit	Kotrabhata	0.46	0.78	Mixture of Leaves and cumin are also taken to treat dysentery, 25 gm bark powder with equal volume of bark of *Magnifera indica* is used to treat Eczema	NA
Leonotis nepetifolia (L.) R.Br (Herb) ATKU48	Motishool, Deepmala	Lamiaceae	Leaf and Stem	Pauta (Paharikorba)	0.52	0.95	Leaf decoction is used to treat Asthma, stem decoction is used to treat skin infection	NA
Leucas aspera (Willd.) Linn. *(*Herb)ATKU41	Chhota halkusa,	Lamiaceae	Leaves	Parsada (Gaud)	0.55	0.95	Anti-inflammatory, antipyretic, antiseptic, used in cold and cough	NA
Mangifera indica L.(Tree) ATKU45	Aam	Anacardiaceae	Fruit, Root, Bark	Chatauna (Gaud)	0.84	1.55	The fruit juice is restorative tonic and used in heat stroke. The roots and bark are astringent, acrid, refrigerant, styptic, anti-syphilitic, vulnerary, anti-emetic, anti-inflammatory and constipating	Fruits are edible and stem used in furniture industry
Martynia annua L. (Shrub) ATKU49	Bagnakha	Martyniaceae	Leaves, Root, Fruit	Palaud (Kewat)	0.62	0.92	Leaves paste is taken to reduce impact of snakebite, Root decoction is used to treat antifertility.	NA
Millingtonia hortensis L.f. (Tree) ATKU47	Akashneem	Bignoniaceae	Leaves, Flower, Bark	Tendua (Paharikorba)	0.38	0.56	Leaves juice with water is used for washing of wounds.	NA
Mimusops elengi L. ATKU51 (Tree)	Maulshree	Sapotaceae	Bark, Flower, Fruits	Palaud (Gaud)	0.78	1.45	The bark, flowers, fruits, and seeds of Bakula are used in Ayurvedic medicine in which it is purported to be astringent, cooling, anthelmintic, tonic, and febrifuge. It is mainly used for dental ailments such as bleeding gums, pyorrhea, dental caries, and loose teeth	NA
Moringa oleifera Lam. *(Tree)* ATKU91	Moonga	Moringaceae	Leaves, Fruit,	Uparwara (Kewat)	0.78	1.78	Leaves vapour has been used to open nasal congestion due to cold and cough	Fruit pods are edible
Murraya koenigii L. (Shrub) ATKU53	Meethi Neeem	Rutaceae	Leaves	Barauda (Kewat)	0.84	1.62	Dysentery, Diarrhoea, pain of kidney, microbial growth and stomach ache, Leaves are antidiabetic, Useful for preventing hair loss	Leaves are edible

