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Climate Change and Public Health in the Treatment of Fever in Adilabad District, Tealngana State, India

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Abstract: *Ancient man had found the ways and means of usage of plants to cure his health disorders. Plant induced increases in allergic rhinitis like high fever the distinct seasonal sources of plant pollen, trees, grasses, and ragweed. Quantity and seasonality of pollen depend in large part on plant responses to climatic and meteorological variables. However, changes in such variables are likely as a result of anthropogenic influences on levels of atmospheric CO_2, and enhancement of the greenhouse effect, with subsequent impacts on plant growth and pollen production. The knowledge of preparation of medicines of various parts such as root, tuber, stem, bark, leaves, flower, fruit, seed, and whole plant, formed a parallel system of medicine the ethno medicine, which exclusively uses the plants and herbal products for the treatment of diseases. Fever is one such common disease characterized by an elevation of body temperature above the normal range of 36.5 – 37.5^o C (98-100^{o}F). This triggers increased muscle tone and shivering. The present study emphasized the documentation and analysis of indigenous herbal medicinal knowledge existing in curing different types of fever by different communities of Adilabad district. The survey in the rural areas of Adilabad district was carried out during January 2007 – December 2011. In all medicinal practitioners were interviewed using structured questionnaires.*

Keywords: *Climate change, Public health, Fever, Adilabad district.*

I. Introduction

Disease refers to any condition that causes extreme pain dysfunction and or death to the person afflicted. Any substance given in the treatment of disease is known as "Medicine". Ethno botany refers to the study of association, interaction and inter-relation of human societies especially tribal and aboriginal communities with the surrounding flora. The term "Ethno botany" was coined [1]. Primitive man closely associated with the nature and directly depended on it for his survival, food, fuel, medicine and fodder. Evolution of human life and culture has directly or indirectly been associated with generation to another without any written documents, now it is necessary that unwritten folklore uses of plants and plant product must be documented and preserved. It is important to document and understand the medical heritage of changing culture before it is lost entirely too future generations. Ethno medicine is the study of the beliefs and practices concerning illness in different human populations. People all over the world are still dependent on the traditional plant based healing practices as it is cheap and easily available. Rural people and tribal communities who live in the forest areas predominantly depend up on locally available medicinal plants to take care of their health and has become an integral part of their culture. Thus the accumulated diversified traditional knowledge has led to the dawn of a science called Ethno botany. Ethno botany or in wider sense Indigenous Knowledge (IK) is playing significant role in the sectors of agriculture (seed varieties, intercropping techniques, pest control, crop diversity, animal production and animal health care), biology of human health care (through traditional medicine the use and management of natural resources (soil conservation, irrigation and other forms of water management) and education (oral tradition, local languages). And it also helps to sustain our agriculture, environment and conservation of biodiversity**.** Ethno botanical studies in Adilabad and Karimnagar districts of Andhra Pradesh, India and the medicinal plant wealth of Adilabad district [2]. Ethno-medicinal plants used to cure skin diseases in Adilabad District, Andhra Pradesh, India [3, 4]. Ethno botanical and ethno medicinal observations in Nirmal division of Adilabad district, Andhra Pradesh, India [5]. Ethno medicine against jaundice used by gond tribal of Adilabad district, Andhra Pradesh, India [6]. Medicinally important plants growing in and around Adilabad district of Andhra Pradesh used in the treatment of different ailments [7].

Study area

The study area is depicted in Adilabad district lies between 77^0. 46' and 89°.01' of the Eastern longitudes and 18^0.40' and 19^0. 5' of Northern latitudes. The district is bounded on North by Yeotmal, on the East by Chanda districts of Maharashtra and on the South by Karimnagar and Nizamabad and on the West by Nanded district of Maharashtra State. These harbor mainly dry deciduous forest and aborigines. These forests occupy about 44.5 percent of the total geographical area of the district. The total forest area in the district is 7218.86 sq. km. The total population of the district is 27, 37, 738 out of which the tribal population is 5, 12,602 [8].

