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Documentation of Medicinal plants of Moist Deciduous Forest of Amarkantak Region, Madhya Pradesh, India

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Authors' contributions

This work was carried out in collaboration among all authors. Author SPV investigated the study, interpreted and prepared the manuscript. All authors read and approved the final manuscript.

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ABSTRACT

The present investigation carried out on "Documentation of Medicinal plants of Moist Deciduous Forest of Amarkantak Region, Madhya Pradesh". The study was conducted in Anuppur forest division during 2021-2022. The current investigation is focused on the medicinal plants that may be found in the Amarkantak region. The documentation of medicinal plant was carried out through stratified random sampling method. In this area, documentation of many types of vegetation (trees, shrubs, and herbs) has been documented. A total 66 plants were collected from different parts of the study area; those include 28 speciesof tree, 10 species of shrub and 28 species of herb. The documented plant species consists of 28 families of 23 genera of tree, 10 families of 10 genera of shrub and 28 families of 28genera of herb. Floristic composition and most dominant families were found highest for Fabaceae followed by Malvaceae, Moraceae, Phyllanthaceae etc. Documentation of medicinal plants is the only method to ensure that future generations can access the essential information required to use plant resources. Traditional medicine and ethno-botanical knowledge

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can preserve cultural practices and the environment, promote local health care, and create new medicinal products. Result show that most of the plants studied are effective against various illnesses, alone or mixed with other plants. Therefore, it is recommended that strategies be implemented to preserve and protect significant species from growing extinct in their native habitat.

Keywords: Flora; medicinal; forest; Achanakmar; Amarkantak; Madhya Pradesh.

1. INTRODUCTION

Amarkantak is a very small town near the state boundary between Madhya Pradesh and Chhattisgarh. Amarkantak is situated in central India's Maikal range and is famous for being the source of three holy rivers: Narmada, Sone, and Johila. Amarkantak is a sanskrit word with two literal meanings: immortal (amar) and obstruction (kayak), which means obstruction in immortal. The Amarkantak jungle path is part of the Achanakmar-Amarkantak Biosphere Reserve. The forests of Amarkantak and Kanha National Park are interconnected. Amarkantak is situated in the hilly, densely forested Kanha-Achanakmar corridor [1]. The Sal forests of Amarkantak are counted as one of the best Sal forests in the country. The natural beauty of the forest is an once-in-a-lifetime experience.

In plant science research, traditional medicine and ethno-botanical knowledge play an essential role. 75-80 percent of the world's population, primarily in developing nations, continues to use herbal medicine for primary health care [2]. There are an estimated 46,000 plant species in India, including higher plants such as Angiosperms, Gymnosperms and lower groups such as Pteridophytes, Bryophytes, Fungi, Lichen, and Algae. According to estimates by the WHO, more than 80 percent of people in developing nations rely on traditional remedies for their primary health requirements. Along with other natural therapies like Homoeopathy, Osteopathic medicine, and traditional Chinese medicine, herbal therapy has been experiencing an upward trend in Western culture [3]. Different portions of plants are utilized for Cough, Asthma, Bronchitis, Dysentery, Vomiting, Nose bleeding, Colds, fever, and Skin problems, according to Shah and Khan [4] and Haq and Hussain (1993). In India, millions of rural households use medicinal plants for self-care [5]. Recent Indian medicine is a remarkable fusion of ancient and modern systems firmly rooted in nationalist feelings [6]. Tribal and ethnic groups all over the world have their own cultures, habits, religious rites, stories, folk tales and songs, foods, medical practices, and so on [7]. Traditional medicine continues to be utilized in India for historical, cultural, and ecological grounds [8]. Medicinal utilization of plants is rising, although little is known about its trends [9]. Many wild and domesticated plants are very important and vital to these cultures, and the way they work together has changed over many years and generations. Tribal people have a lot of information about how to use many plants or parts of plants as medicine. Because they come from local knowledge, beliefs, and experiences, traditional folk drugs have a long history of being accepted by the community. Using this traditional knowledge of medical plants is helpful not only for keeping cultural customs and biodiversity alive, but also for improving health care in the community and making new medicines. So, this ancient knowledge must be written down in order to shed light on plant study and help the social and economic growth of the people.

