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DOCUMENTATION OF MEDICINAL PLANTS IN AND AROUND VILLAGES OF BHOR CITY, PUNE DISTRICT, MAHARASHTRA STATE, INDIA.

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Abstract: Bhore taluka is remote and hilly regions of Pune district. Ethno medico botanical data was carried out on 2004 to 2010 from Bhore region. Data collected from local practitioners, vaidu and herbalists and local communities people from Bhore taluka. The author introduces important local and native medicinal plants of Bhore regions. The locally found medicinal plants have high medicinal value to cure several diseases of human and animals, Some selective plants such as *Pogostemon benghalensis* (Burma. f.) O. Ktze, *Eucalyptus globulus* Lab, *Moringa olerifera* Lam, *Ocimum sanctum* L, *Cassia fistula* Linn, Five (5) plant species are discussing with respect to scientific name, local names, family, source of plants, distributions, chemical constituents and their uses. All these species are investigated as ethno medico botanical plants from the Bhore region.

Keywords: ethno medicinal plants, Bhore region

I. INTRODUCTION

The Bhore town is well famous for **Ram-Bhumi**, **Shiv-Bhumi** and **Bhoreshwar** Temple. It is famous for first time oath of Swrajya taken by **Chatrapati Shivaji Raja Bhosale** of Maharashtra. **Raja Raghunathrao King** of Bhore-Sanathan. Five forts are located around Bhore Region. Bhore taluka come under semi-kokan region of Pune district. The Bhore taluka has high rain fall area due to western ghat region (Varandha-Ghat) of Maharashtra. Main crops in Bhore taluka are rice, little millet, finger millet commonly cultivated in study area. The monsoon period is from the 6th June to September bringing rains from South-West monsoon coming from Kerala. Bhore taluka has number of rural areas which is rich in plants diversity and has great geographical distribution. The survey was carried out from 2004 to 2010 collected number of samples of roots, stems, leaves, barks, and flowers of medicinal plants. All these plants parts are collected from rural and forest areas of Bhore taluka. In nature some plants show poisonous activity and some are non poisonous activities. It depends only upon the doses of herbal medicines. Medicinal plants have played an key role in the development of human civilization. Many of the modern medicines are produced indirectly or directly from medicinal plants. In my present work an attempt some interesting ethno medicinal observations recorded in Bhore taluka of Pune district, Maharashtra, India. Ethnobotanical data was collected from remote and hilly area from the local communities; they gave right information of medicinal plants, as they are familiar with the native plants around the area of Bhore region. This region was studied for traditional medicinal point of view in human and animal infectious diseases like jaundice, (Kamble and Kulkarni 2010) skin diseases (Kamble, *etal*, 2011), respiratory diseases (Kamble and Kulkarni, 2011) and kitchen garden plants having medicinal value (Kamble and Kulkarni, 2010) and other medicinal plants used by Mahadeo-koli tribble from Western Maharashtra region (Kulkarni, Kumbhojkar and Upadhye, 2002), (Kulkarni, Kulkarni and Kumbhojkar, 1996), (Kulkarni, Kumbhojkar and Upadhye, 1995). Sangola taluka Solapur district five common medicinal plants was reported. (Tembrurne and Nanir, 2012) Aundha town of Hingoli district five traditional medicinal plants was recorded. (Roshan K. Padvi, 2019)

II. AREA UNDER STUDY

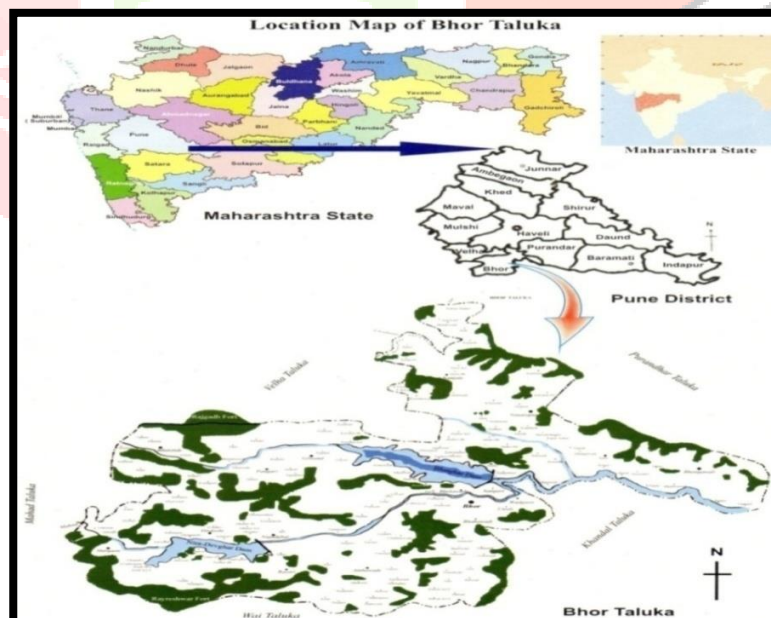
Bhor taluka covers an area of 892.0 Sq. Km. It is situated 54 km South of Pune and between 18 ° and 18°.45' N latitude and 73° -15' E. longitude. It has 185 villages and total population is 1, 54,903. The climate of the area is moist during rainy season and moderate in winter and summer season. Vegetation in the forested area includes, evergreen, moist deciduous, dry mixed deciduous and scrub types. Forest in hilly area of Western part is of evergreen type due to heavy rainfall and higher elevations of the Sahyadri main ridge (650 to 1424 m altitude). This is an undisturbed, well developed evergreen forest often showing distinct layers and a variety of habitat patterns. The southern part of Bhor taluka has moist deciduous forest along higher elevation. The dry mixed deciduous forest covers the broad western part of the area.

