



ETHNOBOTANICAL SURVEY ON RESPIRATORY DISORDERS IN BHANDARA DISTRICT (M. S.)

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ABSTRACT:

In the rural area of Maharashtra so far as aquatic food is concerned the fish plays an important role in the delicious food preferred by the common people for locally available fishes found in the nearby fresh water bodies for nutrition among the essential food constituents. Natural stagnant fresh water bodies provide a self-employment for poor fisherman and social, economic conditions of various places in Yavatmal district. Various types of fishes are found in the Nawargaon lake available for the local rural poor fisherman for their fulfillment of basic needs of life by selling in the weekly market of nearby places and get money. In the Nawargaon lake found locally available fish species for weekly market easily get the common people food requirement in Maregaon Taluka, District Yavatmal. Keeping in the view, the diversity of fish fauna of the Nawargaon Lake in Maregaon Taluka in Yavatmal District, Maharashtra, and Central India has been studied from the period Feb.2016 to March. 2017. The aim of the study was to explore the fish fauna of Nawargaon Lake. In the course of investigation, four sampling spots were selected viz., SPOT-A, SPOT-B, SPOT-C and SPOT-D of Nawargaon lake. The fish diversity is a good indicator of health of aquatic ecosystem. During the research work most of the fresh water fish species are easily available for the maintain of ecological equilibrium of Nawargaon lake which indicates various different Indian major carps such as *Catla catla*, *Labeo rohita* and *Cirrhina mrigala* found in the lake along with cat fishes from the period Feb.2016 to March. 2017. Nawargaon lake is huge and spread over area about 2740m and catchment area is 9.663 thousand hectares.

Keywords: *Ethnobotany, Respiratory disorders, Bhandara District.*

INTRODUCTION:

The respiratory system includes lungs and carrier tubes involved in exchange of gases with the external environment. The said parts of the body are more susceptible to various diseases caused by number of pollutants present in environment. Due to modernization several pollutants are added in the environment every day so that victims of the respiratory disorders are also increases simultaneously. The common respiratory disorders found among the local people of the district are: asthma, bronchitis, common cold, cough, whooping cough and hiccough etc.

In India, about 20 million people are estimated to suffer from asthma and about 150 million worlds wide, according to the World Health Organization (WHO, 1998; Weiss *et al.* 1992).

Many plants of folklore importance are used as a remedy for respiratory disorders for generations by rural population, forest ethnics have brought to

light through ethnobotanical field studies. The present work is an endeavor in this direction and provides field data on 165 useful taxa for the treatment of respiratory disorders by the rural people of the Bhandara district, Vidarbha region of Maharashtra predominantly Gond, Gowari, Pardhi, and others living near by forest areas. In spite of fast development on Ethnobotany this region is not yet ethnobotanically well studied.

The present paper provides folklore information on 165 Angiosperms taxa that belong to 145 genera and 72 families. Of these, the *Asclepiadaceae* and *Papilionaceae* are the dominant families, with six ethnomedicinal species from each family.

MATERIAL & METHODS:

The ethnomedicinal information on plants used for treatment of respiratory disorders was obtained during the course of floristic surveys of Bhandara district of Maharashtra from 2005-2011. For this purpose, local medicine men and elderly people

whose empirical knowledge was respected by every one in the area were interviewed. Data on local name of folk drug plants, part used, method of preparation, dosage recommended, and precautions (if any) were recorded for each medicinal claim. The information was also discussed with different medicine men in other localities to validate the claims as far as possible. Names of all key informants were noted and are available on request. All the herbarium / museum specimens of the taxa have been deposited in the herbarium / museum of Department of Botany, Dharampeth M. P. Deo Memorial Science College, Nagpur.

ENUMERATIONS

The ethnobotanical information collected on respiratory disorders in Bhandara district of Maharashtra by the local, tribal inhabitants as well as herbal practitioners is presented here alphabetical with scientific names of the plants, followed by the author citation, name of family, vernacular names, collection place, collection number and their medicinal uses.

Abrus precatorius L.; Papilionaceae; 'GUNJA'; Saori, 21: A decoction of leaves is used for cough.

Acacia catechu (L. f.) Willd.; Mimosaceae; 'KHAIR'; Gadegaon Depot, 400: The *kattha*, a hearwood extract is beneficial in cough.

Acacia torta (Roxb.) Craib.; Mimosaceae; 'CHILAR'; Pimpalgaon (Kesalwada), 467; Mohghata, 1080; Chandrapur, 1111: Various plant parts are useful in cough and bronchitis.

Acalypha ciliata Forssk.; Euphorbiaceae; 'KUPI'; Chandpur, 683; Umarzari, 958: The herbs are useful in bronchitis and asthma.

