

## **Ethnobotanical plants used by tribes and rural people in the Chhatrapati Sambhajnagar Region (M.S.) India with reference to their infection of foliar fungi**

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### **Abstract**

A survey was carried out to investigate the incidence of fungal disease on Ethnobotanical plants used by tribes and rural people during the year 2022 - 2024 in the region of Chhatrapati Sambhajnagar. The study was focused on identifying medicinal plants, ailments treated, part of the plant used, methods of preparation, route of administration etc. The data was collected using interview and questionnaires by selecting 06 healers using purposive sampling method. A total of 31 medicinal plant species were collected and identified from the study area for treating various human ailments belonging to 29 families. Majority of plants found were herbs, shrubs, trees, climbers and epiphyte. Diseased plant leaves were identified using disease symptoms. During the survey 31 plants were found infected by 32 fungal pathogens causing the disease.

**Key words :** Fungi, Ethnobotanical, human ailments, Chhatrapati Sambhajnagar.

**E**thnobotanical plants are used in the treatment of human various ailments. Medicinal plants are found susceptible to fungal diseases which impact their Quantity and quality of phytochemicals. Fungal disease that affects plants include leaf spots, Powdery mildew, Downy mildew and wilt. Plants have

been used in traditional medicine for several thousand years. India is a repository of medicinal plants. The herbal treasure of nation is rich in its floristic wealth. Study of Ethnobotany accounts relationship between people and plants for their use as medicines, food, shelter, clothing, fuel, fodder and other

household purposes<sup>7</sup>. India has rich plant diversity and is one among the mega biodiversity countries of the world. Indians have been using medicinal plants since antiquity and the Ayurvedic methods date back to 5000 B.C.<sup>22</sup>. Indigenous knowledge is not only responsible to identify but it also has a role in the system of management of natural resources<sup>34</sup>. Traditionally, the medicinal plant is used in pneumonia, diarrhea, dysentery, asthma, cough, dropsy, ulcers, piles, rheumatism, scabies, snake bite and other skin diseases<sup>10</sup>. Different plant species are used as a main ingredient for the preparation of modern phyto medicine, which has exploded in the last few years, and are still being collected from the nature and play an important role in drug development programmes in the pharmaceutical industry. Now a days, increasing population people use herbal remedies which have become more popular in the treatment of minor ailments and are also much fruitful than others<sup>23</sup>. Medicinal plants should be free from microbial infection in general and fungal infection in particular because in the most of the cases fungi infecting the leaves of medicinal plants directly affect photosynthesis by reducing the productivity and formation of secondary metabolites. In addition, the fungal infection also sometimes degrades the quality of medicinally important active principle<sup>14, 15</sup>. plant diseases have greatly influenced human civilization since ages. Sometimes the plant disease epidemics have resulted in famine. In the present era also, the losses due to outbreak of plant disease or injuries are tremendous, and they affect human life and economics in various ways. The injuries to the plants due to stress factors or due to pathogenic infections are affecting growth of

trees, its flowering, fruiting and wood quality etc. The diseases, which affect the aerial parts of the plants, cause localized or general damages, resulting in the killing of portions of leaves, or entire leaves or only in a general reduced functional activity. A large number of fungal species are known to cause the foliage diseases. A leaf spot is a limited, discoloured, diseased area of a leaf that is caused by fungal, bacterial or viral plant diseases or by injuries from nematodes. Fungi are the most common parasites causing plant disease. Fungi usually produce spores which is carried to a plant, can begin an infection. Leaf spots caused by fungi have been reported by various workers<sup>6, 46</sup>.

Ethno- Medicinal plants survey was conducted in the forest and villages. Season wise frequent field visits were organized in different villages of the study area. The local, efficient and knowledgeable tribal mediators were identified and information was collected. The collected data was verified by different local Herbalists in different seasons and compared with other practitioners (bhagats/vaidus). Medicinal plants were collected from, forest, fields and brought to the laboratory for further investigation. Plant identification was done by determining the taxonomic position of host, samples of flowers, leaves and stem were collected and studied in the laboratory<sup>26</sup>. The plants infected leaves were examined carefully in the field and description was recorded, as suggested by<sup>33</sup>. PDA was prepared in the usual way<sup>2</sup>. Symptoms were recorded immediately and associated pathogens were identified in the laboratory by using standard monographs and taxonomic keys<sup>8, 19, 9, 1</sup>.

