



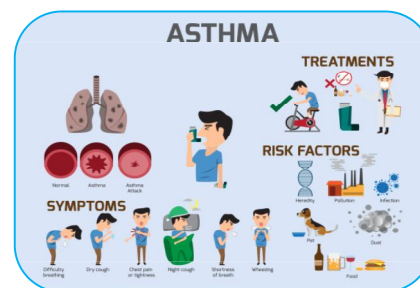
ETHNOBOTANICAL REVIEW OF MEDICINAL PLANTS USED TO TREAT ASTHMA

Jamdhade M.S.

Smt. N.N.C. Arts, Comm. and Science College, Kusumba, Tal. & Dist. Dhule.

ABSTRACT

Asthma is a long-term respiratory disorder found in children and adults. The air passages in lungs become narrow due to inflammation and tightening of the muscles around the small airways, which causes symptoms of asthma such as cough, wheeze, chest tightness and shortness of breath. This is caused by various factors such as allergic condition, prematurity, exposure to tobacco smoke and other sources like air pollution, viral respiratory infections, etc. [19]. For present study various articles on ethnomedicinal plants, ethnobotany, traditional uses of plants etc. were searched in combination with asthma. Present study reveals that there are 88 plants from 37 families are used traditionally for the treatment of asthma.



KEYWORDS : asthma, respiratory disorder, medicinal plant

INTRODUCTION

From the ancient time human civilization used the plants to fulfil their basic requirements, as well as they also dependent on the nature for the treatment of various diseases, this knowledge about medicinal uses of plants leads to the system of ethnobotany, which consist the relationship between plants and their medicinal use on various diseases [3]. Asthma word is derived from Greek word Asthma is long term respiratory disorder found in children and adults. According to National Cancer Institute USA asthma is a chronic disease in which the bronchial airways in the lungs become narrowed and swollen, making it difficult to breath. It shows symptoms like wheezing, coughing, tightness in the chest, shortness of breath and rapid breathing (NCI-USA) [15].

According to NFHS 2015-16, in Maharashtra 1.9% women and 1.2% men in the age group 15-49 were reported having asthma [9]. This is caused by various factors such as allergic condition, prematurity, exposure to tobacco smoke and other sources like air pollution, viral respiratory infections, etc. [19]. Taking this view in consideration attempts were made to find out the medicinal plants to cure asthma.

METHODOLOGY:

The present research work carried out to find out the important medicinal plants used in the treatment of asthma. The data were collected from various literature survey on books, research papers published on the ethnobotanical uses of medicinal plant, Google internet searching, review literature. The present study shows there are 88 plants belonging 37 families used in the treatment of asthma. This data of plants arranged alphabetically by botanical name, family, local name, mode of action,

reference no etc. The data were collected with the reference to the plant part used for the treatment of asthma as well as the mode of use.

RESULT AND DISCUSSION:

The total of 88 medicinal plants belonging to 37 families being used in the treatment of asthma from, out of which 8 plant species belong to each family of Euphorbiaceae and Solanaceae, 6 plants from Fabaceae, 5 species belong from each family Asclepiadaceae, Asteraceae & Liliaceae. 4 species belong to each family of Acanthaceae and Caesalpiniaceae, 3 species from each family of Amaranthaceae, Apocynaceae & Convolvulaceae, 2 species belong to Cucurbitaceae, Lamiaceae, Poaceae, Vitaceae, Zingiberaceae and Zygophyllaceae family each. 19 families show single plants used in the treatment of asthma viz. Cactaceae, Capparaceae, Capparidaceae, Combretaceae, Loranthaceae, Meliaceae, Mimosaceae, Moraceae, Nyctaginaceae, Oleaceae, Oxalidaceae, Plantaginaceae, Rutaceae, Sapindaceae, Simaroubaceae and Verbenaceae (Graph no. 1).

