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Ethnobotanical Survey of medicinal plants used to treat human diseases from Tandulwadi (Marich van),Saphale village, Palghar District, Maharashtra, India.

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Abstract: -Traditional knowledge of medicinal plants plays an important role in public health and drug development. Most people in the world still use medicinal plants to treat and prevent diseases. In Palghar district, studies have shown that people have used plants to treat many diseases. In this study the ethnobotanical survey of medicinal plants was carried out used to treat human diseases in Tandulwadi (Marich Van), Saphale village. The main objective is to document the traditional knowledge of medicinal plants held by the local communities and to identify plant species with potential therapeutic value. Data was collected through semi-structured interviews with knowledgeable individuals, Local Vaidu and local community members. A total of 100 plant species were documented in data, along with their vernacular names, medicinal uses (Therapeuticuses), preparation methods of various forms of medicines and mode of administration. Saphale is town in Palghar taluka in Palghar district in Maharashtra, India, north of mouth of River Vaitarna. The results revealed a rich diversity of medicinal flora in Saphale, including plants used to treat various ailments such as gastrointestinal disorders, skin diseases, respiratory ailments, and fevers. Documenting valuable ethnomedicinal information helps preserve the disappearing tradition of medicinal plant use in cultural communities. The findings contribute to the growing body of ethnobotanical research in India and provide valuable insights for biodiversity conservation, sustainable health care practices, and drug discovery efforts.

Keywords: -Ethnobotanical survey, Medicinal plants, Tandulwadi, Knowledgeable individual, Local vaidu, Therapeutical uses.

Introduction: - Ethnobotanical studies deal with direct traditional and natural relationships between people and plants. It plays an important role in increasing knowledge about plants and plants used by indigenous or tribal peoples.(7) Due to illiteracy and economic status, most of the population depends on traditional herbal medicine to treat various ailments. Since the country has diverse socio-economic, ethnic and cultural regions and unique biodiversity and knowledge of indigenous medicinal plants and their use in the treatment of human diseases, it can reasonably be expected.(2)Therefore, the main source of protecting a rich heritage of understanding about medicinal plants and their therapeutic use was traditional healing practitioners. They know how to prepare and administer the medicine. (12-14)

Methods and Materials: -

Study area selection- Study area Tandulwadi (Marichvan) located in Saphale village,Palghar district, Maharashtra, India, north of the mouth of the Vaitarna River. Tandulwadi is known for its historical Tandulwadi Fort, while it is surrounded by natural beauty and are known for their scenic landscapes. This study area was chosen because of the Saphale village, Palghar district is rich in ecological diversity and presence of indigenous communities known for their traditional knowledge of medicinal plants. The latitude of this area is 19.589224andthe Longitude of the area is 72.850115.



Figure No.1 Satellite image of Tandulwadi, Saphale village

Plant Identification- Plant specimens mentioned during interview and field visit with local community members and knowledgeable individuals were collected, dried, pressed. Then these specimens were used for making herbariums. Identification of plants was done with the help of taxonomic experts and reference materials. Vernacular names and traditional uses were recorded for each identified species.

Data analysis- Data was recorded which included the plant names, habitat, plant part used and its medicinal uses including methods used for preparation of medicine.

Validation- The accuracy of the collected information was cross verified from our field guide, Vrukshamitra Mr. Prakash Kale; the existing ethnobotanical literature like Flora of Maharashtra (M.R. Almeida); CharakaSamhita and consultation with local expert Vaidu Mr. Suresh Bohir from Umbarpada Nandade.

Semi-Structured Interviews- The collection of data involved the questionnaire and semi structured interview with local knowledgeable individuals about medicinal plants. Interview was carried out in local dialect and permitting for open ended discussions about the uses of plants, traditional preparation methods and cultural significance.

The main aim of the study was organized documentation and scrutinize the traditional knowledge of medicinal plants in Saphale with due respect to cultural context.