Flora is the community of all the plants it grows naturally in a particular place or time. This includes floral plants and ferns [10].The plant community is vital in sustainable management because it helps keep biodiversity and protect the environment [11]. Plants are an essential component of natural resources and play an essential role in biogeochemical cycles [12]. Today, increasing population leads to decreases in forest areas due to over exploitation of these important medicinal and aromatic plants. Tribal people have closely relation to forest and they receive the forest products and NTFP products like dry leaves, fallen woods, wild fruit, timber, nuts, bamboo, medicinal & aromatic plants etc. The world's most notable environmental issue is the decline of vegetation diversity [13].

Climate patterns play a crucial role in determining the types of plants that can thrive in a particular region. For instance, regions with high rainfall and moderate temperatures often support lush forests, while arid regions are more likely to have sparse vegetation such as deserts or grasslands. Soil composition also greatly impacts vegetation as different plants have specific nutrient requirements. Additionally, topography affects the distribution of vegetation by influencing factors like water drainage and

sunlight exposure. Lastly, the presence of other organisms, such as herbivores or competing plant species, can shape the composition and structure of plant communities [14]. Tropical and subtropical forests have the highest plant species diversity globally [15].

2. METHODOLOGY

Study area: Amarkantak is located in Anuppur district of Madhya Pradesh (Fig. 1). The place and it is located at 22°67´ N to 81°75´ E. It has an average elevation of 1048m (3438ft) above mean sea level and is situated about 68.6 km distance from Anuppur. The Amarkantak hill bears large number of plant species that are important from medicinal, economical and commercial point of view [16]. The majority of Amarkantak forest resources of Sal and mixed deciduous forest, with a few patches of bamboo in plantation areas. As per the working plan report, Sal forest in Anuppur division consists of 23756.35 ha and other mixed forest covering an area of 25892.06 ha. As per the FSI report [17] Anuppur district having forest cover 868.68 sq.km.

Climate: The climate of the study area has a subtropical climate with three clearly distinguished seasons. The south-west monsoon, which occurs from mid-June to September, is responsible for about 88% of the rainfall during this season. However, because of the monsoon's retreat, winter rains also occur. The overall climatic conditions are suitable for the excellent growth of plants.