Table No. 1 shows Name of Plants, Family, Vernacular names, Plant Part used, Mode of Use and References. From table no.1, it is clear that various plant as well as plant parts like roots, bulb, corm, Rhizome, tubers, stem, leaves, flowers, fruits, seeds, latex, whole plants are used in the treatment of asthma as singly or in the mixture. Near about 25 plant species leaves were used in the treatment the mode of action is mentioned in the given table, followed by roots of 19 species, 18 Whole plants were used, fruits of 13 plants, stem of 10 plants, seeds of 6 plants, flowers of 4, bulb form 3 plants, latex from 2 plants, corm and tubers from 1 plants are used in the treatment (Graph no. 2).

The traditional methods were used for preparation of doses from different plant parts like Ash, Decoction, Extract, Juice, Paste, Powder, Pulp, Smoke, etc. to cure Asthma, while reviewing it is found that some of plant the mode of preparation is unknown. The plant powder is used in the maximum preparation followed by juice, extract, smoke, decoction, Ash, paste and pulp. (Graph no 3).

CONCLUSION:

From the present study of various literature, it is clear that, the 88 species from 37 families were used in the treatment of asthma as a single or in the mixture. Euphorbiaceae and Solanaceae are found to dominant over all the families as well as use of leaves also shows dominance over all the plant parts. Majorly powder of plant part used directly or in combination, followed by juice, extract, smoke, decoction, Ash, paste and pulp form various plant parts to cure asthma.

Table No. 1: Plants used in the treatment of Asthma

Sr. No	Name of Plant	Family	Vernacular name	Plant part used	Mode of use	Ref
1	<i>Acacia nilotica</i> (L.) Willd. Ex Del	Mimosaceae	Babul	Stem, bark	Powder of stem bark given orally at bet for 10-12 days	16
				Leaves	Juice of young leaves are used	14
2	<i>Acalypha indica</i> L.	Euphorbiaceae	Kuppi	Whole plant	15-20 ml of whole plant extract used for 1 week	16
3	<i>Achyranthes aspera</i> L.	Amaranthaceae	Aghada	Whole plant leaves	A spoonful of Dried powder of whole plant consumed with honey	3

4	<i>Adhathodavasica</i> Nees	Acanthaceae	Adulsa	Leaves Root	unknown	3
				Leaves	juice made from young leaves used	14
				Leaves	Dried leaves smoked as cigarette	16
5	<i>Adhathodazeylanica</i> Medic.	Acanthaceae	Adulsa	Leaves	Leaf Powder along with betel leaf for seven days	5
6	<i>Aegle marmelos</i> (Linn) Correa	Rutaceae	Bel	Fruit	Fruit pulp mixed with ginger consumed twice daily	3
7	<i>Ailanthus excelsa</i> Roxb.	Simaroubaceae	Maharukh	Bark	Unknown	17
8	<i>Allium cepa</i> L.	Liliaceae	Kanda	Bulb	10-15 ml bulb extract is given in morning for 15 days	16
9	<i>Allium sataivum</i> L.	Liliaceae	Lahsun	Bulb	Fresh paste of bulbets kept under the foot sole of child. It cure asthma slowly	3
10	<i>Aloe vera</i> (Linn) Burm	Liliaceae	Korphad	Leaves	Pulp taken with jaggery	3
11	<i>Alstoniascholaris</i> (L.) R. Br.	Apocynaceae	Saptaparni	Bark	Unknown	6
12	<i>Amaranthus spinosus</i> L.	Amaranthaceae	Kataichaulai	Whole plant	Juice of whole plant used	14
13	<i>Amorphophallus campanulatus</i> Blume. ex Decue	Araceae	Suran	Corm	Unknown	6
14	<i>Ampelocissus latifolia</i> (Roxb.) Planch	Vitaceae	Randraksha	Fruit	Fruits eaten for asthma	2
15	<i>Artocarpus integrifolia</i> Linn.F.	Moraceae	Phanas	Root, stem, fruit	Unknown	3
16	<i>Asparagus racemosus</i> Wild.	Liliaceae	Shatavari	Root	Root extract with equal amount of milk containing some grapes and seeds of <i>Buchanania larz an</i> , which is	3