List of Ethnobotanical medicinal plants used for treatment of human ailment and its associated fungi in study area.

Sr. No.	Scientific Name	Family	Common/ Marathi Name	Type	Part and its Uses	Fungi causing infection
1	<i>Abutilon indicum</i> (L.) Sweet	Malvaceae	Mudra	Shrub	Leaves are cooked and eaten in bleeding piles.	<i>Oidium</i> sp. <sup>28</sup>
2	<i>Achyranthes aspera</i> L.	Amaranthaceae	Aghada	Herb	Decoction of the plant is useful in curing pneumonia, cough, and kidney stones	<i>Curvularia parasadii</i> <sup>38</sup>
3	<i>Ageratum conyzoides</i> L.	Asteraceae	Osadi	Herb	Leaf juice is used on cuts and wounds and also to check bleeding.	<i>Podosphaera xanthii</i> <sup>41</sup>
4	<i>Azadirachta indica</i> A. Juss.	Meliaceae	Neem	Tree	The twigs are chewed on one end until they fray, creating a brush-like effect, anti-septic, and treatment of small Fox.	<i>Oidium azadiractae</i> , <sup>42</sup> <i>Pseudocercospora subessilis</i> <sup>12</sup>
5	<i>Argemone mexicana</i> Linn.	Papaveraceae	Pivladhotra	Herb	The whole plant contains a yellow juice, which is diuretic in effect and Therefore, used in dropsy, jaundice and cutaneous affections.	<i>Phyllactinia</i> sp. <sup>21</sup>
6	<i>Aloe vera</i> L.	Liliaceae	Korpad	Herb	Pulp is taken oral and applied externally used for skin and for bowel movement. Scalp and reduce inflammation.	<i>Alternaria alternate</i> <sup>27</sup>
7	<i>Alstonia scholaris</i> (L.) R.Br.	Apocynaceae	Saptarni	Tree	Bark as tonic, in fever, skin disease in treatment of	<i>Colletotrichum siamense</i> <sup>48</sup>

8	<i>Adhthoda vasica</i> Nees.	Acanthaceae	Adulsa		Shrub	leukoderma.	Dried powder of entire plant is used in cough, asthma, lungs, spasmodic diseases and ague fever.	<i>Alternaria alternata</i> (Fr) <sup>43</sup>
9	<i>Annona squamosa</i> L.	Annonaceae	Sitaphal		Shrub	Leaf paste is applied externally in tumors.	Leaf paste is applied externally in tumors.	<i>Elsinoe annonae</i> Bitanic.&Jenkins <sup>44</sup>
10	<i>Bauhinia variegata</i> L.	Caesalpiniaceae	Apta		Tree	Flower juice is taken to cure dysentery, diarrhea & stomach pain.	Flower juice is taken to cure dysentery, diarrhea & stomach pain.	<i>Phyllachora bauhiniae</i> (wint.) Thesis and Syd <sup>47</sup>
11	<i>Bauhinia purpera</i> L.	Caesalpiniaceae	Kanchan		Tree	Astringent bark is used to control diarrhoea.	Astringent bark is used to control diarrhoea.	<i>Colletotrichum siamense</i> <sup>37</sup>
12	<i>Bombax cieba</i> L.	Bombacaceae	Katesawar		Tree	decoction or infusion made from the roots is consumed to help manage diarrhea	decoction or infusion made from the roots is consumed to help manage diarrhea	<i>Ascochyta bombacina</i> <sup>4</sup>
13	<i>Calotropis procera</i> (L.) R. Br. ex.	Asclepiadaceae	Rui		Shrub	Latex is used to reduce swelling and support injured joints.	Latex is used to reduce swelling and support injured joints.	<i>Passalora calotropidis</i> <sup>25</sup>
14	<i>Carica papaya</i> L.	Caricaceae	Papai		Tree	Leaf extract is given to enhance WBC.	Leaf extract is given to enhance WBC.	<i>Colletotrichum salsolae</i> <sup>35</sup>
15	<i>Cassia fistula</i> L.	Caesalpiniaceae	Amaltas		Tree	Leaves used for treating skin diseases	Leaves used for treating skin diseases	<i>Colletotrichum gloeosporioides</i> <sup>30</sup>
16	<i>Cynodon dactylon</i> (L.) Pers.	Poaceae	Durva		Herb	Whole plant is used to control Diabetes	Whole plant is used to control Diabetes	<i>Ustilago cynodontis</i> <sup>16</sup>
17	<i>Cyperus rotundus</i> L.	Cyperaceae	Nagar-		Herb	Crush leaf is applied on cuts	Crush leaf is applied on cuts	<i>Ascochyta</i>