Acalypha indica L.; Euphorbiaceae; 'KHOKALI'; Lakhni, 289; Karandli, 1317; Hattidoh, 1547: The plants are useful in bronchitis, pneumonia and asthma.

Acorus calamus L.; Araceae; 'YAKAND'; Pimpalgaon (Sadak), 927: The rhizomes are useful in cough and bronchitis.

Aerva lanata (L.) Juss. ex Schult.; Amaranthaceae; 'KAPURI-MADHURI'; Somalwada, 115; Sindipar, 1052: The plant is useful to treat cough.

Ailanthus excelsa Roxb.; Simaroubaceae; 'MAHARUKH'; Devhadi, 817; Dhargaon, 1492: The bark is useful in treatment of asthma.

Albizia odoratissima (L. f.) Benth.; Mimosaceae; 'CHICHVA'; Gadegaon Depot, 403; Chikhlabodi, 1026: The bark is useful in the treatment of cough and bronchitis.

Allium sativum L.; Liliaceae; 'LASUN'; The bulbs are used in whooping cough.

Alstonia macrophylla Wall. ex G. Don; Apocynaceae; 'SAPTAPARNI'; Bhandara, 896: The bark is useful in asthma and bronchitis.

Amberboa ramosa (Roxb.) Jafri; Asteraceae; 'LIH-KATMANDA'; Sonekhari, 1732: This herb is used in cough.

Amorphophallus paeoniifolius (Dennst.) Nicols. var. ***campanulatus*** (Decne.) Sivadasan; Araceae; 'SURAN'; Somalwada, 948: The corms are useful in cough, bronchitis and asthma.

Ananas comosus (L.) Merr.; Bromeliaceae; 'ANANAS'; Lakhni, 556: The leaves are anthelmintic, abortifacient and emmenagogue and are useful in whooping cough.

Andrographis paniculata (Burm. f.) Wall. ex Nees; Acanthaceae; 'BHUI-NEEM'; Rengepar (Kotha), 156; Karandli, 1466: The leaves are used in the treatment of cough and bronchitis.

Anisochilus carnosus (L.) Wall.; Lamiaceae; 'PANJIRI'; Jawahar Nagar, 912; Hattidoh, 1546: The juice of the plant is used against cough and cold.

Argemone mexicana L.; Papaveraceae; 'UTATI'; Lakhni, 258: The seeds are used in vitiated conditions of cough and asthma.

Argyreia nervosa (Burm. f.) Bojer; Convolvulaceae; 'SAMUDRA SHOK'; Madgi, 230: The roots are used in the treatment of cough and bronchitis.

Aristolochia indica L.; Aristolochiaceae; 'SAPSUND'; Madgi, 442: The juice of leaves used for cough.

Asparagus racemosus Willd.; Liliaceae; 'MARBAT'; 'SHATAVARI'; Chikhlabodi, 139; Jambhli, 983; Usragondi, 1234: The roots are used in cough and bronchitis.

Azadirachta indica A. Juss.; Meliaceae; 'NEEM', 'KADUNEEM'; Gudri, 320: The bark is useful in cough and bronchitis.

Bacopa monnieri (L.) Penn.; Scrophulariaceae; 'NIRA-BRAMHI'; Korambi, 393; Sipewada, 1726: The plant is useful in asthma and bronchitis.

Balanites aegyptiaca (L.) Del.; Balanitaceae; 'HINGU'; Wakeshwar, 469; Gunthara, 1065: The ripe fruits are useful in whooping cough.

Barleria cristata L.; Acanthaceae; 'NILI KORANTI', 'GOKARN'; Sonekhari, 110: The leaves and roots are useful in the treatment of cough.

Barringtonia acutangula (L.) Gaertn.; Barringtoniaceae; 'TIWAR'; Bhat-Handi (Ambhora), 525; The fruits are useful in cough and bronchitis.

Bauhinia racemosa Lam.; Caesalpiniaceae; 'APTA'; Sonekhari, 101; Sonegaon, 1769: The flowers are useful in cough.

Beta vulgaris L.; Chenopodiaceae; 'BEET'; Khedepar, 836: The seeds are diuretic and are useful in cough and asthma.

Biophytum sensitivum (L.) DC.; Oxalidaceae; Kinhi (Gadegaon), 32; Nilaj, 1050: It is useful in asthma.

Boerhavia repens L. var. *diffusa* (L.) Hook.; Nyctaginaceae; 'PUNARNAVA'; Pimpalgaon (Sadak), 251; Sonegaon (Pauni), 784: The roots are expectorant, diuretic and laxative; used in asthma.

Borassus flabellifer L.; Arecaceae; 'TADI'; Rengepar (Kotha), 95: The juice of leaf stalks and young roots is good for gastric catarrh and hiccup.

Boswellia serrata Roxb. ex Colebr.; Burseraceae; 'SALAI'; Koka, 863: The gum is useful in treatment of bronchitis, asthma and cough.