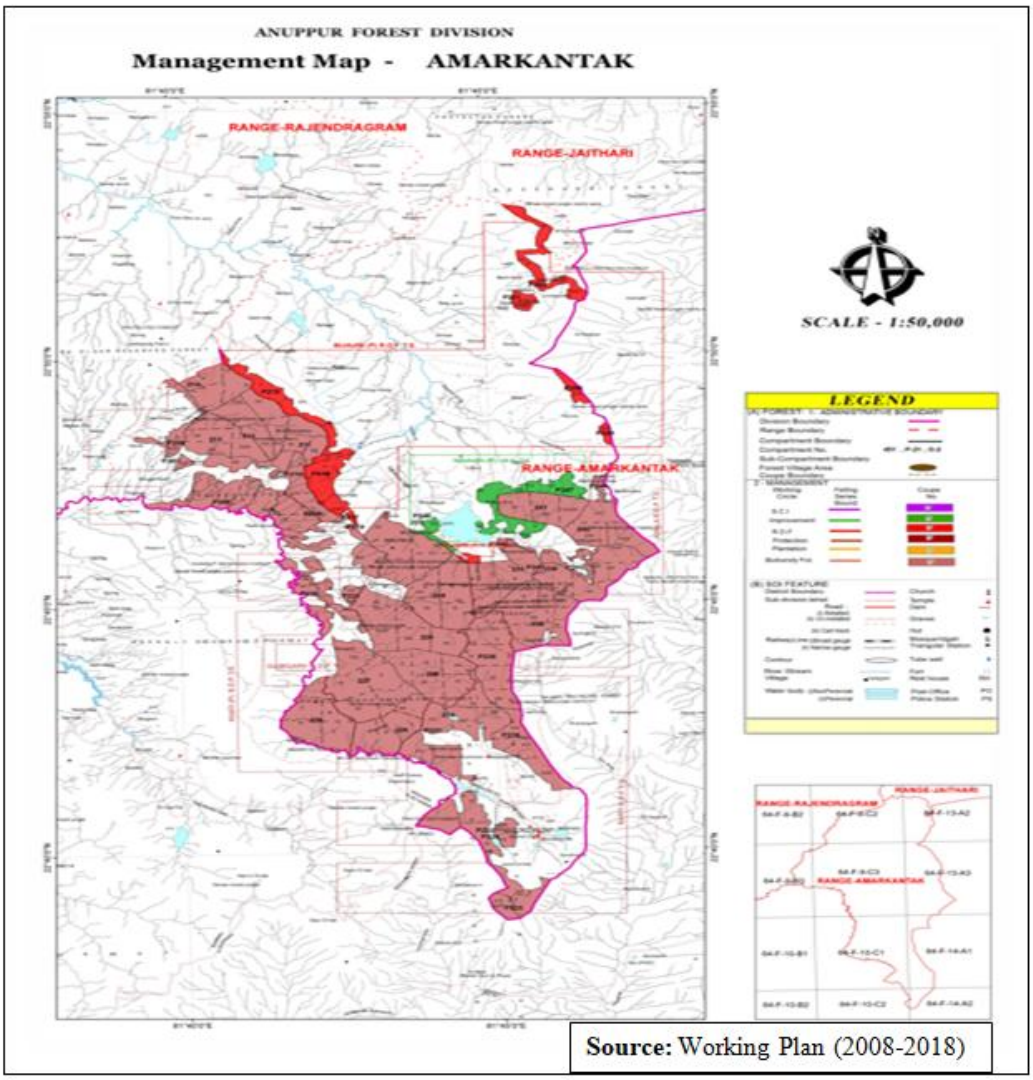

Fig. 1. Location map of study area of Amarkantak region

Sampling method and Data collection: The study was carried out during winter and summer season in 2021-22. The field visits were made frequently to document the plant diversity of Amarkantak area. The plants were collected and take photographed during the field study (Fig. 3). The documentation of medicinal plant was carried out through stratified random sampling method [18]. A survey was conducted to acquire first-hand information from the locals' traditional medicinal practices. The discussion with the local herbal healer and local community of this area had been carried out for the use of medicinal plants to cure various ailments.The techniques used for data acquisition included personal interviews with villagers, group discussion, and the use of local information. For data collection, a flexible-question questionnaire was developed to capture as much information as feasible on traditional medicine preparation. The recipe of the herbal medicine preparation methods for powders, decoctions as well raw plant parts used to cure the various diseases and its doses also find out and documented.

3. RESULTS AND DISCUSSION

Floristic composition: Documentation of different vegetation (tree, shrubs, and herbs) has been recorded at study site of Amarkantak. A total 66 plants were collected from different parts of the study area; those include 28 species of tree, 10 species of shrub and 28 species of herb. The documented plant species consists of 28 families of 23 genera of tree, 10 families of 10 genera of shrub and 28 families of 28 genera of herb. Floristic composition and most dominant families were found highest for Fabaceae [19-21], the family includes phytochemicals with antibacterial, antifungal, antioxidant, and insecticidal properties) followed by Malvaceae, Moraceae, Phyllanthaceae etc.

The recorded medicinal plants are used to treat various ailments, including Arthritis, Boils, Bleeding Hemorrhoids, Diarrhoea, Dysentery, Gastric, Ulcer, Headache, and Inflammation. Skin diseases, Stomach disorders, Asthma, Rheumatism, Ringworm, Stomach disorders, Urinary conditions, Anti-oxidant, Anti-bacterial, Anti-inflammatory, Anti-pyretic, Anti-diabetic, and Anti-ulcerant properties, among others. Root, leaf, fruit, flower, bark, or the entire plant can be used to treat illness. Medicinal plants are abundant sources for the treatment of various diseases. Consequently, these natural plant species should be conserved and encouraged for large-scale cultivation, along with the development of numerous herb gardens for medicinal plants in suitable regions using modern practices. Some list of documented medicinal plants is presented (Tables 1, 2 and 3).

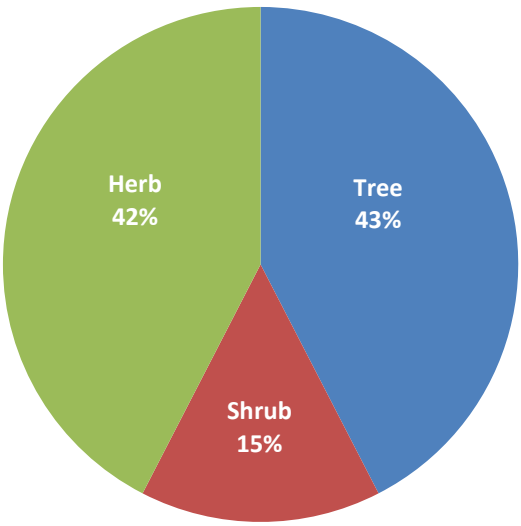

Fig. 2. Utilization of medicinal plants in Amarkantak region by the herbal healers