Result and Discussion: -

Table no.1 Medicinal and traditional pla	nts and there medicinal uses (Reference 10&17)
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Sr. no	Botanical Name	Comman Name	Family	Habit of plant	Uses	Part of the plant is used
1	Helicteres isora	Murud sheng or kewad	Malvaceae	Tree	The dried pods(sheng) is used for stomach problems in infants.	Pods
2	Jasminummalab arium	Ranjaai, Ran mogra	Oleaceae	Shrub	It is used as ear drop to cure ear aches.	Leaves

3	Sida cordifolia	Chikni or Bala	Malvaceae	Herb	Root of this plant is used with the combination of honey for increasing strength in the body.	Roots
4	Terminalia bellirica	beda	Combretaceae	Herb	Fruits of this plant is washed and it can be chewed in the mouth which relieves cough.	Fruits
5	Haldina cordifolia	Hedu	Rubiaceae	Tree	The small fruit between the two leaves know as (Boka) the juice of Boka is used for sinus.	Fruits
6	Bauhinia varigata	kanchan	Fabaceae	Tree	The scale or bark of this tree is boiled in water and it cures the clots on the body. It also has effect on the cancer clots.	Bark
7	Celastrus paniculatus	Jyotishmati vel	Celastraceae	Shrub	The seed oil of this plant is put in the nose for increasing the memory power.	Seeds
8	Baliospermumbl ume	Danti vel	Euphorbiaceae	Shrub	Dantivel is used to cure loose motions.	Stems
9	Desmodium gangeticum	Salvan	Fabaceae	Shrub	This plant is used in Dashmoolkada.	Whole plant
10	Hemidesmus indicus	Anant vel	Asclepiadaceae	Climber	Roots of this plant purifies the blood and are also effective on skin related problems.	Roots
11	Randia spinosa	Madanfal	Rubiaceae	Shrub	The fruit of this plant is vomitive.	Fruits

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12	Cissampelos pareira L.	Pahadvel	Menispermaceae	Herb	This plant is effective for problems related to stomach or cures stomach ache.	Stems
13	Asparagus racemosus	Shatavari	Liliaceae	Shrub	Shatavari powder is used for weakness 1 spoon of shatavari powder in milk can be taken.	Roots
14	Gossypium Herbaceum	Kapus	Malvaceae	Shrub	Powder or juice of the leaves are used for jaundice and fever.	Whole plant
15	Bauhinia racemosa	Apta	Fabaceae	Shrub	Leaves of this tree are crushed with 2-3 spoons of water and the juice is taken for heart attacks.	Leaves
16	Gloriosa superba L.	Kal lavi	Colchicaceae.	climber	The white bulb of this plant is used on snake bite as it is anti-venomous.	Rhizom es
17	Heliotropium indicum L	Naagdawan	Boraginaceae	Herb	2-3 leaves are crushes and juice is used for the treatment of the flow of white and red fluids in females.	Leaves
18	Bauhinia acuminata	Safed aaein	Caesalpiniaceae	Shrub	The bark of this tree (2 inch pieces) is soaked in water in a copper glass and it is consumed for joint pain or arthritis.	Rhizom es
19	Elaeocarpus angustifolia	Rudraksha	Elaeocarpaceae	Tree	Fruit of Rudraksha is soaked in water overnight and it is consumed in empty stomach which keeps a	Fruits

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					control on diabetes.	
20	Aegle marmelos	Bael	Fabaceae	Tree	Leaves of Bael tree is used for jaundice and arthritis.	Leaves
21	Oroxylum indicum	Tetu	Bignoniaceae	Tree	The scale of this tree is used to cure diarrhea and dysentery.	Roots
22	Hiptage benghalensis	Madhumalti	Malpighiaceae	Shrub	The leaves of this plant is crushed and applied on the skin (fungal infection)	Leaves
23	Eclipta alba	Bhrigraj, Maka	Asteraceae	Herb	The combination of the leaf juice ofBhringraj and Jai is used to wash the open wounds it helps the wound to cure faster.	Leaves
24	Cynodon dactylon	Durva	Poaceae	Herb	The roots of this plant is grated and juice is extracted out of it and consumed with the honey for relief from hick- ups.	Roots
25	Ziziphus mauritiana	Badri	Rhamnaceae	Tree	Gargling with the decoction of Ziziphus leaf relieves gum pain and cure ulcers in mouth.	Fruits
26	Datura stramonium	Dhotra	Solanaceae	Shrub	The swelling of the body can be reduced by the application of crushed leaves of Datura.	Leaves
27	Ocimum sanctum	Tulsi	Lamiaceae	Herb	The juice of the leaves of Tulsi is taken with the pinch of	Leaves