The main occupation of local people is agriculture. Some people collect forest products like fruits, gum, honey, medicinal plants from surrounding forest area. They have an accurate knowledge of the environment, including species and ecological relations that exist among them by their long association with nature. The livestock for each family depend upon their agricultural holdings. Generally poor farmers have one buffaloes and cows to fulfill the milk need. Two bullocks are required for agricultural practices. Very few women are interested in keeping sheep and goat. Well known herbalist are belonging to Carpenter, barber and low caste economically backward communities are giving herbal medicines to animals and human diseases.

III. MATERIAL AND METHODS

The data on ethno-medicinal plants has been collected from field visits and personal interviews and questionnaire. The data is generated for Ph.D. work since 2004 to 2010. Villages from the study area are given in Map (Map enclosed). Local government health care facilities are not available to remote hilly areas. They are depends on herbalist to cure livestock in adverse conditions. The doses are given by herbalists based on their long experience. Most of them are illiterate and long association with nature. Their traditional knowledge is a part of their living and they never charge to plant based medicines. Juice of the plant part is prepared by crushing or pressing by addition water or without water, decoction is prepared by boiling plant part in water; Powder is prepared by drying plant part and grinding. Paste is prepared by rubbing plant part in few drops of water. Ash is prepared by burning plant parts. Some combinations was made for healing purpose like butter milk, jaggary, turmeric powder, coconut oil, castor oil, salt, etc

Five plants are described with Botanical name, vernacular name sources of plant parts family, distribution. Chemical composition and medicinal uses of each plant part are given. The herbalists knowledge of plant parts used for the treatment in the form of extract, juice, powder and decoction, etc. are given with appropriate administration. Specimens are deposited at AHMA (Agharkar Herbarium of Maharashtra Association) Agharkar Research Institute, G.G.Agarkar Road, and Pune-411 004. The data on ethno-medico-botany has been identified and confirmed with the help of regional flora and relevant scientific literature. The specimens were also confirmed by comparing them with authentic specimens of herbaria and regional flora



IV. RESULTS AND DISCUSSION

1) Phangali Plant



Scientific Name: *Pogostemon benghalesis* (Burma.f.)O.Ktze

Vernacular Name: Phangali

Family-Lamiaceae

Source of plant: Leaves

Distribution: Throughout India, Pakistan, South West China, Nepal, Indo-china. It grown in Savanna forest.

Bhor region- This is aromatic plant Phangali plant distribute in Bhor taluka and in areas of villages such as-Mahadnaka, A.T.collegecampus, Bhordara,Shiroli, Bhabhavadi.Ambeghar

Chemical Constituent:Plant mostly contain Triacotanecetyl alcohol,3 2 hydroxy dotriaconty lFerulate,beta Sitosterol,5,6,7,4Tetramethoxyflavone, Flavonglycoside –Chrysin, Negletin, Landenein.

Leaves-Contain 5,6,7,4 Teramethyflavone,Acetoside,Quercetin.

Root-Contains Stearic,Palmeticacid,Oleic acid,Tricontanol,mFlavone glycoside Echioidin, 5,6,7 Trimethoxyflavone, Sugar and Protein.

Uses of plant:

Folklore medicines- Used to cure various diseases - dermatitis, dysentery,fever,headache, peptic ulcer,pile,wound, anti-fertility agents,urinary disorders, hepatitisand antimicrobial activity.

Leaves- warmed leaves applied on sprains,it eat in anthrax, toothache, its paste applied over bone fracture tongue and sore wound healing, maggoty wound and Fever,stomachic,urinary disorder.

Inflorescence-Juice is given in gastric problems also juice put in nose for sinusitis, oil possess fungaltotoxic properties .Plant used as fodder to cattle

Root- widely used for treatment of wound, bruises and bone fracture.

2) Nilgiri tree



Scientific Name: *Eucalyptus globulus* Lab.