Table 1. List of medicinal tree species documented in Amarkantak region

S.N.	Local Name	Botanical Name	Family	Status	Plant parts use	Medicinal use	Doses
1	Haldu	*Haldina cordifolia* Roxb.	Rubiaceae	Tree	Bark, Root.	Antiseptic, pain reliever, dysentery, skin and digestion problem.	The therapy consists of applying a paste made from the leaves and the bark of the plant directly onto the wound. 40–50 milliliters of a decoction made from the bark of *Adina cardifolia* are used topically to treat skin diseases, enhance liver function, and stimulate appetite and digestion in dosages of 25–30 milliliters each.
2	Dhava	*Anogeissus latifolia* (DC.) Wallich ex Guill. &Perr.	Combretaceae	Tree	Leaves, bark, gum.	Treating snake bites and scorpion.	50–60 milliliters of a decoction made from the bark of heartwood of are used to treat.Diarrhoea, bleeding piles and 60-70ml for the skin diseases and jaundice.
3	Kachnar	*Bauhinia purpurea* Linn.	Fabaceae	Tree	Root, leaves, flower, bark, seeds.	It cures ulcer, swelling leprosy, cough, menstrual disorder, glandular disease and prolapsed of rectum. The drug is also useful in dysentery, Diarrhoea, piles and worms.	Bark powder 250mg
4	Kasi	*Bridelia retusa* (L.) A.Juss.	Phyllanthaceae	Tree	Bark and leaves.	Hypoglycaemic, hypotensive, cuts and wounds, Anemia, Asthma, Cancer.	
5	Semal	*Bombax ceiba* Linn.	Malvaceae	Tree	Flowers, Gum, bark, stembark, petiole	Cholera, urinary complaints, nocturnal pollution, dysentery-related abdominal	Stem bark powder 5-10 gm, flower root bark 3-5gm, juice 10-20 ml

S.N.	Local Name	Botanical Name	Family	Status	Plant parts use	Medicinal use	Doses
						pain, and impotency are all possible. The gum has astringent, demulcent, and tonic properties	
6	Char	*Buchanania lanzan* Spreng.	Anacardiaceae	Tree	Stem, bark, seeds and nuts	Leprosy causing gum chewing. astringent, cooling, depurative, constipating, and roots in skin diseases and asthma fruits.	Bark 50-100ml, seed kernel 10-20 gm/day.
7	Amaltas	*Cassia fistula* Linn.	Fabaceae	Tree	Flower, fruit, Bark, stem, root, leaves and seed.	Digestion/ Gastric problem, diabetes and dysentery Ring worm, wound, fever, leprosy, cough, jaundice.	Bijachurna 3-6 gm, fruit pulp 10-20gm
8	Kumbhi	*Careya arborea* Roxb.	Lecythidaceae	Tree	Flower, fruit, bark, seed.	Body swellings astringent.	Powder 3-5ml, decoction 30-40ml. Crushing the bark and administering a decoction equal to one teaspoon twice day will continue till the condition is resolved.
9	Ghari	*Cleistanthus collinus* Roxb.	Phyllanthaceae	Tree	Bark	The stem bark is chewed for its tonic properties.	
10	Tendu	*Diospyros melanoxylon* Roxb.	Ebenaceae	Tree	Fruits, leaves.	Mental disorders, diarrhoea, nervous breakdowns palpitations of the heart, astringent effect urinary, and skin and blood diseases.	The pulp of ripped fruit is applied topically to the afflicted area between two and 3 times each day until the condition is cured.
11	Amala	*Emblica officinalis* Gaertn.	Phyllanthusemblica	Tree	Fruit, Bark and leaf.	Diabetics, people with eye problems, joint pain, diarrhoea, and	With 100 grams of dry Amla powder and 100 grams of honey, you can make a mixture. Mix well, then put in