					boiled and consumed with honey	
17	<i>Azadirachta indica</i> A. Juss.	Meliaceae	Neem	Leaves	Leaves kept in close earthen pot and burnt over the fire, the smoke is inhaled in acute asthma	2
18	<i>Bacopa monnieri</i> (L.) Pennell	Plantaginaceae	Jal Brahmi	Leaves	Unknown	17
19	<i>Balanites aegyptiaca</i> L.	Balanitaceae	Hinganbet	Seed, fruits	The pulp of seeds administrated once daily	3
20	<i>Bauhinia racemose</i> L.	Caesalpinaceae	Apataa	Leaves	Leaf powder mixed with honey consumed in morning	3
21	<i>Bauhinia variegata</i> L.	Fabaceae	Kanchan	Leaves, stem, root	Unknown	6
22	<i>Biophytumsensitivum</i> (L.) DC.	Oxalidaceae	Lajwantilajalu	Leaves, root	Unknown	6
23	<i>Boerhaviadiffusa</i> L.	Nyctaginaceae	Punarnava	Root, leaves, seeds	Unknown	10
			Punarnava	Roots	Unknown	6
24	<i>Calotropis gigantea</i> (L.) R. Br.	Asclepiadaceae	Rui	Bark, leaves	Unknown	6
			Oabdhariruchki	Flowers	Flowers or petals are given with honey thrice a day	5
25	<i>Calotropis procera</i> (Ait) R.Br.	Asclepiadaceae	Rui	Root	Unknown	11
			Rui, Ruchkin	Flower	Flower ash smoked	2
26	<i>Capparis decidua</i> (Roth) Edgcv.	Capparaceae	Karil	Stem	Extract of tender branches used	2
27	<i>Capparis tomentosa</i> Dunn.	Capparidaceae	Wooly caper bush	Flower	Flower paste with salt once daily	3
28	<i>Cardiospermum halicacabum</i> L.	Sapindaceae	Kapalphodi, kanphuti	Root bark	Root bark small piece chewed along with betel leaf thrice in a day for one	3

					week	
29	<i>Cassia auriculata</i> L.	Caesalpiniaceae	Bahava	Fruit	Spoonful Fruit powder consumed daily once	3
30	<i>Cassia occidentalis</i> L.	Caesalpiniaceae	Tarota	Seeds	Seed powder is used	4
31	<i>Cassia tora</i> L.	Caesalpiniaceae	Tarota	Seeds	Seed powder and fruit of <i>Tribulus terrestris</i> L. mixed in equal amount, a spoonful per day consumed with honey	3
					Seed powder given twice for 7-10 days	16
32	<i>Celosia argentea</i> L.	Amaranthaceae	Kurdu, Kombada	Root	Root powder consumed	3
				Whole plant	Ash of whole plant given with honey	16
33	<i>Centratherumanthelmiticum</i> (L.) Kuntze.	Asteraceae	Kalazeera	Seeds	Unknown	6
34	<i>Chrozophora prostrata</i> Dalz.	Euphorbiaceae	Betha, Unhali	Root	Root ash with warm cow milk given early in the morning	3
35	<i>Cissus quadrangularis</i> L.	Vitaceae	Sandhejad	Stem	Stem Juice is given	1
36	<i>Coccinia grandis</i> (L.)	Cucurbitaceae	Tondli	Leaf, fruit	Unknown	3
37	<i>Cordia dichotoma</i> Frost. F.	Boraginaceae	Godhan	Stem leaves	Unknown	10
38	<i>Coriandrum sativum</i> L.	Apiaceae	Dhane	Leaves and fruits	50 ml extract given twice in a week for 3 weeks	16
39	<i>Corralocarpusepigaeus</i> (AM.) Cl.	Cucurbitaceae	Kadavinai	Root	Root ash used in asthma	2
40	<i>Costuspicta</i> (Koen.) J.M.Sm.	Zingiberaceae	Bisht, Pushkara	Rhizomes	Unknown	13
41	<i>Costus speciosus</i> (Koen.) Sm.	Zingiberaceae	Bisht, Pushkarakeukand, Kashmeera	Rhizome	Unknown	13
42	<i>Croton bonplandianum</i> Baill	Euphorbiaceae	Putri	Leaf, stem	Unknown	3
43	<i>Cryptostegia</i>	Asclepiadaceae	Vilayati-vakundi	Root	Root paste is	1