Brassica nigra (L.) Koch.; Brassicaceae; 'KALIRAI'; Saori (Lakhni), 302; Ekodi/Kinhi, 1226: The seeds are used to remove cough.

Brassica oleracea L. var. *botrytis* L.; Brassicaceae; 'PHULKABI'; Pimpalgaon (Sadak), 840: Leaves are used in bronchitis.

Buchanania cochinchinensis (Lour.) Almeida; Anacardiaceae; 'CHAR', 'CHAROLI'; Madgi, 327; Choha, 1510: The leaves are useful in cough and bronchitis.

Caesalpinia bonduce (L.) Roxb.; Caesalpiniaceae; 'SAGARGOTI'; Kesalwada, 324; Dawwa, 1242: The root-bark is used in cough and asthma.

Cajanus cajan (L.) Millsp.; Papilionaceae; 'TUR'; Masal, 578: The seeds are useful in cough.

Calotropis gigantea (L.) Ait.; Asclepiadaceae; 'RUT'; Navtala, 721; Somnala, 1698: The root bark is given in cough, asthma and bronchitis. The flowers are also useful in asthma.

Calotropis procera (Ait.) R. Br.; Asclepiadaceae; 'RUT'; Mohadi, 831: The powdered roots and flowers are useful in asthma and bronchitis.

Canavalia gladiata (Jacq.) DC.; Papilionaceae; 'KHAD-SHENG'; Mangli, 112; Kandri, 1039: The fruits are useful in cough.

Capsicum annuum L.; Solanaceae; 'MIRCHI'; Pimpalgaon (Sadak), 561: The fruits are useful in cough.

Careya arborea Roxb.; Lecythidaceae; 'KUMBHI'; Gangalwada, 598; Sarati, 1765: The bark is useful in cough and bronchitis.

Carica papaya L.; Caricaceae; 'PAPAYA'; Saori (Lakhni), 99; Khedepar, 672: The fruits are used in cough and bronchitis.

Cassia absus L.; Caesalpiniaceae; 'CHIMAR'; Somalwada, 63; Khapri, 1558: The leaves are used in treatment of cough and asthma.

Cassia fistula L.; Caesalpiniaceae; 'BAHAWA'; Gadegaon Depot, 397; Madgi, 1128: The flowers are used in dry cough and bronchitis.

Cassia occidentalis L.; Caesalpiniaceae; 'TARWAD'; Chandpur, 685; Welna, 964; Sakoli,

1092: The leaves are useful in cough, bronchitis and asthma.

Cassia sophera L.; Caesalpiniaceae; 'DEO-TAROTA'; Manegaon/Sadak, 590; Pawni, 1136; Usaragondi, 1577: Infusion or decoction of leaves is given in asthma.

Cassia tora L.; Caesalpiniaceae; 'TAROTA'; Kinhi / Gadegaon, 29: The leaves are purgative, used in cough.

Casuarina equisetifolia L.; Casuarinaceae; 'SURU'; Bhandara, 611: The plants are used to treat cough. Infusion of bark is used for throat infections and coughs.

Celastrus paniculatus Willd.; Celastraceae; 'DHIWAR-VEL'; Kesalwada (Wagh.), 495: Seeds are used in asthma.

Citrullus colocynthis (L.) Schrad.; Cucurbitaceae; 'INDRAYAN'; Madgi (Lakhni), 223; Kurza, 1258: The fruits are useful in asthma and bronchitis.

Citrus limon (L.) burm. f.; Rutaceae; 'IDLIMBU'; Lakhni, 865: The fruits are useful in cough and bronchitis.

Citrus reticulata Blanco; Rutaceae; 'JAMBHERI'; Lakhni, 593: The dried rind of fruits is effective in treating cough.

Clerodendrum serratum (L.) Moon.; Verbenaceae; 'BHARANGI'; Khedepar, 472; Umarzari, 1527: The roots are useful in cough, asthma, bronchitis and hiccough.

Clitoria ternatea L.; Papilionaceae; Kinhi (Gadegaon), 19; Khedepar, 726: The roots are bitter, refrigerant, laxative, diuretic, anthelmintic and tonic and are useful in asthma.

Coccinia grandis (L.) Voigt; Cucurbitaceae; 'TONDLI'; Murmadi, 843: The fruits are used in treatment of asthma, cough and bronchitis.

Cochlospermum religiosum (L.) Alst.; Cochlospermaceae; 'GOGAL'; Chandrapur, 854: The gum known as 'Katira gum' is sweet, thermogenic, anodyne and sedative which is useful in cough.

Cordia dichotoma Forst.; Boraginaceae; 'LASORA', 'BHOKAR'; Ambadi (Khambadi), 468; Koka, 603: The fruits are useful in bronchitis and dry cough.