S.N.	Local Name	Botanical Name	Family	Status	Plant parts use	Medicinal use	Doses
						dysentery. 'Triphala' contains sour fruits as one of its ingredients.	a glass jar. A daily amount of 1–2 teaspoons can be taken.
12	Gular	*Ficus racemosa* Linn.	Moraceae	Tree	Fruit, Bark and leaf, latex.	Fever, pain, swelling, mouth ulcers, mouth infections, boils, pimples, freckles, burn marks on skin.	The juice from crushed new leaves is put on the place that is itching. You can mix juice with water and eat ripe fruit fresh.
13	Pipal	*Ficus religiosa* Linn.	Moraceae	Tree	Leaf, bark, edible fruit, root	Skin diseases, joint pain ulcers, and scabies, healing of wounds, improve fertility and treat poisoning.	Powder 3-5 gm, Decoction 50-100ml
14	Bargad	*Ficus benghalensis* Linn.	Moraceae	Tree	Latex	Dysentery, epilepsy, fever, kidney disease, leucorrhoea.	Latex is collected and 1-2 drops are put into ear. Apply twice a day.
15	Kakai	*Flacourtia indica* (Burm. f.) Merr.	Salicaceae	Tree	Bark, leaves and fruit.	Asthma, pain relief, worms and snake bites; gargle for hoarseness.	Decoction 50-100, fresh juice 10-20ml
16	Kekar	*Garuga pinnata* Roxb.	Burseraceae	Tree	Fruit	Stomachic, expectorant, astringent and antiasthmatic.	
17	Dhaman	*Grewia tiliifolia* Vahl	Malvaceae	Tree	Fruits and bark.	This tree is used to treat non-healing wounds, ulcerative colitis, cough, and other ailments.	Decoction 50-100ml split dose per day.
18	Goonjha	*Lannea coromandelica* (Houtt.) Merr.	Anacardiaceae	Tree	Bark and leaves.	Antioxidant, antibacterial, laxatives, bruises, heart disease, muscles prains, neuralgia, analgesic,	The suggested amount of powdered roots is 2–5 grams. From 10 to 20 grams of roots, you can make the stew. The suggested amount of broth is between 50 and

S.N.	Local Name	Botanical Name	Family	Status	Plant parts use	Medicinal use	Doses
						anti-inflammatory.	100 ml.
19	Mahua	*Madhuca indica* J.F.Gmel.	Sapotaceae	Tree	Flower and whole plant.	Anti-bacterial, carpentry work, pain killer, wine/liquor, worship.	The whole plant is broken up and the juice is taken out. Mahua booze is mixed with water and rubbed on the area. Every day for two to three months
20	Mundi	*Mitragyna parvifolia* (Roxb.) Korth.	Rubiaceae	Tree	Bark and root.	Fresh leaf juice is used to treat jaundice and the bark and roots are used to treat fevers, colic, muscular pains, stomach burning, poisoning, gynecological issues.	Powder 3-6 gm, decoction 50-100ml split doses per day.
21	Bijasal	*Pterocarpus marsupium* Roxb.	Fabaceae	Tree	Leave and bark.	The gum uses in diarrhoea, vitiligo, obesity and diabetes. Skin problems. Stem is used as tongue cleaner.	General method of decoction 1 table spoone of power is added with 2 cups of water, boiled and reduced to 1 cup filtered.
22	Kosum	*Schleichera oleosa* (Lour.) Oken	Sapindaceae	Tree	Seed, Bark.	Wounds and ulcers of cattle. Ulcers, skin inflammations and malaria.	Powder 1-3 gm, decoction 50-100ml doses per day.
23	Bhelwa	*Semecarpus anacardium* Linn.	Anacardiaceae	Tree	Seed, fruit, gum and oil.	Aphrodisiac, digestive, stimulant, bronchitis, dysentery, fever, asthma, astringent, sterility in women, headaches and in skin diseases.	Half of a Bhelwa seed and 250 grams of fresh Bhui neem plant are cooked with 3 liters of cow milk until it is reduced to 12. It's given every day for 3 days.
24	Sal	*Shorea robusta* Gaertn.	Dipterocarpaceae	Tree	Seed, Gum and Resin.	Treatment of dysentery, gonorrhea, boils and toothaches.	Bark decoction 50-100 ml, resin 1-3 gm per day

S.N.	Local Name	Botanical Name	Family	Status	Plant parts use	Medicinal use	Doses
25	Jamun	*Syzygium cumini* (L.) Skeels	Myrtaceae	Tree	Leaves, fruits and bark.	Ailments, cough, diabetes, dysentery, inflammation and ringworm.	The fruit pulp is removed, then crushed, and a half spoonful of the mixture is administered three times daily until the condition is cured. The pulp has a shelf life of one to two months.
26	Behara	*Terminalia bellirica* (Gaertn.) Roxb.	Combretaceae	Tree	Bark, fruit, seed, whole plant.	Ascaris, gray hair, hoarseness, poor eyesight, anemia, asthma, piles, leprosy, liver disease, diarrhoea and hair loss	Powder 3-6 gm
27	Harra	*Terminalia chebula* Retz.	Combretaceae	Tree	Seed, fruit and bark.	Bronchitis, cold, constipation, diarrhoea,, eczema, dysentery, measles, sore throat, pneumonia, stomach and spleen problems, abnormal uterine bleeding, coughs, worms, and asthma are some of the symptoms. Triphla's main ingredient.	After making a powder, a little amount of rock salt is added to it. For a period of one month on an empty stomach with warm water.
28	Saja	*Terminalia elliptica* Willd.	Combretaceae	Tree	Bark and gum.	Blood disorder, burns, dandruff, anti oxidant, antiseptic, astringent.	Decoction 3-6 gm water decoction 50-100 ml in per day.