					cardamom powder to cure vomiting.	
28	Prosopis cineraria	Shami	Mimosaceae	Tree	The young leaves of shami are crushed and applied on the boils caused due to heat.	Leaves
29	Punica granatum	Dalimb	Lythraceae	Tree	The juice of Pomogrante one cup a day can control high blood pressure.	Fruits
30	Achyranthes aspera	Aagada	Amaranthaceae	Herb	Roots of Aagada can be taken in the dosage of 10gm to cure Night blindness.	Roots
31	Solanum indicum	Dorli	Solanaceae	Herb	The juice of the leaves and root of dorli stem is consumed with honey which gives relief from coughing and asthma.	Leaves
32	Nerium indicum	Kanher	Apocynaceae	Shrub	The roots of white flowering plant is chafed and applied on snake bit as it is anti-venomous.	Flowers
33	Calotropis procera	Rui	Apocynaceae	Shrub	The latex of the plant is used with the combination of jaggery and oil and applied on the wound caused from Dog bite.	Stems
34	Terminalia arjuna	Arjun	Combretaceae	Tree	Heartwood of the tree is boiled with 2 cups of milk and reduced to half and the decoction is taken to cure heart disease.	Heartwo od

35	Evolvulus alsinoides	Vishnukrant	Convolvulaceae	Herb	The leaves of this plant is crushed and applied on the wounds of Piles.	Leaves
36	Cedrus deodara	Devdar	Pinaceae	Tree	The bark of this tree should be chafed and applied on forehead for headaches.	Bark
37	Origanum majorana	Marwa	Lamiaceae	Herb	The juice of the Marwa plant is rubbed on the foot to remove the extra heat of the body.	Leaves
38	Ficus religiosa	Peepal	Moraceae	Tree	The powder of the bark of peepal tree stops the blood flow and heals the wounds.	Bark
39	Jasminum officinale	Jai, suman	Oleaceae	Shrub	The roots of this plant is chafed with cows urine (gomutra) and applied on fungal infection.	Roots
40	Pendanus odoratissimus	Kevda	Pandanaceae	Tree	The young inflorescence of kevda is consumed by the women suffering form irregular menstrual cycle to cure it.	Inflores cence
41	Sesbania grandiflora	Hadga	Fabaceae	Tree	The juice of Agasta leaf is consumed with jaggery and ginger powder and pimpali to cure greediness and dramatic illusions.	Leaves
42	Tridex procumbens	Dagdipala	Asteraceae	Herb	The leaves of this plant is crushed and consumed which cures kidney stone.	Leaves

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43	Ziziphus rugosa	Toran	Rhamnaceae	Tree	This plant is traditionally used for the treatment of ulcers and skin diseases.	whole plant
44	Syzygium aromaticum	Lavang	Myrtaceae	Tree	Lavang is traditionally used to cure liver ailments and stomach disorders.	Floral Buds
45	Strychnos nux- vomica	Kajra	Loganiaceae	Tree	The dried seeds of kajra are used for the treatment of arthritis and vomiting and also used to increase appetite.	Seeds
46	Emblica officinalis	Avla	Phyllanthaceae	Tree	The avla fruit boosts immunity power and is consumed to reduce stress and cure headaches.	Fruits
47	Syzygium cumini	Jambul	Myrtaceae	Tree	Dried and powdered leaves of jambul is used as tooth powder for strengthening teeth gums.	Leaves
48	Acacia catechu	Khair	Fabaceae	Tree	Heartwood is cooling and helps in digestion it is also directly applied on the skin for curing skin diseases.	Heartwo od
49	Mesua ferrae	Naagkeshar	Calophyllaceae	Tree	Fresh flowers of this tree are useful in skin diseases like leprosy, itching and on wounds.	Flowers
50	Aquilaria sinensis	Krushna guru	Thymelaeaceae	Tree	The powder of the plant should be taken with honey which relieves cough.	Whole plant

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51	Butea monosperma	Palas	Fabaceae	Tree	Gum of this tree is used to treat diarrhea and dysentry seeds and fruits are used in treatment of piles and also eye disorders.	Fruits
52	Salmalia malabarica	Sawar	Bombacaceae	Tree	Bark of this tree is used to stop bleeding and also beneficial for healing of wounds, paste of thorns of the bark is used to cure skin.	Bark
53	Artocarpus heterophyllus	Fanas	Moraceae	Tree	Latex from the leaves are applied over mouth ulcers as part of treatment, ripe jackfruit can be consumed to increase sperm count.	Leaves
54	Mitragyna parvifolia	Kalamb,bum i-kadamba	Rubiaceae	Tree	The bark of this tree is used to cure jaundice	Bark
55	Azadirachta indica	Neem	Meliaceae	Tree	Decoction of neem roots are used to cure fever; neem leaf extract is used for treatment of Malaria.	Roots
56	Madhuca indica	Maha, mahua	Sapotaceae	Tree	The dried flowers of mahua are boiled in milk and given in dose of 40-50ml to treat weakness of nerves.	Flowers
57	Mimusops elengi	Bakula	Sapotaceae	Tree	Unripe fruit can be chewed which helps to cure the bleeding gums.	Fruits