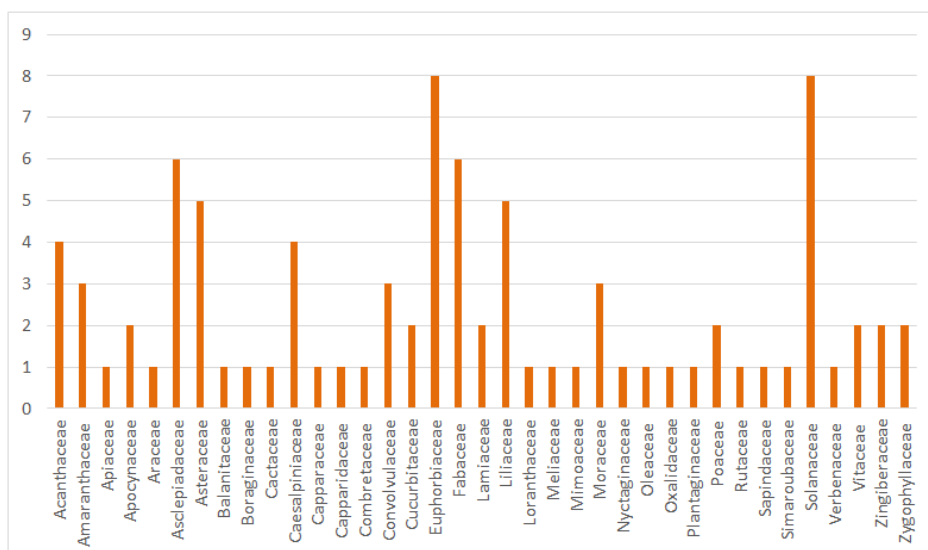
	<i>grandiflora</i> R.Br.				applied externally on chest	
44	<i>Cyanodondactylon</i> (L.) Pers.	Poaceae	Durva/ Dhoob grass	Whole plant	50-100 ml Plant juice given twice a day for 3 to 5 days	16
45	<i>Cymbopogon martini</i> (Roxb.) Wats.	Poaceae	Tikhadigavat	Rhizome	A spoonful extract of Rhizome and root is given early morning for 3 days	5
46	<i>Dalbergia sisoo</i> Roxb.	Fabaceae	Sisam	Root, leaves	Root and gum filtrate obtained after crushing in water consumed at night	3
47	<i>Datura inoxia</i> Mill.	Solanaceae	Dhotra	Leaves and fruits	Inhalations of smoke of dried leaves powder or fruit powder is taken	16
				Leaves	Half spoonful leaf juice is given with a cup of honey	5
48	<i>Datura metal</i> L.	Solanaceae	Kaladatura	Leaves Seeds	Smoke of leaves and seed	3 11
				Leaves and seeds	Unknown	12
				Leaves and fruit	Unknown	10
49	<i>Dendrophthoe falcata</i> (L.f.) Ettina	Loranthaceae	Bandgul	Flower	10 ml juice of flower is given twice or thrice a day for 3-4 days or till relief	3
50	<i>Elusinecaracana</i>	Asteraceae	Maduwa	Whole plant	Juice of whole plant used	14
51	<i>Elytraria acaulis</i> (L.F.) Nachir	Acanthaceae	Pattharchatta	Whole plant	Unknown	17
52	<i>Emilia sonchifolia</i> (L.) DC	Asteraceae	Hirenkurni	Whole plant	Unknown	7
			Dhampan	Whole plant	Decoction of Dried plant powder taken orally	11