Table 2. Shrub and their parts utilized in various ailments by the local people in the study area

S.No.	Scientific name	Local name	Family	Part used	Medicinal use	Doses
1	*Ardisia solanacea* (Poir.) Roxb.	China	Primulaceae	Root and bark	Dandruff and hair fall	200 g of plant material collected and cleaned. It is then crushed to obtain between 30 and 50 milliliters of juice, which is then applied to the scalp one hour before washing the hair in order to alleviate dandruff and encourage hair fall.
2	*Carissa carandas* Linn.	Karonda	Apocynaceae	Fruit and root	Anti-microbial and antifungal qualities may benefit skin.	In order to cure a variety of skin conditions, a dosage of 40–50 milliliters of stem bark is often used.
3	*Colebrookea oppositifolia* Sm.	Amera	Lamiaceae	Root	The plant is useful for dermatitis, peptic ulcer, haemostatic, wounds, anti-fertility, fungicide, and epilepsy.	-
4	*Embelia ribes* Burm	Baibidang	Primulaceae	Fruit , root	Use for rhinitis, worm infestation, headache, diabetes.	Powder 3-5 gm per day, for warm infestation 5-10gm.
5	Flemingia strobilifera (L.)W.T.Aiton	Chanahur	Fabaceae	Root, leaf and seed	Treat for fever, inflammatory disease	At traditional medicine, the stem bark is used to treat inflammatory illnesses, and the juice extracted from the bark is administered at a dosage of four tablespoons, twice day.
6	*Girardinia diversifolia* (Link)	Faskanandan	Urticaceae	Bark	headache, joint pain, diabetes, asthma, gastritis, gonorrhea, and delivery issues	One spoon juice are used
7	*Leea asiatica* (L.) Ridsdale	Hasiyadhaper	Vitaceae	Fruit, leave and root	Traditional remedies for fever, dysentery, joint pain, rheumatism, diabetes, bone fracture, body soreness, wound, and sexual diseases include plants.	Root powder taken one spoon a day in 7 days Crushed leaves and roots are combined with oil and applied topically to the body in order to alleviate paralysis and physical discomfort.
8	*Nyctanthes arbortristis* Linn.	Harshingar	Oleaceae	Leafs	Sciatica, this plant also has medical applications that combat fever.	5-10ml fresh juice of leaf treat sciatica

S.No.	Scientific name	Local name	Family	Part used	Medicinal use	Doses
9	*Pogostemon benghalensis* (Burm.f.) Kuntze	Patcholi	Lamiaceae	Leafs	Leaves have a long history of use as a remedy for a wide variety of ailments, including bodily pains, headaches, and fever.	In order to staunch the flow of blood, it is placed directly to the cut or injury.
10	*Solanum xanthocarpum* Schrad.	Bhatkataiya	Solanaceae	Whole plant	Aphrodisiac, anti-inflammatory, antibacterial, antimicrobial, analgesic, stimulant, appetizer and some of the other uses for it.	Powder 1-30 grams, and a decoction of 40-80 milliliters taken daily, depending on the state of the patient and the illness.

Table 3. Herbs and their parts utilized in various ailments by the local herbal healers in the study area