Coriandrum sativum L.; Apiaceae; 'KOTHIMBIR', 'DHANIYA'; Pimpalgaon (Sadak), 796: The fruits are used in treatment of cough and bronchitis.

Crateva adansonii ssp. **odora** (Buch.-Ham.) Jacob.; Capparaceae; 'WAIRODA'; Garada (Gondi), 816: The bark and leaves are useful in cough and asthma.

Cucumis melo L.; Cucurbitaceae; 'BODELA', 'SHENDAD'; Madgi (Lakhni), 225; Kandki, 1488: The fruit pulp is used in treatment of cough and bronchitis.

Curculigo orchoides Gaertn.: Hypoxidaceae; 'KAJURI'; Rengepar (Kotha), 637; Nishti, 1174; Dodmazari, 1580: The tuberous roots in combination with aromatics and bitters, are used in asthma.

Cuscuta reflexa Roxb.; Cuscutaceae; 'AMARVEL'; Seloti, 285; Usragondi, 1682; Itan, 1006: The plant is astringent, expectorant, carminative, tonic, aphrodisiac, diaphoretic, anthelmintic and diuretic and is useful in treatment of cough.

Cymbopogon martinii (Roxb.) Wats.; Poaceae; 'TIKHADI'; Kandri, 931; Pitezari, 1288; Wasera, 1406: The plant is useful in bronchitis and cough.

Datura metel L.; Solanaceae; 'KALA-DHOTRA'; Tirri, 534: The leaves are used in treatment of cough, asthma.

Dendrophthoe falcata (L. f.) Etting var. **pubescens** (Hook. f.) Sant. & Herb. ex Shah; Loranthaceae; 'WANDA'; Gondsauri, 575; Koka, 1301: The plants are useful in treatment of asthma.

Desmodium gangeticum (L.) DC.; Papilionaceae; 'SALPARNI'; Rengepar, 80, 180; Chandrapur, 749: The roots bitter and are useful in cough, asthma and bronchitis.

Desmodium triflorum (L.) DC.; Papilionaceae; 'RAN-METHI'; Rengepar, 81; Bhugaon, 1013: The

plant is acrid, sweet, cooling, expectorant and galactagogue and is useful in cough and bronchitis.

Diplocyclos palmatus (L.) C. Jeffrey; Cucurbitaceae; 'SHIVLINGI'; Mangli, 113; Wakeshwar, 1717: The plant is acrid, thermogenic, anti-inflammatory, foetid, depurative and tonic and is useful in treatment of cough.

Echinops echinatus Roxb.; Asteraceae; Usgaon, 353; Murmadi (Tupkar), 1802: It is useful in hoarse cough.

Eclipta prostrata (L.) L. Mant.; Asteraceae; 'MAKA'; Rengepar (Kotha), 152; Salebardi, 1345: It is used in cough and asthma.

Elephantopus scaber L.; Asteraceae; 'KUKUL-DAWANA'; Rengepar (Kotha), 181; Golewadi, 1544: The flowers are used in bronchitis and cough.

Elettaria cardamomum (L.) Maton; Zingiberaceae; 'ELAYCHI'; Kesalwada (Wagh.), 323: The seeds are useful in asthma and bronchitis.

Elytraria acaulis (L. f.) Lindau; Acanthaceae; 'DASMORI'; Ravanwadi, 389; Jogikhera, 1806: Infusion of the plant is given for cough in children.

Emilia sonchifolia (L.) DC.; Asteraceae; 'DHAMAPAN'; Somalwada, 39: The plant is sweet, astringent and is useful in asthma.

Eucalyptus alba Reinw. Myrtaceae; 'NILGIRI'; Hardoli, 736; Bhandara, 1786: The oil well known as *Nilgiri* oil is useful in treatment of tuberculosis, chronic cough, asthma and bronchitis.

Euphorbia hirta L.; Euphorbiaceae; 'DUDHANALI'; Sonekhari, 42; Sakara, 1277: It is most commonly used along with anti-asthmatic herbs. It is also used in bronchitis and other respiratory disorders.

Euphorbia ligularia Roxb.; Euphorbiaceae; 'SABAR'; Kandadmoh, 607; Sipewada, 1727; Palaspani, 1425: The plants are useful in bronchitis and asthma.

Euphorbia tirucalli L.; Euphorbiaceae; 'SHER'; Lakhni, 867: The plant is useful in whooping cough and asthma.

Ficus religiosa L.; Moraceae; 'PIMPAL'; Lakhni, 839: The leaf extract is useful in treatment of common cold.

Fimbristylis ovata (Burm. f.) Kern; Cyperaceae; Khairi, 462; Lendezari, 1168; Umarzari, 1498: The plants are useful in cough, bronchitis and asthma.