II. Materials And Methods

The present study is aimed at the preparation of an inventory of plants and their medicinal uses practiced by tribal"s in Adilabad district, related to the traditional medicinal practices of local tribal communities such as Kolams, Naikpods, Pardhans, Gonds, Thotis, Chenchus and Mathuras to achieve this aim the following objectives were studied viz., 1) To record the traditional medicinal practices of the tribal communities of Adilabad district. 2) Botanical identification and herbarium preparation of the plants used by them. 3) To record the methodology followed by them in diagnosis during administration and curing of the diseases. 4) To document the scientific data for future reference/studies. 5) To study the other non-medicinal uses of the plants such as food, fodder and other uses. The data on medicinal plants used by various tribal communities has been collected during the past six years i.e., January 2007 to December 2013, the author has surveyed 30 locations which include gudems and remote places at small habitations in deep forest areas, The study area representing under 10 mandals viz., Bellampalli, Chinnur, Ichoda, Jaipur, Jannaram, Kerimeri, Sirupur(u), Tiryani, Utnoor and Wankidi Mandals of Adilabad district. Standard methods of botanical collection and techniques of herbarium preparations were followed as suggested [9, 10]. Plants have been collected in flowering and fruiting stages for the preparation of herbarium. The vouched specimens were deposited in the Herbarium, Department of Botany, Osmania University and Hyderabad. Observations of the plant species were made with respect to their location and other field characters [11].

III. Enumerations

In the enumeration, the taxon is arranged alphabetically. The name of species is followed by, family name, local name, disease and medicinal uses.

Table 1:- Ethno botanical uses of some medicinal plant parts used by tribes for fever

S. No	Botanical name & Family name	Vernacular name	Part used	Preparation/Administration for the fever
1.	Achyranthes aspera L. (Amaranthaceae)	Uttereni	Leaves	Leaves are eaten as food directly to cure fever.
2.	Alangium salvifolium (L.f.) Wang. (Alangiaceae)	Ooduga, Udugu	Stem bark	3gm stem bark extract is mixed in a glass of water and given orally thrice in a day until cure.
3.	Ampelocissus latifolia (Lam.) Planch. (Vitaceae)	Pule-teega, adavi draksha	Stem bark	5g stem bark powder is mixed with water and given orally thrice in a day for 2-3days.
4.	Andrographis paniculata (Burm.f.) Nees. (Acanthaceae)	Nelavemu	Leaves	Leaves of Ocimmum sanctum and Andrographis paniculata are ground together in equal quantity and make a bolus each of 50gm, feed once in a day for three days. This plant is decocted with 3fruits of black pepper. 10ml decoction is given internally thrice daily until cured.
5.	Annona squamosa L. (Annonaceae)	Sitaphala pandu.	Root	Roots are ground to make a fine paste and ¼ spoon mixed with water, boiled and given orally when it is warm.
6.	Caesalpinia bonduc (L.) Fleming (Caesalpiniaceae)	Gachakai	Seed	25gm each of seeds of Caesalpinia bonducella**,** lavang, dalchinachekka and jamalgotta are ground together and made small globules. Daily one globule is given before breakfast for 3-4days.
7.	Calotropis gigantea (L.) R.Br. (Asclepiadaceae)	Tella Jilledu	Root	Roots are pounded and made into pills about 1gm each; two pills per day are administered to cure fever.
8.	Calycopteris floribunda Lam. (Combretace)	Bonta-tiga.	Leaves	Leaves are ground to make a fine paste and administered with butter to cure malarial fever
9.	Clerodendrum phlomoides L.f. (Verbinaceae)	Thakkali	Leaves	Extract leaf juice add mishri and jeera powder and the same is given orally as a drink on Sunday, Tuesday and Fridays. (**Diet**: only curd rice on that day).
0.	Eclipta prostrata(L.) (Asteraceae)	Guntagaljara	Whole plant	Whole plant and 10black pepper are ground together and made in to small pills about 1gm size and