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58	Cinnamomum tamala	Tejpatra, tamalpatra	Lauraceae	Herb	The paste of the bark of plant is applied over the area affected with swelling and pain.	Bark
59	Gardenia jasminoides	Anant	Rubicaceae	Shrub	It is used to boost the immune system and also helps to regulate the hormone levels in both male and female.	whole plant
60	Semecarpus anacardium	Beeba	Anacardiaceae	Tree	Flowers of this plant are very beneficial for asthma, it is best to cure various skin related disorders such as skin rash, itching and swelling.	Flowers
61	Carissa carandas	Karwand	Apocynaceae	Shrub	The paste of the root is applied over the diabetic, ulcer.	Roots
62	Averrhoa bilimbi	Bilimbi	Averrhoaceae	Tree	Grated bilimbi fruit with a pinch of salt can be applied on the skin in case of pimples.	Fruits
63	Piper nigrum	Mikhel	Piperaceae	Climber	Dried powder of seeds can be taken for lowering the blood pressure. It is also helpful in reducing stress.	Seeds
64	Plumbago zeylanica	Chitrak	Plumbaginaceae	Herb	The powder of the root is taken with butter milk to cure piles.	Roots
65	Aerva Lanata	Kapoor tulsi	Amaranthaceae	Shrub	The paste of the plant is applied over the forehead to treat headache.	Leaves

66	Pterocarpus marsupium	Bibla	Fabaceae	Tree	Fresh leaves are crushed into fine paste and it is warmed a little and applied over the swelling.	Leaves
67	Cymbopogan flexuous	Gavti chaha	Poaceae	Herb	Hot water extract of roots is used orally to treat diabetics, few drops of oil is taken with lemon juice in cholera.	Roots
68	Piper betel	Paanvel	Piperaceae	Climber	Betel leaves applied with castor oil is warmed and tied over chest relieves asthma and cough in children.	Leaves
69	Morus alba	Shahatuta	Moraceae	Shrub	Decoction from the leaves of tuta is used for gargling in treating sore throat.	Leaves
70	Clerodendron serratum	Bharangi	Lamiaceae	Herb	Roots of this plant is used to treat jaundice and various disorders related to liver.	Roots
71	Elettaria cardamom	Elaichi	Zingiberaceae.	Herb	Elaichi is used to cure indigestion, nausea and vomiting it is also beneficial for the suffers of kidney stone.	Floral buds
72	Gmelina arborea	Shivan	Lamiaceae	Tree	Fruit is useful in bleeding disorders and to improve blood production it also cures Vata and Pitha dosha.	Fruits
73	Garcinia indica	Kokam	Clusiaceae	Tree	Tender leaves are crushed and taken with buttermilk for headache and	Leaves

					gastritis the ripe fruit balances Vata and Kapha dosha.	
74	Spondias pinnata	Ambada	Anacardiaceae	Tree	Juice of the leaves of ambada is applied for ear ache. The decoction of the bark is given to regulate menstrual cycle.	Leaves
75	Vernonia amygdalina	Umubirizi, Bitter leaf	Asteraceae	Shrub	Leaves extract is used for the treatment of diabetes, fever reduction.	Roots
76	Vallaris solanacea	Vishmogri	Apocynaceae	Climber	Roots of the plant is used to relief the pain and also used to cure Malaria.	Roots
77	Merremia tuberosa	Wood rose	Convolvulaceae	Climber	The grated roots are useful for those who have swollen bellies and whose intestines rumble.	Roots
78	Acacia concinna	Shikekai	Fabaceae	Climber	In head lice pods decoction is used to wash hair. It also promotes hair growth and controls dandruff.	Pods
79	Argyreia nervosa	Samudrashk	Convolvulaceae	Climber	The cold decoction of the plant is given in a dosage of 40-50 ml to control Diabetes.	whole plant
80	Pyrostegia venusta	Sakrantvel	Bignoniaceae	Climber	The extract of leaves are used in the treatment of hypopigmentation diseases.	Leaves