Gardenia gummifera L.; Rubiaceae; Khairi, 460; Parsodi, 1552: The leaf buds are used in chronic coughs.

Garuga pinnata Roxb.; Burseraceae; 'KAKKAD'; Dodmazari, 720; Gaydongari, 1427: A Juice of leaves is used in asthma.

Glossocardia bosvallea (L. f.) DC.; Asteraceae; Kumbhli, 259: The leaves are useful in removing the cough from the chest.

Gmelina philippensis Cham.; Verbenaceae; Lakhni, 540: The leaves are used to relieve cough.

Grewia tiliifolia Vahl; Tiliaceae; 'TADSAL'; Gadegaon Depot, 402; Umarzari, 626: The bark is useful in cough.

Gymnema sylvestre (Retz.) R. Br. ex Schultes; Asclepiadaceae; 'KAVALI'; Gadegaon depot, 479; Wakeshwar, 1147: The plant is useful in treatment of cough, asthma and bronchitis.

Hedychium coronarium Koen.; Zingiberaceae; 'SONTAKA'; Pimpalgaon (Sadak), 560: The rhizomes are used in asthma.

Hedyotis corymbosa (L.) Lam.; Rubiaceae; Keasalwada, 206; Virsi, 1141: It is used in cough and bronchitis.

Hedyotis herbacea L.; Rubiaceae; 'PARIPATH'; Kinhi (Gadegaon), 25; Ekodi, 957; Sindpuri, 1137: The plant is bitter and is useful in asthma and bronchitis.

Helianthus annuus L.; Asteraceae; 'SURYAPHOOL'; Kesalwada (Wagh.), 380: The flowers are used in bronchitis and asthma and seeds are given in cough.

Heliotropium indicum L.; Boraginaceae; 'BHURUNDI'; Somalwada, 186; Bhandara, 1159: The roots are useful in cough and bronchitis.

Hemidesmus indicus (L.) Schult.; Periplocaceae; 'KHOBARVEL'; Gadegaon Depot, 476: The roots are useful in asthma and bronchitis.

Holarrhena pubescens (Buch.-Ham.) Wall. ex G. Don; Apocynaceae; 'KUDA'; Gudri, 322; Khairi, 1781: The bark and seeds are useful in asthma and bronchopneumonia.

Hybanthus enneaspermus (L.) F. v. Muell.; Violaceae; 'RATAN-PARAS'; Rengepar (Kotha) forest, 77; Chandpur, 1739: The plant is useful in treatment of whooping cough.

Indigofera cassioides Rottl. ex DC.; Papilionaceae; 'BAROLI', 'CHIMNATI'; Umarzari, 799; Gobarwai, 2001: The roots are useful in cough.

Indigofera tinctoria L.; Papilionaceae; Madgi, 227; Umarzari, 762: Whole plant is bitter and is useful in treatment of chronic bronchitis and asthma.

Jasminum officinale L.; Oleaceae; 'CHAMELI', 'JAI'; Andhalgaon, 895: A syrup prepared from the flowers is useful in cough.

Kyllinga nemoralis (J.R. & G. Forst.) Dandy ex Hutch. & Dalziel; Cyperaceae; Rengepar (Kotha), 174; Mohghata, 1144; Barwa, 1716: A decoction of the aromatic rhizomes given in cough and bronchitis.

Lagenaria siceraria (Mol.) Standl.; Cucurbitaceae; 'DUDHI-BHOPLA'; Somalwada, 849: The seeds are useful in cough.

Lawsonia inermis L.; Lythraceae; 'MEHANDI'; Chichgaon, 318: The leaves are useful in cough and bronchitis.

Leucas aspera (Willd.) Link; Lamiaceae; Ziri, 920; Wadegaon, 1200; Koshti, 1648: The leaves and flowers are useful in cough.

Leucas cephalotes (Roth) Spr.; Lamiaceae; 'TUMBA'; Rengepar (Kotha), 94; Bochowadi, 1634; Dhabetekadi, 1307: The syrup prepared from the flowers used for coughs and colds.

Limonia acidissima L.; Rutaceae; Lakhni, 568; Dhargaon, 608: The leaves are useful in cough and the unripe fruits are useful hiccough.

Linum usitatissimum L.; Linaceae; 'JAVAS'; Khedepar, 713: The mucilaginous infusion 'Linseed tea' is used internally as a demulcent in cough.

Ludwigia octovalvis (Jacq.) Raven; Onagraceae; Somalwada, 60; J'Nagar, 1062: Whole plant except roots is used in cough and asthma.

Lycopersicon lycopersicum (L.) Karsten.; Solanaceae; 'TAMATAR'; Somalwada, 833: The fruits are useful in treatment of asthma and bronchitis.