Neolamarckia cadamba (Roxb.) Bosser (Tree) ATKU100	Kadamb	Rubiaceae	Bark, Leaves	Chicha (Paharikorba)	0.55	0.92	Decoction of Leaves *Neolamarckia cadamba with Ocimum sanctum* is used to treat fever, Bark decoction is used to treat sprain	NA
Nerium oleander L.(Shrub) Least Concern ATKU62	Gulabi Kaner	Apocynaceae	Leaves	Palaud (Gaud)	0.45	0.78	Leaf paste is applied to affected area to treat Arthritis,	NA
Ocimum americanum L. (Herb) ATKU61	Dhauna	Lamiaceae	Leaves	Uparwara (Kewat)	0.55	1.05	Used in skin diseases, help in stomach cramp.	NA
Ocimum kilimandscharicum Gürke (Herb) ATKU82	Kapura tulsi	Lamiaceae	Leaves	Tendua, (Paharikorba)	0.49	0.92	Leaves decoction is provide relief in cold and cough,	NA
Ocimum Sanctum L. (Herb) ATKU87	Tulsi	Lamiaceae	Leaves	Khandwa (Kewat)	0.90	1.75	Leaves used for the treatment for cold cough, fever, Asthma. Leave 10 ml fresh leave juice has given twice in a day to patient suffering from kidney stone. Leave with stem of *Tinospora cardifolia* is used to treat fever	Leaves are edible
Oldenlandia corymbosa L. (Herb) ATKU85	Daman Pappad	Rubiaceae	Leaves,	Tendua (Gaud)	0.55	0.92	Leaves decoction is taken orally to treat malaria	NA
Oroxylum indicum L. Benth. ex Kurz ATKU63 (Tree)	Shallaka, Kutannat	Bignoniaceae	Stem bark,	Palaud (Kewat)	0.84	1.25	The decoction of the stem bark is taken for curing stomach pain and a paste made of the bark powder is applied for, scabies and other skin diseases.	**NA**
Passiflora incarnate L. (Climber) ATKU65	Kaurav pandav plant	Passifloraceae	flower	Riko (Gaud)	0.62	1.56	Flower paste is taken orally to reduce anxiety and headache	Flowers are ornamental
Pergularia daemia (Forssk.) Chiov. (Climber) ATKU69	Utaran, Sagovani,	Asclepiadaceae	Leaves	Chicha (Kewat)	0.38	0.72	Leaf paste with jeggary or honey is taken to cure Asthma,	NA
Phoenix canariensis Chabaud. (Tree) Least ConcernATKU90	Khajur	Arecaceae	Fruit	Parsada (Gaud)	0.35	0.78	Fruits are nutritious, Plant sap is taken orally to treat Diarrhoea	NA
Physalis minima L. (Herb) ATKU84	Chirpoti	Solanaceae	Leaves	Uparwara (Paharikorba)	0.45	0.76	The juice of the Leaves, mixed with mustard oil and water, has been used as a remedy for earache	NA
Plumeria Obstusa L. (Shrub) ATKU64	Champa	Apocynaceae	Leaves	Barauda	0.55	0.90	Flower paste with honey is taken to increase fertility in male, root powder is used to treat irregular menstrual cycle	Flowers contain good essence ornamental
Pongamia pinnata (L.) Panigrahi (Tree) Least Concern ATKU66	Karanj, Kanji	Fabaceae	Leaves, Root, Bark	Chicha (Kewat)	0.46	0.82	Leaves juice are used to treat microbial infection; their juice is used for colds, coughs, diarrhoea, dyspepsia, flatulence, gonorrhea, and leprosy. Roots are used for cleaning gums, teeth, and ulcers. Bark powder is used internally for bleeding piles.	NA

Prosopis cineraria (L.) Druce (Tree) ATKU76	Shami	Fabaceae	Leaves, Bark	Kotni (Paharikorba)	0.52	0.86	Bark paste treat skin problem and Abscess. Leaves decoction with the Leaves of *Azadirectica indica* is used in snake bite.	NA
Punica granatum (L.) (shrub)	Anar	Lythraceae	Fruit, Leaves	Palaud (Kewat)	0.88	1.56	Fruit is very nutritious in nature. Fruit peel is used for skin diseases. Leaves tea is used to treat abdominal pain. Leaves decoction is used in jaundice. Fruit juice is also used to treat kidney stone.	Fruit is edible
Ricinus communis L. (shrub) ATKU92	Arandi	Euphorbiaceae	Leaves, seed	Tendua (Paharikorba)	0.66	1.10	Decoction of root is eliminate skin problem. Massage of seed oil helps to remove the skin crack and roughness. Leaves paste promote hair germination	Oil is used for making food and massage.
Rosmarinus officinalis Spenn. ATKU68 (Shrub)	Gulmehandi	Lamiaceae	Leaves, Flower	Khapri (Gaud)	0.55	0.95	Rosemary was traditionally used to help alleviate muscle pain, improve memory, boost the immune and circulatory system, and promote hair growth.	Ornamental plant
Rungia repens L. (Herb) ATKU87	Kharmor	Acanthaceae	Leaves	Kotni (Gaud)	0.56	1.02	Local people use Leaves paste of this plant in sprain and injury	NA
Salvia hispanica L. (Shrub) ATKU88	Katili Tulsi	Lamiaceae	Leaves And Seed	Sec-27 (Kewat)	0.65	1.08	Leaves Paste is taken orally for the treatment of Asthma, people use plant Leaves orally to reduce the chances of heart related diseases	NA
Senna alata (L.) Roxb. (Shrub) ATKU94	Prapunnad, Ergaj	Caesalpinioideae	Leaves	Kotni (Gaud)	0.52	1.08	Antifungal, Used in treatment for ringworm. Leaves paste is applied on affected area.	NA
*Sida acuta (*Burm.f.) (Shrub) ATKU86	Baraira	Malvaceae	Root, Leaves	Sec-26 (Kewat)	0.55	1.10	The fresh root is chewed for the treatment of dysentery. The leaf juice is also used for vomiting and gastric disorders. The decoction of the entire plant is taken orally for asthma, fever, aches and pains, ulcers and as an anti-worm medication.	NA