Vernacular Name: -Nilgiri

Family- Myrtaceae

Source of plant-:Leaves

Distribution: Found in India, Africa (Maddagascar) Central and South America, China, Philippines, Italy, Portugal, Spain, Turkey, New zealand, USA and South eastern Tasmenia

Bhor region - Bhordara, A.T.college campas, Road side, Ganeshnagar

Chemical Constituent-Saponin, Quinones, Carbohydrates, Catecholic, tannins Phenols, Flavonoids, Proteins and Fats.

Uses of plant-

Leaf- Used as air fresheners and medicinal tea, room freshener.

Oils-Added in cough and cold medicinesand dental products,antiseptic used to treatfever andaromatictherapy.

Ointments – applied directly on skin wound minor aches and pains

Spray- Plant sprayused tropicallyon human and pet animals.

3) Shevga Plant



Scientific Name: *Moringa oleifera* Lam.

Vernacular Name: - Shevaga

Family: Morangiaceae

Source of plant: Leaf, Stem, Root, Inflorescence, Seed

Distribution: It is indigenous plant to Himalayan foot of S.Asia. It distribute from North Pakistan, West Bengal, Bangladesh. Commonly found from 1400 meter sea level. Moringa cultivated in Assam, Bengal Peninsula India, Nepal, Afghanistan, W. Africa, South America, Mexico Brazil and Peru.

In Bhor Region it is found Farm bund and Kitchen garden and in villages-Bhabvaadi, Hatnoshi, Khanapur, Nere, Utroli.

Chemical constituent: Phytochemicals -Pterygospermin Gallic tannins Nitrile Moringine Catechol tannins Moringinine Coumarins Thiocarbamate glycosides Spirochin Steroids and triterpenoids 4(α -L-rhamnosyloxy)-benzyl isothiocyanate behenic acid Flavonoids Niazimicin. Moringic acid Saponins Niazinin A + B Niazinin A & B Anthraquinones Thiocarbamate and Isothiocyanate glycosides Niazimicin Alkaloids 3-O-(6'-O-oleoyl- β -D-glucopyranosyl)- b-sitosterol Campesterol Glucosinolates Methyl phydroxybenzoate Stigmasterol Isothiocyanates b-sitosterol b-sitosterol Tannins 4-[α -(L-rhamnosyloxy) benzyl]- o-methyl thiocarbamate (trans) Amino acids O-Ethyl4-(α -L-rhamnosyloxy) benzyl carbamate

Uses of plant:

Leaves-Anti-bacterial Infection, Urinary Tract Infection, Epstein-Bar Virus (EBV), Herpes Simplex HIV-AIDS, Helminthes, Trypanosomes, Bronchitis, External Sores/Ulcers, Fever, Hepatic, Anti-Tumor, Prostate, Antianemic, Antihypertensive Diabetes hypoglycemia, Antihypertensive, Diuretic, Hypocholestermia, Thyroid, Hepatorenal, Colitis, Diarrhea, Dysentery, Ulcer/Gastritis, Rheumatism, Headache, Antioxidant, Carotenoids, Energy, Iron deficiency, Protein, Vitamin/mineral deficiency, Lactation Enhancer, Antiseptic, Catarrh, Lactation, Scurvy. Leaf juice as eye drops in eye diseases. Leaves used as vegetable

Bark -Dental problem/toothache, Common cold, Sores/Ulcer, Anti-tumor, Snakebite, Scorpion bite, Colitis, Indigestion, Epilepsy, Hysteria, Headache, Antinutritional factors, Abortifacient, Aphrodisiac, Birth Control and scurvy

Roots-Trypanosomes, External Sores/Ulcers, Fever, Asthma, Cardiotoxic, Diuretic, Hepatorenal, Diarrhea, Flatulence, Anti-spasmodic, Epilepsy, Hysteria, Hysteria, Headache, Abortifacient, Aphrodisiac, Rubefacient, Vesicant, Gout, Hepatomegaly, Kidney Pain, Scurvy and Splenomegaly

Exudate- Dental problem/Toothache, Syphilis, Typhoid, Earache, Fever, Asthma, Diuretic, Dysentery, Rheumatism, Headache, Abortifacient and Rubefacient.

Flowers- Throat infection, common cold, anthelmintic, anti-tumor, rheumatism, diuretic, tonic, hysteria, abortion

Pods- Anthelmintic, skin cancer, anti-hypertensive, diabetes, joint pain as source of high protein

Seeds-Anthelmintic, Warts, anti-tumor, Ulcer, rheumatism, arthritis, antispasmodic, goitrogen, mineral/vitamin deficiency, water purifier.

4) Tulsi Plant



Scientific Name: *Ocimum sanctum* L.