Mallotus philippensis (Lam.) Muell.-Arg.; Euphorbiaceae; 'KAMALA'; Sonegaon, 917; Heti, 1181: The fruit covering (glandular hair) bright red powder is anthelmintic and useful in cough.

Mangifera indica L.; Anacardiaceae; 'AMBA', 'AAM'; Sindipar, 299: The dried seed powder is given in cough.

Mollugo nudicaulis Lam.; Molluginaceae; Gose, 417; Bhandara, 1681: The plant is used in whooping cough.

Monochoria vaginalis (Burm. f.) K. B. Presl; Pontederiaceae; Rengepar (Kotha), 924; Kondha/Kosra, 1263; The rootstocks and leaves are cooling, bitter, diuretic and tonic. They are useful in cough and asthma.

Morinda citrifolia L.; Rubiaceae; 'AAL', 'BARTONDI'; Lakhani, 74; Purkabodi, 971: The fruits along with salt are active on cough.

Moringa oleifera Lam.; Moringaceae; 'MUNGNA'; Manegaon (sadak), 567: The roots are used in cough, asthma and bronchitis.

Mukia maderaspatana (L.) Roem.; Cucurbitaceae; 'PACH-GHUGRI'; Somalwada, 57; Hattidoh, 1548; Khairitola, 1177: The plants are useful in asthma.

Nerium indicum Mill.; Apocynaceae; 'KANHER'; Lakhni, 890: The roots are useful in cardiac asthma.

Nyctanthes arbor-tristis L.; Oleaceae; 'PARIJAT'; Sonekhari, 107, 108: The leaves are useful in bronchitis, asthma and cough.

Nymphaea rubra Roxb. ex Salisb.; Nymphaeaceae; 'KUMUD'; Etewai, 705: The flowers useful in cough.

Ocimum basilicum L. var. **thyrsiflora** Benth.; Lamiaceae; 'SABJA'; Wakeshwar, 524: The juice of leaves is given in coughs.

Ocimum tenuiflorum L.; Lamiaceae; 'TULAS'; Saori (Lakhni), 140: The plant is used in asthma, bronchitis and hiccough.

Opuntia elatior Mill.; Cactaceae; 'NIVDUNG'; Palora, 825; Wadoda, 1485: Baked fruits are used in treatment of whooping cough.

Pentapetes phoenicea L.; Sterculiaceae; 'DUPARSHENDRI'; Saori (Lakhni), 97: Whole plant is used in treatment of asthma, bronchitis, and hiccough.

Pergularia daemia (Forssk.) Choiv.; Asclepiadaceae; 'UTRAN'; Madgi, 234; The plant is useful in cough and asthma.

Phoenix dactylifera L.; Arecaceae; 'KHAJUR'; Somalwada, 964: The fruit is demulcent, expectorant, nutrient, laxative, and is useful in asthma and cough.

Phyla nodiflora (L.) Greene; Verbenaceae; 'GOUR MUNDI'; Dharmapuri, 277; Palepetri, 1761: The plant is useful in asthma and bronchitis.

Phyllanthus emblica L.; Euphorbiaceae; 'AWALA'; Mundipar, 305: The fruits are used in cough, asthma and bronchitis.

Physalis minima L.; Solanaceae; 'PHOPANDRA'; Somalwada, 40; Chakara, 1750: The plant is useful in cough and bronchitis.

Pongamia pinnata (L.) Pierre; Papilionaceae; 'KARANJ'; Rajegon (MIDC), 390; Mohgaon, 1419: Leaves are good for cough.

Portulaca oleracea L.; Portulacaceae; 'MOTHIGHOL'; Bhandara, 284; Isapur, 1796: The leaves are useful in treatment of asthma.

Pseudarthria viscida (L.) Wight & Arn.; Papilionaceae; Somalwada, 117; Gadegaon depot,

1729: The roots are astringent, bitter, emollient, digestive, tonic, anti-inflammatory, diuretic and febrifuge. They are useful in cough.

Psidium guajava L.; Myrtaceae; 'PERU'; Saori (Lakhni), 481: The juice extracted from the leaves is used for treatment of cough.

Pterocarpus marsupium Roxb.; Papilionaceae; 'BIJA'; Rawanvadi, 521; Khapri, 1690: The heartwood is astringent and bitter and is useful in bronchitis, cough and asthma.

Pupalia lappacea (L.) A. L. Juss.; Amaranthaceae; Kumbhli, 264; Pachera, 1220: The fruits are used in cough.

Ricinus communis L.; Euphorbiaceae; 'ERAND'; Kumbhli, 265: The roots are useful in bronchitis and cough.

Rorippa indica (L.) Hiern.; Brassicaceae; Dharmapuri, 273; Kesalwada (Wagh), 778: The herb is used in cough.

Rungia repens (L.) Nees; Acanthaceae; 'GHATIPITPAPRA'; Khedepar, 130: The whole plant is dried and pulverized for use in case of cough.