53	<i>Euphorbia barnhartii</i> Croizat m Euph.	Euphorbiaceae	Tindharinivdun g	Latex	Latex is given with butter	5
54	<i>Euphorbia hirta</i> L.	Euphorbiaceae	Dudnali	Leaves	Pills are prepared from leaves and jaggery are given with warm water or tea	16
				Whole plant	Unknown	7
55	<i>Euphorbia nerifolia</i> L.	Euphorbiaceae	Mingut	Bark	The extract made by Internal part of bark cooked with bajara flour in open pan on fire, 2-3 teaspoon given daily twice for 7 days	2
56	<i>Euphorbia tricallii</i> L.	Euphorbiaceae	Sehand	Latex	Milky Juice is used	11
57	<i>Evolvulus sinoides</i> Linn.	Convolvulaceae	Vishnukranti	Whole plant	Ash of whole plant given with warm water daily twice for 1-2 months	2
58	<i>Fagonia bruguieri</i> DC. Var <i>bruguieri</i>	Zygophyllaceae	Dhanvayasa	Whole plant	Unknown	17
59	<i>Ficus recemosa</i> L.	Moraceae	Umbar	Bark	Unknown	16
60	<i>Ficus religiosa</i> L.	Moraceae	Pimpal	Stem bark	Stem bark powder mixed in honey, taken orally twice in a day for 15 days	5
				Bark	Powder of bark used	4
61	<i>Haplanthodes verticillate</i> (Roxb.) R.B.	Acanthaceae	Pankenar	Root	Root extract is taken with honey orally twice a day for 7 days	5
62	<i>Hemidesmus indicus</i> (L.) R.Br.	Asclepiadaceae	Ananrmul	Whole plant	Unknown	17
				Stem	Stem powder is boiled and used	13
63	<i>Ipomoea pes-tigridis</i> L.	Convolvulaceae	Vaghpadi	Whole plant	Unknown	17

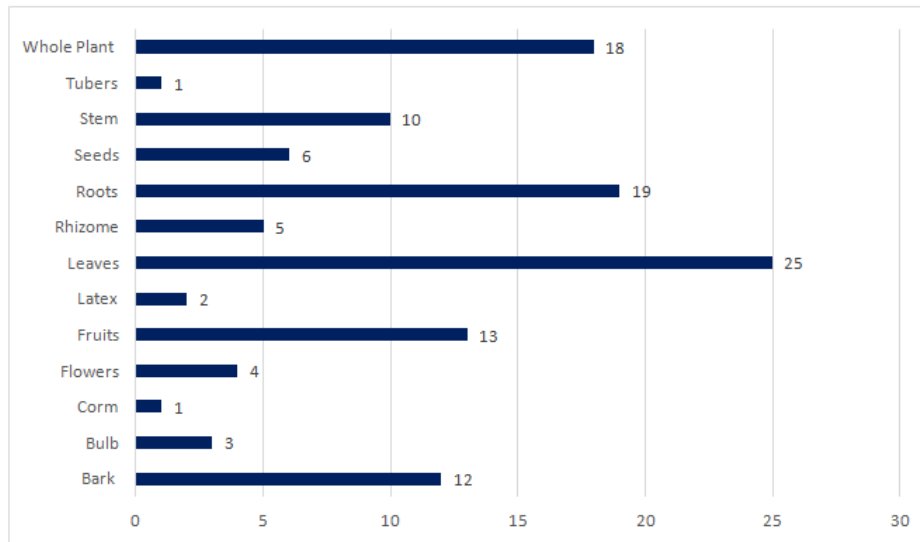
64	<i>Momosapudica</i> L.	Fabaceae	Lajalu	Root	Unknown	10
65	<i>Mucuna pruriens</i> (L.) DC.	Fabaceae	Kachquiri	Root	Unknown	1
66	<i>Nyctanthes arbor-tristis</i> L.	Oleaceae	Ratrani	Leaves, bark	Powder of leaves or bark are given with betel leaf juice in a dose of 5 gm for 3 days	16
67	<i>Ocimum americanum</i> L.	Lamiaceae	Tulsi	Leaves	Half cup of decoction of leaves mixed with spoonful honey, taken for twice a day for 8 days	5
68	<i>Ocimum basilicum</i> L.	Lamiaceae	Sanja	Leaves	Spoonful juice of leaves mixed in spoonful honey given twice a day for 15 days	5
69	<i>Opuntia elatior</i> Mill.	Cactaceae	Phadynivdung	Fruit	Fruit juice is advised twice a day for 8 days	5
70	<i>Phyllanthus emblica</i> L.	Euphorbiaceae	Awala	Fruit	Fruit powder taken along with cow milk thrice a day for 3 days	5
71	<i>Physalis angulate</i> L.	Solanaceae	Chirbutle	Whole plant	Unknown	7
72	<i>Psoralea corylifolia</i> L.	Fabaceae	Bawachi	Whole plant	Unknown	10
73	<i>Pueraria tuberosa</i> (Roxb. ex Willd.) DC	Fabaceae	Kohalvel	Tubers	Unknown	1
74	<i>Riveahypocrateriformis</i> (Desr.) Choisy.	Convolvulaceae	Phangvel	Whole Plant	Unknown	1
75	<i>Saussurea costus</i> (Falc.) Lipsch.	Asteraceae	Costus	Rhizome	Extract of root is given	16
76	<i>Scilla hyacinthina</i> (Roth) Mc. Bride	Liliaceae	Rankanda	Bulb	Unknown	12
77	<i>Solanum anguivi</i> (Lamm.)	Solanaceae	Ranwanghi	Seeds	Seed powder is used	4
78	<i>Solanum nigrum</i> L.	Solanaceae	Kamoni	Leaves, fruits and roots	Leaf and fruit powder mixed and smoked through chilam. Aqueous extract of root powder given orally	16