Vernacular Name: Tulsi

Family: Lamiaceae

Source of plant: Leaf, Stem, Root, Inflorescence,

Distribution: Distribute throughout India as sacred and religious plant. It occurs in Bhor and every village like -Shind, Kivat, Bholavade, Bare, Hartali Malwadi and Sangamner.

Chemical Composition-Fresh leaves and stem) -phenolic compounds (antioxidants) such as cirsilineol, circimaritin, isothymusin, apigenin and rosameric acid, and appreciable quantities of eugenol. (Leaves)- contain 0.7% volatile oil comprising about 71% eugenol and 20% methyl eugenol. The oil also contains carvacrol and sesquiterpene hydrocarbon caryophyllene. Two flavonoids orientin and vicenin from aqueous leaf extract of *Ocimum sanctum*.

Medicinal Uses-Tulsi plant is also known as "the elixir of life" Different parts of the plant are used in Ayurveda and Siddha systems of medicine for prevention and cure of many illnesses and everyday ailments like common cold, headache, cough, influenza, earache, fever, colic pain, sore throat, bronchitis, asthma, hepatic diseases, malarial fever, as an antidote for snake bite and scorpion sting, flatulence, migraine headaches, fatigue, skin diseases, wound, insomnia, arthritis, digestive disorders, night blindness and diarrhea.

Leaves -The leaves are good for nerves and to sharpen memory. Chewing of leaves also cures ulcers and infections of mouth, leaves dropped in drinking water or food stuff can purify it and can kill germs. It is also good for boosting up the immune system. It protects from nearly all sorts of infections from viruses, bacteria, fungi and protozoa. Presently it is also helpful in inhibiting the growth of HIV and carcinogenic cells.

Seed-seed soak in water given in urinary disorder as cool effect.

5) Bahva Plant



Scientific Name: *Cassia fistula* Linn.

Vernacular Name: Bahwa,

Family: Caesalpiniaceae,

Source: Pod and bark of this plant used as a drug.

Distribution : this is an ornamental tree with yellow flowers found throughout India. Grow in valleys upto 1200 m in Himalayas.

Bhor region- It is found in proper Bhabvadi, Pasure, Khanapur, Venavadi, Natambi, Ambavade etc

Chemical composition: 1-8 dihydroxy anthraquinone, Tryptamines, Fistucacidin (3,4,7,8,4, pentahydroxy flavan Oxyanthraquinone, Epicatechin, Procyanidin B2, Biflavonoids, Rhenin, Physcion, Kaempferol, Chrysophanol, Fistulin, Fistulic acid.

Uses: The sweet blackish pulp of the pod is used as a mild laxative. The wood is hard and heavy is used for cabinet and inlay work. Roots are astringent, cooling, purgative, febrifuge and tonic. It is useful in skin diseases, burning sensations and syphilis. Bark is laxative, anthelmintic, emetic, febrifuge, diuretic and depurative. It is useful in boils, leprosy, ringworms affection, colic, dyspepsia, constipation, diabetes, strangury and cardiac problems. Leaves are laxative, antiperiodic and depurative. It is useful in skin diseases, burning sensation, dry cough and bronchitis. Fruits are sweet, cooling, purgative, carminative, anti-inflammatory, diuretic and ophthalmic. It is used in flatulence, colic, dysentery, inflammations and intermittent fever. It is also used in cardiac disorders, strangury, ophthalmopathy and general debility. Pulp from fruits called 'Cassia pulp' is a well-known laxative. Bark of tree is rich in tannins. Flowers are bitter, acrid, cooling, emollient, purgative and are useful in vitiated condition of pitta, burning sensation, leprosy, and skin diseases. It is also useful in cardiac disorders, intermittent fever and general debility.

V. CONCLUSION

The study of medicinal plant data are generally collected by survey, frequent visits arranging botanical excursion tour, local visits and observation. The study is based on the data collection on common medicinal plants in Bhor - The survey was conducted in selected region which is nearest to Bhor area and the study was carried out with elder people of both men and women, chief of village, Vaidu, herbalists, herbal knowledgeable person, and headman. Also taking a sample for detailed interviews was conducted with herbal specialist in the rural areas. At the time of survey rural people shared his valuable information about the medicinal plants. Detail information was collected on the basis of health, social, economic, and cultural aspects of the plants. The data of medicinal plants collected from rural area of Bhor city. Selected 5 plants are frequently occur in near by villages. This paper presented all detail information of each plant named as *Pogostemon benghalesis* (Burma.f.) O.Ktze, *Eucalyptus globulus* Lab, *Moringa olerifera* Lam, *Ocimum sanctum* L, *Cassia fistula* Linn. observed in study area. In survey of study area around the Bhor city numbers of medicinal plant species are found in different locality which are wild species. Only **Five plant species** are taken for the study purpose. The different plant parts like root, bark (scale), wood, stem, leaves, flowers, fruit, and seed etc are used for curing a various diseases, of human and animals.

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