Saccharum officinarum L.; Poaceae; 'GANNA'; Sandyatola, 689; Kesalwada (Wagh), 1366: The stem (cane sugar) is useful in cough and bronchitis.

Sansevieria roxburghiana Schult. & Schult. f.; Liliaceae; 'NAGIN'; Somalwada, 191: The rhizomes are mucilaginous and are used in the form of an electuary for cough.

Sapindus emarginatus Vahl; Sapindaceae; 'RITHA'; Sarpewada, 819: The fruits are useful in asthma.

Scilla hyacinthina (Roth) Mc Bride; Liliaceae; Khapri, 999; Umarzari, 1230: The bulbs are useful in cough.

Scoparia dulcis L.; Scrophulariaceae; Dharmapuri, 275: The entire plant including roots used in cough. The fresh plant is active especially against dry cough.

Semecarpus anacardium L. f.; Anacardiaceae; 'BIBBA'; Madgi forest, 518; Purkabodi, 1153: The fruits are useful in cough and asthma.

Solanum melongena L.; Solanaceae; 'WANGA'; Somalwada, 832: The leaves are used in treatment of asthma and bronchitis.

Solanum nigrum L.; Solanaceae; 'KANGANI'; Usgaon, 354: A decoction of the fruits and flowers is useful in cough and bronchitis.

Solanum virginianum L.; Solanaceae; 'DORLI'; Pimpalgaon / Sadak, 237; Kondhi (J'nagar), 1679; Wahi, 1482: The plant is useful in cough, asthma and bronchitis.

Solena amplexicaulis (Lam.) Gandhi; Cucurbitaceae; 'GOMATI'; Sipewada, 630; Parastola, 1424; The tuberous roots are useful in treatment of asthma and bronchitis.

Soymida febrifuga (Roxb.) A. Juss.; Meliaceae; 'ROHAN'; Chandrapur, 352; Gangalwada, 1248: A decoction of bark is used in asthma.

Sphaeranthus indicus L.; Asteraceae; 'GORAKHMUNDI', 'GODRI'; Saori (Lakhni), 298: The roots are used in the treatment of cough.

Stereospermum colais (Buch.-Ham. ex Dillw.) Mabb.; 'PARAL'; Mangli, 486; Sipewada, 631: The roots are useful cough and asthma.

Tamarindus indica L.; Caesalpiniaceae; 'CHINCH'; Pimpalgaon/ Madgi, 406: The root-bark is useful in treatment of asthma.

Tamarix ericoides Rollt.; Tamaricaceae; 'JHAU'; Kumbhli, 263; Bhandara, 1774: Leaves are cooked with rice and given to children to relieve cough.

Tephrosia purpurea (L.) Pers.; Papilionaceae; 'DIWALI'; Lakhni, 73; Devhadi, 1219: The roots are useful in asthma and bronchitis.

Terminalia bellirica (Gaertn.) Roxb.; Combretaceae; 'BEHDA'; Purkabodi, 331: The fruits useful in cough and bronchitis.

Terminalia catappa L.; Combretaceae; 'JANGLI-BADAM'; Kanadmoh, 509: The leaves are used in the treatment of cough and bronchitis.

Terminalia chebula Retz.; Combretaceae; 'HIRDA'; Madgi, 337; Chandpur, 1643: The fruits are used to treat cough.

Thespesia populnea (L.) Soland. ex Corr.; Malvaceae; 'PARAS-PIMPAL'; Khedepar, 142; Hardoli, 1666: A decoction of leaves is used in treating cough.

Trachyspermum ammi (L.) Sprague; Apiaceae; 'ONWA', 'AJWAIN'; Khedepar, 349: The fruits used for bronchitis and as ingredient of cough mixtures.

Tribulus terrestris L.; Zygophyllaceae; 'GOKHRU'; Dudhara, 1044: Flowers and roots are useful in cough and asthma.

Uria picta (Jacq.) Desv. ex DC.; Papilionaceae; 'PITHWAN'; Palora, 734; Ziri, 1579: The decoction of roots is given in coughs.

Urena lobata L. ssp. *sinuata* (L.) Borss.; Malvaceae; 'JANGLI-KAPUS'; Somalwada, 66; Adyal, 1685: Infusion of flowers used in bronchitis.

Utricularia stellaris L.; Lentibulariaceae; Pimpalgaon, 250; Rajoli, 651: The plant is used against cough.

Vernonia cinerea (L.) Less.; Asteraceae; 'SAHADEVI'; Khedepar, 145; Chikhalpahila, 785; Ashti, 1357: A juice of roots is useful in cough.

Vetiveria zizanioides (L.) Nash; Poaceae; 'KHAS'; Somalwada, 58; Mundhari, 1096: The oil extracted from the roots is useful in hiccup.