S.No.	Scientific name	Local name	Family	Part used	Medicinal use	Doses
1	*Woodfordia fruticosa* (L.) Kurz	Dhawai	Lythraceae	Flower	Blindness, nostril problem and bleeding from nose	The flowers are turned into a puree that is given twice a day with 10 ml of cold water.
2	*Asparagus racemosus* Willd.	Satavari	Asparagaceae	Tuber	Blood purifier, blood dysentery and spermatorrhoea	It is recommended to take 25–50 ml of its tea per day, which is made by boiling 1 tablespoon of powder in 2 cups of water until it is reduced to 1/2 cup.
3	*Pimpinella bracteata* Linn.	Tejraj	Apiaceae	Root	Anemia	The roots are dried and then crushed. One spoon is taken with 1/4 teaspoon of ghee for one month,
4	*Withania somnifera* Linn.	Ashwagandha	Solanaceae	Leaf	Esnophillia	It consumed in the form of powder 3-5 gram along with water or milk.
5	*Celastrus niculatus* Willd	Malkangni	Celastraceae	Seed	Gonorrhea, painful urination	The patient receives 10 drops of seed oil daily after breakfast for a year.
6	*Pedalium murex* Linn.	Gokharu	Pedaliaceae	Leaf		4-8 fresh plant leaves are stirred in one cup water to make the infusion.
7	*Argemone mexicana* Linn.	Satyanashi	Papaveraceae	Whole plant	Swelling in body	Roots are finely powdered and given with 1 cup of water once.

S.No.	Scientific name	Local name	Family	Part used	Medicinal use	Doses
8	*Pueraria tuberosa* Willd.	Patalkumda	Fabaceae	Tuber	Cancer, sperm count and sexual vigor	3-5 g of *Pueraria tuberosa* tuber powder with ghee or milk improves male sperm count, libido, and sexual vitality. These are then compressed into tablets the size of chickpeas and combined with jaggery.
9	*Sida acuta* Burm. f.	Bariyari	Malvaceae	Leaf	Boils/Wound with oozing puss	Juice extract and take 10-20ml per day
10	*Evolvulus alsinoides* Linn.	Shankhpusphi	Convolvulaceae	Wholeplant	Abscess	The herb is ground into a fine paste, and then it is applied to the abscess. Used twice up till the cure is complete.
11	*Kalanchoe pinnata* (Lam.) Pers.	Pattherchalta/ Hemraj	Crassulaceae	Leaf	Piles, low backache and urinary problems	After crushing the leaves, one month of drinking two to three teaspoons of the juice both in the morning and in the evening is required.
12	*Chlorophytum tuberosum* Roxb.	Safed musali	Asparagaceae	Tuber	Bleeding piles	Tube is eaten twice as such
13	*Curcuma aromatica* Salisb.	JangiHaldi	Zingiberaceae	Tuber	Use in diabetes	1 gram of turmeric mixed with half tea spoon of ghee and consume daily
14	*Andrographis paniculata* (Burm. f.) Wall. ex Nees	Bhuineem	Acanthaceae	Whole plant	Normal fever	A decoction is prepared and administered once or twice on an empty stomach over the course of two days. After a wait of an hour, breakfast is served.
15	*Ocimum canum* Sims	Vantulsi	Lamiaceae	Whole plant		The whole plant is broken up and a quarter of a teaspoon of the juice is given to the patient, along with two glasses of water, twice daily.
16	*Cissus quadrangularis* Linn.	Hathjor	Vitaceae	Entire plant	Used in fracture	The herb is ground up until it resembles a fine paste. After the bone has been set, the paste is next wound around the limb.

S.No.	Scientific name	Local name	Family	Part used	Medicinal use	Doses
17	*Cynodon dactylon* (L.) Pers.	Doobi	Poaceae	Whole plant	Bleeding piles, diarrhoea, bleeding from nose	50ml dose should be taken
18	*Grewia hirsute* Vahl	Gursakhri	Malvaceae	Root	Cuts, injuries and wound	Roots are ground up with water and administered twice a day for three to four days.
19	*Sansevieria trifasciata* Prain	Bhojraj	Asparagaceae	Leaf	Burns and cuts	Make the paste of leaf and use on burn skin
20	*Costus speciosus* (J.Koenig) Sm.	Kev Kand	Costaceae	Root	Hysteria	The grinding of the roots is done with black pepper. It is administered with water at a dosage of one teaspoon twice each day for a period of three days.
21	*Mimosa pudica* Linn.	Lajwanti	Fabaceae	Root	Urinary complaint.	Grind and boil roots in 4 cups of water. 15 days of a cup on an empty stomach.
22	*Hemidesmus indicus* (L.) R. Br.	Anantmool	Apocynaceae	Root	Body ache (related to nerve trouble)	Roots are grinded and applied externally on the body and massage till relief. Root paste 5g, root powder 1g
23	*Curculigo orchioides* Gaertn.	Kalimusali	Hypoxidaceae	Tuber	Stomach ulcer	In cases of low sperm count, libido, and weakness, root powder is mixed with milk in dosages of 3-5.
24	*Phyllanthus niruri* Linn.	Bhuiamla	Phyllanthaceae	Leaf	Leprosy	The juice of whole plant is given in doses of 15 ml to treat fever, hepatomegaly and splenomegaly.
25	*Acorus calamus* Linn.	Bach	Acoraceae	Rhizome	Help to improve brain function	125-500 mg in divided dose
26	*Centella asiatica* (L.) Urb.	Brahmi	Apiaceae	Whole plant	Improve blood circulation, excellent brain tonic	Juice 10-30ml, powder 6-10 gm
27	*Tinospora cordifolia* (Willd.) Miers	Giloy Sat	Menispermaceae	Stem	Stomach pain, immunity & migraine	The empty stomach contains a little bit of stem that has been swelled with water.