Sida rhimbifolia L. (Shrub) ATKU89	Sahdev	Malvaceae	Leaves, fruit	Rakhi (Paharikorba)	0.44	0.72	Leaves paste is applied on sprain and injury, act as painkiller in affected area, Anti-inflammatory. Root powder is used to increase sperm count in male.	NA
Solanum xanthocarpum L. (Shrub) ATKU83	Kantkari	Solanaceae	Leaves, fruit	Rakhi (Gaud)	0.78	1.12	Decoction of root of Solanum *xanthocarpum* and *Tinospora cordifolia* useful in treatment of fever.	**NA**
Sphaeranthus indicus L.(Herb) Leat Concern ATKU74	Chhagul-nudi,Gorakhmundi	Asteraceae	Whole Plant	Kotni (Paharikorba)	0.66	1.20	1gm powder of root or stem with buttermilk is taken to treat piles.1gm of Root powder with milk is taken to increase sexual stamina. Decoction of this plant with equal weight of Bark of *Azadirectica Indica* taken to treat leprosy.	NA
Tephrosia purpurea L. Pers. (Shrub) ATKU75	Sharpunkha	Fabaceae	Leaves, Root	Nawamgaon	0.66	0.96	Root paste is applied to treat goiter. Leaves decoction is used to treat jaundice, chest pain and Piles	NA
Terminalia arjuna (Roxb, ex DC.) (Tree) ATKU80	Arjun	Combretaceae	Bark, Leaves, Fruit	Kotni (Paharikorba)	0.78	1.32	Decoction of stem bark is used to reduce sugar level, blood filtering and removing of clot from blood vessel	NA
Tinospora Cordifolia (Thunb.) Miers (Climber) ATKU96	Guduchi, Giloy	Menispermaceae	Leaves, Root	Palaud (Gaud)	0.84	1.52	Leaves decoction is used to treat Asthma and fever. Root decoction with Asparagus root is used to increase memories.	NA
Trichodesma zeylanicum (Burm.f.) R.Br. (Shrub) ATKU101	dhadhona	Boraginaceae	Leaves, Root	Sector-26, Navagaon (Gaud)	0.26	0.36	Leaves have wound healing properties, diuretic, Leaves juice used for the treatment of snakebite.	NA
Trichosanthes cucumerina L.*(Climber)* ATKU93	Chachinda	Cucurbitaceae	Fruit, Leaves	Sector-26 (Kewat)	0.56	0.63	Fruit is very nutritious. Leaves and fruit are taken to treat cold and cough. Leaf juice is used to treat hair problem	NA
Urena lobata L. (Shrub) ATKU97	Bachita, Khatti Bhaji	Malvaceae	Leaves	Jhanjh (Gaud)	0.64	0.78	Leaves decoction has vermicidal effect. Liver and kidney infection can be eliminated by this decoction	Leaves are edible and eaten by communities present in Raipur
Verbena officinalis L. (Herb) ATKU102	Bhek padee	Verbenaceae	Leaves,	Nawagaon (Paharikorba)	0.45	0.76	Leaves decoction is used to treat sore infection and Asthma	NA

Vernonia cinerea (Schreb.) (Herb) ATKU72	Sahadevi	Asteraceae	Leaves	Jhanjh (Gaud)	0.32	0.78	Decoction of Leaves and root is used to treat stone problem, Antimalarial, Antifungal and Antibacterial property, wound healing, asthma, dysentery, cold and diarrhea	NA
Withania somnifera (L.) Dunal* (Shrub) Endangered ATKU79	Ashwagandha	Solanales	Root, Leaves	Sector-26,Navagaon (Kewat)	0.89	1.23	2gm Leaves powder with milk maintain blood pressure and control cholesterol in the blood. Root powder is used to treat infertility in human. It boost immune system and used as tonic	Root is used to make Chawanprash (An ayurvedic formulation
Ziziphus marutiana(Lam.) (Shrub) ATKU78	Ber	Rhamnaaceae	Fruit	Sector-27 (Paharikorba)	0.92	1.45	Fruit is very nutritious, Antidiabetic, dry fruit or seed powder also have wound healing properties. Oily paste of seed treat skin problem	Fruit is edible
Xanthium strumarium (L.) (Herb) ATKU99	Chhota Dhatura	Asteraceae	Leaves and Fruit	Jhanjh (Gaud)	0.56	1.12	The Leaves juice with clarified butter is applied to treat baldness. The plant is considered to be useful in treating long-standing cases of malaria. The root is a bitter tonic and febrifuge.	NA

Legend: UV= Use Value, RFC= Relative frequency of Citation*(Aslam, 2017). Voucher number starts from 1 to 103 ATKU (Atal Nagar Kalinga University)

Table 2. Ailment Categories, Name of Diseases and Symptoms.