Vitex negundo L.; Verbenaceae; 'NIRGUDI'; Chalna (Dhanla), 377: The roots are used in bronchitis and cough.

Vitis vinifera L.; Vitaceae; 'ANGUR'; Saori (Lakhni), 649: The fruits are useful in asthma and bronchitis.

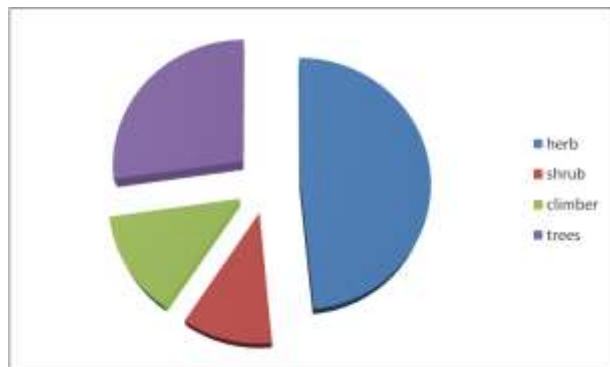
Wattakaka volubilis (L. f.) Stapf.; Asclepiadaceae; 'HIRANDODI'; Gangalwada, 505; Golewadi, 1545: The roots and tender stalks are useful in common cold.

Zingiber officinale Rosc.; Zingiberaceae; 'ADRAK'; Pimpalgaon (Sadak), 926: The rhizomes are used in cough.

RESULTS AND DISCUSSIONS:

The total 165 species were studied for ethnobotanical studies for respiratory disorders of which the 80 plant species are from herbs, 18 from shrubs, 22 from climbers and 45 from tree species.

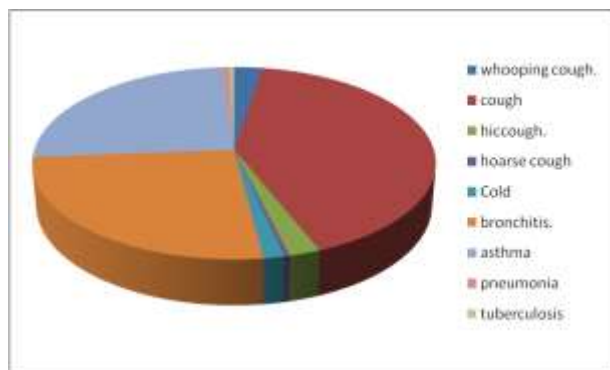
(Pie Chart-1)



Pie: Chart-1: Habit of plants useful in Respiratory Disorders

The plant species studied for respiratory disorders/diseases of which seven plants found remedy against whooping cough, 112 for common or dry cough, six for hiccough, one for hoarse cough, 70 for bronchitis, 68 for asthma, two for pneumonia and only one against tuberculosis.

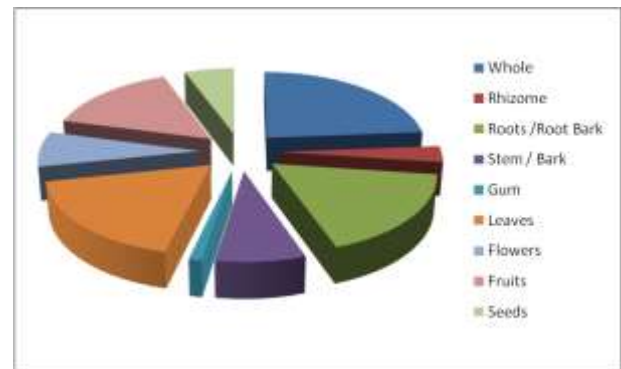
(Pie Chart-2)



Pie Chart-2: The plants claims number of ethnobotanical uses

The different parts of the plants were found usable against respiratory diseases / disorders. In some cases whole plants were found effective while in other particular part of the plant were found effective against such diseases. The plants studied of which 42 found as whole plant, six as only

rhizome, 31 as root or root bark, 14 as stem or stem bark, the gum of two plants found effective, 32 as leaves, 13 as flowers, 27 as fruits and the seeds of ten plants found effective against such diseases.



Pie Chart-3: Distribution of Part of Plants used in Respiratory Disorders

From the above discussion it is concluded that most of the herbs plays an important role in curing respiratory disorders. The whole plant found more effective against such ailments in ethnobotanical use. The maximum number of plants found useful against cough.

CONCLUSION:

The present study indicates that most of the plants surveyed were found effective against respiratory diseases on the basis of the knowledge and experience of local people of the district. Such ethnobotanical work from remote areas of the country will definitely play a pivotal role in further investigation with the help of phytochemical analysis and or pharmacological validation. This will then provide an authenticity to the traditional knowledge of the local people or *Vaidus*.

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