S.No.	Scientific name	Local name	Family	Part used	Medicinal use	Doses
						Giloy decoction is made by boiling one cup of water, adding one teaspoon of powder, and then reducing the mixture to half a cup after boiling.
28	*Hymenodictyon excelsum* (Roxb.) Wall.	Bhawarmal	Rubiaceae	Root	Poison in body	Crushed up roots are given to the patient, along with a teaspoon of the extracted juice, to drink.

Cassia fistula

Kydia calycina

Pterocarpus marsupium

Grewia eriocarpa

Anogeissus latifolia

Ficus microcarpa

Radermachera xylocarpa

Syzygium cumini

Garuga pinnata

Ehretia laevis

Schleichera oleosa

Diospyrus Montana

Protium serratum

Boswellia serrata

Diospyrus Montana

Bauhinia roxburghiana

Desmodium oojeinense

Mallotus philippensis

Carissa carandas

Colebrookia oppositifolia

Pongostemon benghalensis

Flemingia strobilifera

Leea asiatica

Dioscoria bulbifera

Sigesbeckia orientalis

Plumbago zeylanica

Girardinia diversifolia

Curculigo oorchioides

Colocasia esculenta

Plectranthus barbatus

Rauvolfia serpentina

Arisaema tortuossum

Chlorophytum borivilianum

Ageratum conyzoides

Costus speciosus

Fig. 3. Photographs of documented medicinal plants (Tree, Shrub and Herb) in the study area of Amarkantak region

Economic value of the trees for livelihood: At the present time, when scientists are seeking for alternative/additional sources of economic plants to satisfy the needs of an ever-increasing population, the study of the plants used by primordial people is of utmost significance. The Baiga and Gond are the principal inhabitants of Amarkantak, and they continue to rely heavily on the surrounding forests for sustenance. These individuals conceal a substantial quantity of information about plant applications. Based on their functions, these economically valuable species of the region have been classified into the categories write down below.

Wild fruit: *Buchanania lanzan* (Achar), Diospyros melanoxylon (Tendu), Ficus racemosa (Gular), Ficus virens (Pakar), *Mangifera indica* (Aam), *Phyllanthus emblica,* (Aonla), *Syzygium cumini* (Jamun).

Timber tree: *Anogeissus latifolia* (Dhavada), *Buchanania lanzan* (Achar), *Dalbergia paniculata* (Dhobin), *Kydia calycina (Baranga), Lannea coromadelica* (Goonjha), *Mallotus phillippensis* (Sindhuri),*Mitragyana parviflora* (Mundi), *Wrightia tinctoria* (Dudhi).

Tannin trees: *Anogeissus latifolia* (Dhavada), *Buchanania lanzan*, (Achar), *Cassia fistula* (Amaltas), *Lagerstromia parviflora* (Lendia), *Terminalia eliptica* (Saja), *Terminalia bellerica* (Bahera), *Terminalia chebula* (Harra).

Gum trees: *Anogeissus latifolia* (Dhavada), *Boswellia serrata* (Salai), *Lannea coromandelica* (Goonjha), *Sterculia urens* (Kulu), *Terminalia eliptica* (Saja).

4. CONCLUSION

Based on the findings of this research, the major form of medical treatment received by members of this indigenous group continues to include the use of medicinal herbs. The study explores the traditional knowledge of medicinal plants in Amarkantak, Madhya Pradesh. It emphasizes the importance of conserving resources to optimize their use in primary healthcare systems. The study provides basic information on medicinal uses and descriptions of these plants. Conservation is crucial as many valuable species are under threat of becoming rare, endangered, or even extinction due to over exploitation unsustainable harvesting of these high value medicinal and aromatic plants. Collecting this information and developing a database of medicinal plants is crucial for future research and imparting knowledge to local people, ensuring their preservation for future generations. There is urgent need that these above listed plants must be conserved for future.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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