81	Caesalpinia bonduc	Sagargop	Caesalpiniaceae	Climber	Its leaf or seed paste is applied over the hydrocele to reduce the swelling.	Seeds
82	Climatus hirsuta	Sonjai	Ranunculaceae	Climber	Clematis is used for joint pain, headaches and also for skin related problems.	whole plant
83	Porana paniculata	Himvel	Convolvulaceae	Climber	It's used as a folk medicine to treat pain and inflammation.	whole plant
84	Artabotrys hexapetalus	Hirva chafa	Annonaceae	Climber	Flowers are used to treat bad breath, vomiting, itching and leucoderma leaves decoction is also used for malaria and chlorella.	Flowers
85	Schefflera elliptica	Pachotra	Araliaceae	Climber	Barks are used for reliving cough and the resins are used for wound healing.	Barks
86	Butea superba	Palasvel	Fabaceae	Climber	The roots are used for sexual performance problems (erectile disfunction) and lack of interest in sexual activity.	Roots
87	Combretum latifolium	Piluk	Combretaceae	Climber	The tender leaves of this plant are used to render the immune system strong.	Leaves
88	Dalbergia horrida	Pentgul	Fabaceae	Climber	The leaf paste is mixed with sheep urinals and applied on Herpes.	Leaves
89	Dalbergia torta	Garudvel	Fabaceae	Climber	The leaves are used for the treatment of Colorectal and also used for the	Leaves

					treatment of Cancer.	
90	Dalbergia volubilis	Alai	Fabaceae	Climber	The roots and stem of this plant are used for the treatment of various ailments.	Roots
91	Bougainvillea spectabilis	Bougenvel	Nyctaginaceae	Climber	A tea made from flowers and leaves is used for coughs and sore throats.	Flowers
92	Petrea volubilis	Sand paper vine	Verbenaceae	Climber	Leaves of this plant has antidiabetic, antioxidant, anti- inflammatory, anticancer properties.	Leaves
93	Combretum ovalifolium	Madvel	Combretaceae	Climber	The leaves are used in the treatment of peptic ulcer and its fruits are used in Diarrhea.	Leaves
94	Ipomoea pes- caprae	Maryadvel	Convolvulaceae	Climber	The seeds of this plant is chewed with areca nut, sooth abdominal pains and cramps.	Seeds
95	Aganosma cymosa	Malti	Apocynaceae	Climber	The paste of the root is applied externally on the site of snake bite as it has anti- venomous properties.	Roots
96	Monstera deliciosa	Monstera	Araceae	Climber	Fruit of this plant has Vitamin C, anti-inflammatory stress reducing effects make it valuable antioxidant.	Fruits

97	Combretum indicum	Rangoonvel	Combretaceae	Climber	The dried seeds of Rangoon Creeper are beneficial to treat intestinal worms and parasites.	Seeds
98	Clematis gouriana	Ranjai	Ranunculaceae	Climber	In Ayurveda, the leaves of the plant have been used for treating puerperal fever and bruises.	Leaves
99	Anodendron paniculatum	Lambtani	Apocynaceae	Climber	The roots of this plant have been used in traditional folk medicine as remedy for vomiting and cough.	Roots
100	Capparis zeylanica	Waghanti	Capparaceae	Climber	The leaves are widely used for swellings, boils and piles.	Leaves

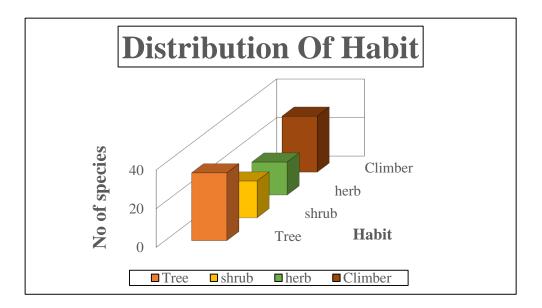


Figure No. 2 Graphical representation of distribution of plant habit from study area.

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An aggregate number of about 100 species belonging to 91 genera and 50 families were listed from the study area. All the plant species listed including woody plants, ornamental plants, timber woods and edible fruits and vegetables during survey is used for various medicinal purposes. Hence, based on the information collected from the local community's people out of 100 Species there are 17 herbs,19 shrubs,35 trees, 29climbers and all the documented ethnobotanical plants possess medicinal properties which cures and proves to be beneficial for number of human diseases.