Ailment Categories	Name of Diseases and Symptoms
Circulatory System and Cardiovascular Disorder	Blood pressure, Heart diseases, Blood clotting in Vessels
Cold and Cough	Cold and cough, Nasal Congestion, Sore pain, Decongestants
Cuts and Wound	Sprain, injury Wound, Cut,
Dental	Toothache.
Dermatological disorder	Dandruff, Baldness, Eczema, Skin infection, Abscess, Skin crack, hair germination, itching, ringworm, Scabies Leprosy
Ear Nose and Teeth(ENT) Problems	Earache, Gingivitis, Pyorrhea, Bleeding gums,
Fever	Malaria
Gastro- intestinal Disorders	dysentery, Diarrhoea, Abdominal pain, Constipation, Jaundice, Piles, Cholera, Indigestion, Stomach Cramp, Vomiting,
Genito- urinary Ailment	Sexual disease, boosting of sexual stamina, Frequent urination, bleeding, gonorrhea, Kidney infection, Kidney stone, Irregular menstrual cycle, Labor pain during pregnancy, infertility.
Ophthalmological	Conjunctivitis, Blurred vision.
Respiratory System Problems	Asthma, Sore Infection, bronchitis, Chest congestion, Pneumonia
Skeleto muscular disorder	Arthritis, Backache, Sore joints, inflammation, Joint pain, Sprain
Others	Snake bite, General debility, Headache, Diabetes, Memory Boosting

Table 3. Informant consensus factor calculation for different ailments categories.

Ailment Categories	Use reports	Number of taxa	Informant consensus factor
Circulatory System and Cardiovascular Disorder	15	10	0.35
Cold and Cough	14	10	0.30
Cuts and Wound	13	12	0.08
Dental	4	4	0.00
Dermatological disorder	17	14	0.18
Ear Nose and Teeth(ENT) Problems	3	3	0.00
Fever	10	9	0.11
Gastro- intestinal Disorders	38	28	0.27
Genito- urinary Ailment	18	16	0.11
Ophthalmological	3	3	0.00
Respiratory System Problems	15	14	0.07
Skeleto muscular disorder	10	10	0.00
Others	15	15	0.00

This study was conducted during Sep 2017 to Dec 2019 in Atal Nagar (New Raipur) region to know the ethno-medicinal usage of plant. In this study around 103 plants belonging to 40 different families were recorded. All the recorded plant species are arranged in alphabetical order according to their botanical name in (Table 1). Fabaceae (17%), is the most dominant family in this study which is followed by Laminaceae (9%), Apocynaceae (7%), Malvaceae (6%), Asteraceae (6%), Euphorbiaceae (7%). Among the genera, *Annona* (2spp.) *Barringtonia* (2spp.), *Cassia* (4spp.), *Crotolaria* (2spp.) *Euphorbia* (3spp.) Ficus (4spp.) *Ocimum* (3spp.), *Sida* (2spp.) were dominant genera. Out of 103 plants 14 plants are also cultivated by these people, rest all the plants are originally wild. This indicates that these tribes depend on the forest produce to obtain medicinal drugs. These plants are used by Kewat, Raut, Gaud and other different tribes of this region. Many plants are taken as medicine to cure several diseases. Decoction is favorable method to take medicine by these tribesmen. Taking leaf juice is also another favorable method to use medicinal plant. Plant powder is also taken by these tribes. Sometimes mixture of plant powders were also taken to cure diseases. Plant paste is applied to treat wound and prevent bleeding. Leaf is the most common plant part which is used for herbal preparation followed by stem bark, stem, root and flower. Out of 103 plants, one species is endangered i.e. *Withania somnifera* and twelve species are reported as least concern species which includes *Sphaeranthus indicus, Pongamia pinnata, Phoenix canariensis, Nerium oleander, Hygrophila auriculata,Heliotropium indicum, Eclipta prostrata, Centella asiatica, Andrographis paniculata, Alternanthera sessilis, Alstonia scholaris, Aeschynomene aspera*. Conservation status is according to the data of IUCN.

Leaves (78%) are the most favourite plant part to obtain drugs followed by stem root (23%), flower (9%), fruit (23%), stembark (7%), Whole plant (3%) and seed (10%). Leaves are the most common part used for the preparation of traditional medicines due to likely presence of active pharmaceutical compounds and comparative ease of phytochemical and pharmacological studies compared to other parts. (Ghorbani, 2005) According to the study of (Sahu et al., 2014) carried in Dantewada district of Chhattishgarh leaves also contained highest proportion is his ethnobotanical study. These tribes and ethnic communities are harvested plant species from the wild without substainable use or cultivation practice not differ from the study of (Kala, 2009).