79	<i>Solanum surrettense</i> Burm. F.	Solanaceae	--	Root	Decoction of root given twice a day for 7 days	2
80	<i>Solanum virginianum</i> L.	Solanaceae	Bhuiringani	Whole plant	Unknown	7
					Decoction of plant given twice a day for 3 days	5
81	<i>Terminalia arjuna</i> (Roxb. ex DC.) Wight & Arn.	Combretaceae	Arjun	Bark	Unknown	17
82	<i>Tribulus terrestris</i> Linn.	Zygophyllaceae	Gokhru	Fruit	Infusion of fruit is given	8
83	<i>Tylophoradalzellii</i> Hook. f.	Apocynaceae	--	Leaves and stem	Powder is used	4
84	<i>Tylophora indica</i> (Burm.f.) Merril.	Asclepiadaceae	Asthma vel	Leaves	4-5 leaves taken orally sharp at 5-5.30 am	13
85	<i>Vernonia cinerea</i> (L.) Less	Asteraceae	--	Whole plant	Decoction of whole plant given twice a day for 7 days	2
86	<i>Vitex negundo</i> L.	Verbenaceae	Nilgudi	Leaves, roots	Unknown	12
87	<i>Withaniasomnifera</i> Dunal.	Solanaceae	Ashwagandha	Bark	Decoction of bark is given	18
88	<i>Zingiber devakarianum</i>	Asclepiadaceae	--	Rhizome	Cooked and soften rhizome is used	13

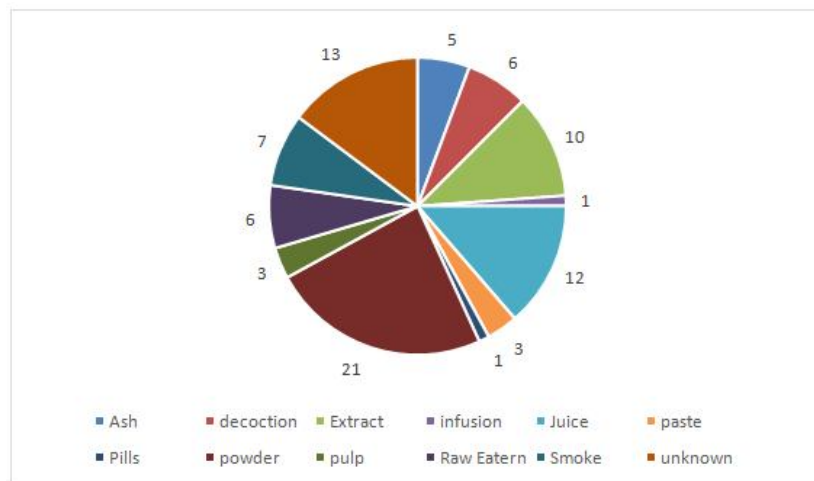
Graph no. 1: Number of species for Every Botanical Family used in the Treatment of Asthma



Graph no. 2: Plant parts from various species used in the Treatment of Asthma



Graph no. 3 : Traditional Methods of preparation of plant part used in the treatment of asthma



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