			motha		and wounds.	
18	<i>Datura metel</i> L.	Solanaceae	Dhotra	Herb	Leaf and bark is used in skin diseases	<i>cypericola</i> <sup>18</sup>
19	<i>Diplocyclos palmatus</i> Linn.	Cucurbitaceae	Shivlingi	Climber	Plant is used in headache and enlarged spleen and stomach swelling, useful in snakebite.	<i>Cercospora jamaicensis</i> Chupp. <sup>24</sup>
20	<i>Ficus carica</i> L.	Moraceae	Anjir	Shrub	Juice of ripen fruits is given for 5 days for fever.	<i>Cercospora apiis</i> lat. <sup>3</sup>
21	<i>Gloriosa superba</i> L.	Liliaceae	Kallavi	Climber	Tubers and flowers are used in Chronic ulcers and piles.	<i>Bipolaris sorokiniana</i> <sup>5</sup>
22	<i>Leucas aspera</i> (Willd.) Link.	Lamiaceae	Tumbi	Herb	Mixture of flowers and honey is given to treat coughs and cold	<i>Cercospora gloriosae</i> <sup>40</sup>
23	<i>Mimosa pudica</i> L.	Mimosaceae	Lajalu	Herb	Paste of root and leaf is used in case of piles.	<i>Curvularia lunata</i> <sup>36</sup>
24	<i>Nyctanthes arbor-tristis</i> L.	Oleaceae	Parijatak	Shrub	The Leaves decoction water is taken to control malaria fever.	<i>Sclerotinia sclerotiorum</i> <sup>11</sup>
25	<i>Plumbago zeylancia</i> L.	Plumbaginaceae	Chitrak	Shrub	Root powder is given to control cough and cold.	<i>Oidium</i> sp. <sup>13</sup>
26	<i>Ricinus communis</i> L.	Euphorbiaceae	Erand	Shrub	Leaves are tied on joint, for joint pains.	<i>Phoma exigua</i> <sup>31</sup>
27	<i>Semecarpus anacardium</i> L.	Anacardiaceae	Bibba	Tree	Seeds and other parts are used to treat skin diseases, respiratory issues, and digestive problems.	<i>Cercospora ricinella</i> <sup>17</sup>
28	<i>Tectona grandis</i> L.f.	Verbenaceae	Saagvan	Tree	Flower paste is prepared and	<i>Sphaceloma</i> sp. <sup>45</sup>
						<i>Cercospora</i>

29	<i>Tinospora cordifolia</i> (Willd) Hook	Menispermaceae	Gulwel	Climber	given in urine disorder. Leaf Dry powder or 1 teaspoon Juice is given for 3 days in fever.	<i>tectonae</i> Stevens <sup>29</sup> <i>Corynespora</i> <i>cassicola</i> <sup>32</sup>
30	<i>Woodfordia fruticosa</i> (L.) Kurz.	Lythraceae	Dhayti	Shrub	Dried flower for piles and Bark for gastric trouble.	<i>Corynespora</i> <i>cassicola</i> Berk. & Curtis <sup>39</sup>
31	<i>Zizyphus mauritiana</i> L.	Rhamnaceae	Bor	Shrub	Leaf juice is given in Dysentery and Diarrhoea.	<i>Pestalotia</i> <i>funera</i> <sup>20</sup>

In study area 31 Ethnobotanical plants found infected by 32 species of fungi causing foliar diseases. Fungi secretes different type of enzymes to infect the host which undesirable cause side effect to the tribe if desire plant is used to treat various ailments.

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