Relative Frequency of Citation (RFC), Use value (UV) and informant Consensus factor (ICF)

Relative frequency citation denotes the familiarity of medicinal properties of particular plant species among the tribes. It also denotes the availability and effectiveness with minimum side effects (Kayani et al., 2015; Vitalini et al., 2013). The highest RFC was found to be *Ficus religiosa* (0.92), *Ziziphus marutiana* (0.92) followed by *Ocimum sanctum* (0.90), *Murraya koenigii* (0.89), *Withania somnifera* (0.88) and *Tinospora cordifolia* (0.84)

Use value (UV) is the number of use reports mentioned by the respondent. Use report indicate the medicinal property of particular plant that practiced in that particular ethnic community. The higher use values of plant species show the higher abundance and dependency of community on particular plant for treating several diseases. Plant species having high use value can easily collected, people are more familiar with properties of plant rather than rarely encountered plant (Giday et al., 2003; Kunwar et al., 2019). The highest UV was observed for *Moringa oleifera*(1.78)

followed by *Ocimum sanctum* (1.75). *Murraya koenigii* (1.62), *Punica granatum* (1.56) and *Mangifera indica* (1.55). Our interviews included people of diverse ethnic and age groups (Table 2).

The informant consensus factor is the homogeneity of the informants for treating a specific group of ailment by using medicinal value of plant. These specific group of aliment were categorized according to (Madikizela et al., 2012). The highest ICF was recorded for circulatory system and cardiovascular disorder followed by cold and cough, gastro intestinal disorder dermatological disorder. To evaluate medicinal uses of plant, in vitro study required for scientific validation and authentication. Such type of scientific study will enable discovery of new medicinal agent hidden in plant. It will not only encourage research but also provide base for development of herbal based industry and sustainable use of plant species (Table 3).

These tribes have great faith in their traditional method to treat diseases. They are also adopting modern method of medicine and hospitality services run by the government. With increasing knowledge and awareness indigenous uses of plants are decreasing, hence it is necessary to document and list the traditional uses. In these tribes many old persons act as medicine man in the society. They use number of plant to treat various diseases. Use of plant is depending upon the types of diseases. Most common diseases in this area are asthma, malaria, diabetes and diarrhea.

Herbal medicines prescribed by tribal healers are either preparation based on single plant part or a combination of several plants. They believed that drugs which are formed by combination of two different plants are more effective.

They are prescribed to take these drugs with honey, milk and butter milk. It is believed in tribes that the combination would make drugs more effective.

CONCLUSION

The present study suggests that 45 villages in the border of Atal Nagar are using plants for medical purposes even today. They are still dependent on plants for common and immediate health problems and are curing various diseases with the help of plants growing around them. He has information about various plants used for the treatment of various diseases as well as the nature of plants and their cultivation, although this method is slowly ending due to the availability and reliability of modern hospitals, hence the village. The medical properties of these plants were highly known by the elders of the country, it is not only a matter of concern that the new generation does not have relatively information. The aim of the present study is to overcome this problem and to preserve information about the medical properties of plants for the future. Along with this, the problem was also underlined that the information related to the therapeutic properties of plants was not being transferred sequentially from one generation to another, due to which it was very likely that gradually this method is decreasing day by day. Therefore, the importance of this study increases even more. In the course of his study, the author found that many plants which were used by local residents to cook food and greens in addition to the works of the doctor, in most cases use the Leaves of these plants and the dish prepared in local language is called “bhaji”. It is believed that this vegetable is very nutritious and healthy for them, although work is yet to be done in this direction. Definitely, the amount of nutrients and importance of these plants should be researched by the researchers. In the meantime the author was also found that the local residents were using many plants for the treatment of diseases, but due to lack of systematic information and lack of proper information about the conservation method, many plants may become extinct from this place in future. The author also saw many gardens located in the villages, but those were the main plants which the villagers were using as vegetable greens. During his travels, the author also told the villagers about plant protection and crisis prone plants and shared their ideas about how to use them while minimizing damage to plants. They were provided with information about growing some plants so that they could continue to use the plant in future. In the last few years, urbanization and industrialization of Atal Nagar has been rapid, due to which many plants are facing significant crisis, therefore it became extremely important to list and preserve these plants, hence the author along with his colleagues He has also stored seeds of rare plants and planted some plants in the Botanical Gardens of Kalinga University.

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