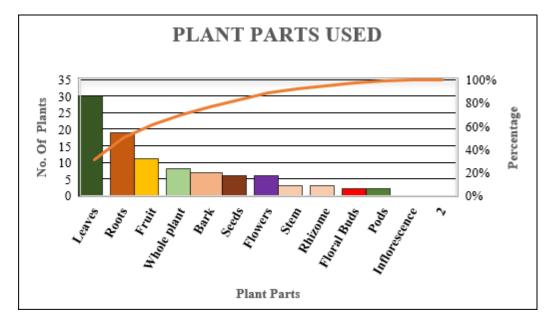


Figure No.2 Graphical representation of plant parts used from study area.

According to an ethnobotanical survey conducted in Tandulwadi (Marich van), local community peoples and local vaidu mostly used 90% of leaves of plants, 58% of roots 32% of fruit for medicinal purposes to treat human diseases. They used approximately 25% of whole plant which proved to be beneficial on various diseases. It was documented that 10% to 15% of Seeds and Flowers of the plants were of medicinal significance. The medicines prepared from the stem, rhizome, floral buds, pods and Inflorescence were less than 10% but they were used for the treatment of different diseases.

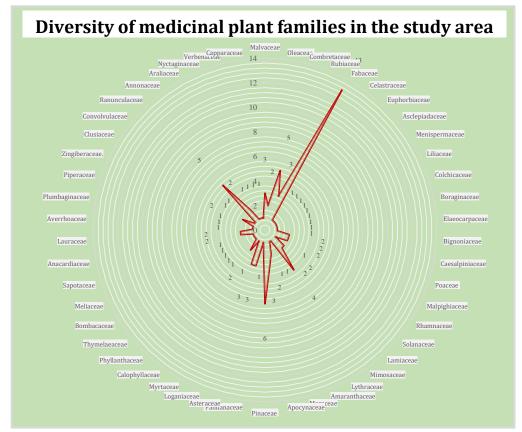


Figure No.3 Graphical representation of diversity of medicinal plant families from study area.

The first dominant family among the medicinal plants was the Fabaceae with all around 13 genera which was followed by the Pinaceae family who had a dominance of around 6 genus. The third dominant families were the Combretaceae and Ranunculaceae with a total number of 5 genus. The Mimosaceae family had a dominance of around 4 genus. The Malvaceae, Rubiaceae, Apocynaceae, Asteraceae, Loganiaceae had a total number of 3 genus. The Oleaceae, Caesalpiniaceae, Poaceae, Malpighiaceae, Solanaceae, Lamiaceae, Moraceae, Calophyllaceae, Anacardiaceae, Lauraceae, Zingiberaceae, Annonaceae are the families which had a dominance of only 2 genus.

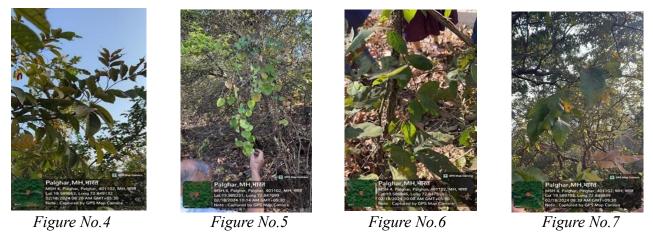


Fig.No.4: - Stereospermum tetragonum; Fig.No.5: - Cissampelas pareira L.; Fig No.6: - Celastrus paniculatus; & Fig.No.7: - Hemiesums indicus

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Conclusion: -The study clearly showed that Tandulwadi (Marich van), Saphale village is rich in ethnobotanical diversity including many herbs, shrubs and tree components. There are 100 species of plants with medicinal importance, according to the current survey. The ethnobotanical survey in Saphale, Maharashtra, India has provided valuable information on the traditional knowledge of medicinal plants by the local group of individuals which includes therapeutic, culinary, ritual and other purposes. These bioresources not only provide them with economic security, but also a strong link to their ancestors. In order to preserve the diversity of plant species and in particular forests, it is necessary to take very good care of this area. The current documentation work will be very useful to preserve traditional knowledge.

Future Scope: -Ethnobotanical survey can identify plants and compounds used in traditional medicine, providing leads for drug discovery and development. Clinical trials should be conducted on the medicinal plants of the region because plants with high medicinal value can be used to produce drugs for the pharmaceutical industry. The documented data from this ethnobotanical survey can help to enlighten people to put conservation efforts by identifying plants of cultural and economic significance. Conservation and cultivation of these medicinal plants which are about too extinct and has large medicinal values on various severe diseases. As indigenous languages and traditions face threats of extinction, documenting ethnobotanical knowledge helps preserve cultural heritage for future generations.

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