				administered thrice in a day for 5days.
1.	Evolvulus alsinoides (L.) (Convolvulaceae)	Vishnukrantha	Leaves	Leaf paste is boiled in water and decoction is given orally for 5days.
2.	Leonotis nepetifolia (L.) R.Br.(Lamiaceae)	Lamiaceae	Stem bark	Dried stem bark decoction is given orally until cure.
3.	Leucas aspera (Willd.) Link.(Lamiaceae)	Thummi	Leaves	A bunch of leaves are boiled in water and the vapor is inhaled to cure head ache and fever.
4.	Ocimum sanctum L. (Lamiaceae)	Thulasi	Leaves	Leaves of Ocimmum sanctum and Andrographis paniculata are ground together in equal quantity and make a bolus each of 50gm feed once in a day for three days.
5.	Pterocarpus marsupium Roxb.(Fabaceae)	Vegisa, Pedda Yegi	Latex	Red latex is kept on tongue of a person suffering from prolongated fever.
6.	Terminalia arjuna (DC.) Wight. & Arn. (Combretaceae)	Tella maddi	Root	Roots are collected in the early morning and tied to the waist to cure intermittent fever.
7.	Tragia involucrata L. (Euphorbiaceae)	Durada gondi	Whole plant	The decoction of entire plant is given orally to cure fever.
8.	Albizia amara (Roxb.) Boivin (Mimosaceae)	Narlingi	Stem bark	5gm each of stem barks of Albizia amara, Azadirachta indica, Zizyphus oenoplia, Capparis zeylanica, Ricinus communis, and Cassia fistula are pounded together to make powder and mix one tea spoonful of powder made into decoction in 100ml of water and filtered. The decoction thus prepared is given internally twice a day for two days.
9.	Azadirachta indica A Juss (Meliaceae)	Vepa	Stem bark	50gm Stem barks of each of Azadirachta indica, Zizyphus oenoplia, Capparis zeylanica, Ricinus communis, Cassia fistula and Albizia amara boil in 1liter of water for 15minutes. 5ml of decoction is given internally twice daily for 3- 4days.
0.	Butea monosperma (Lamk.) (Fabaceae)	Mothuga, Moduga	Flower	Make powder by the dry flowers of Butea monospema, Trachyspermum ammi,Cuminum cyminum, Piper nigrum, Zingiber officinalis. Table spoon powder is given orally daily in the morning and evening till cured.
1.	Capparis zeylanica L (Capparidaceae)	Adonda	Stem bark	Collect 5gm stem barks each of Capparis zeylanica, Azadirachta indica, Zizyphus oenoplia, Ricinus communis, Cassia fistula, Albizia amara to make decoction in one liter of water. 20ml of this decoction is given internally twice a day for two days.
2.	Careya arborea Roxb. (Barringtoniaceae)	Dudippa	Leaves	10ml of leaf and stem bark decoction is given internally twice daily for 2days.
3.	Carum copticum Benth & Hook (Apiaceae)	Oma	Powder	Ground 5gm each of Carum copticum, Cuminum cyminum, Piper nigrum and Zingiber officinalis to make juice and 2tea spoons are given daily in the morning and evening for two days.
4.	Cassia fistula L. (Caesalpiniaceae)	Rela	Stem	Collect 5gm each stem barks of Cassia fistula, Capparis zeylanica, Albizia amara, Azadirachta indica, Zizyphus oenoplia and Ricinus communis. Dry them and make powder mix one tea spoonful of powder into 1 glass of water and boil it for 10minutes. Administer this decoction orally twice a daily for two days
5.	Centella asiatica (Linn.) (Apiaceae)	Saraswati aku	Whole plant	100ml (whole plant) decoction is drenched twice daily for two days.
6.	Clerodendrum serratum (Linn.) (Verbenaceae)	Gantubharangi	Root	Make decoction with 50gm roots along with 20gm of Andrographis paniculata and 3black pepper. 20ml decoction is given internally twice daily for 3 days
7.	Cuminum cyminum L. (Apiaceae)	Jeela karra	Powder	Grind 5gm each of Cuminum cyminum, Carum copticum, Piper nigrum and Zingiber officinalis altogether to make juice. Two tea spoons are given daily in the morning and evening for two days
8.	Desmodium gangeticum (L.) (Apiaceae)	Deyyam jada	Root	Decocted 50gm fresh roots along with 3 pepper in 200ml of water and 10ml of this decoction is given internally twice daily for 3- 4 days.
9.	Zizyphus oenoplia (Linn.) (Rhamnaceae)	Pariki	Stem bark	Crush 5gm stem bark with equal quantity stem barks of Albizia amara, Azadirachta indica, Capparis zeylanica, Ricinus communis, and Cassia fistula and boiled in 100ml water for 15 minutes. 20 ml is given orally twice daily for two days.
0.	Pergularia daemia (Asclepiadaceae)	Dustari teega	Leaves	Leaf paste is boiled in gote milk and decoction is given orally for 5 days.
1.	Phyllanthus amarus	Nalla Usiri	Fruit	20ml of fruit juice is drenched along the same

	(Phyllanthaceae)			quantity of neem leaf juice for two times to cure fever
2.	Zingibar officinale (Zingibaraeae)	Sonti	Root	10ml Rhizome is given twice in a day for two days.

IV. Results And Discussion

The present study contains the information gathered by the authors from January 2007 – December 2011 on medicinal plants used by tribal communities like Kolams, Naikpods, Pardhans, Gonds, Thotis, Chenchus and Mathuras of Adilabad district, which are used by the tribal for their health care, of these 4species are recorded from Apiaceae, 3sp Lamiaceae, 2sp Acanthaceae, Asclepiadaceae, Caesalpiniaceae, Fabaceae, Verbinaceae, 1sp Combretaceae, Alangiaceae, Amaranthaceae, Annonaceae, Asteraceae, Barringtoniaceae, Capparidaceae, Combretaceae, Convolvulaceae, Euphorbiaceae, Meliaceae, Mimosaceae, Phyllanthaceae, Rhamnaceae, Vitaceae, Zingibaraeae, The major families which occupied first and second position were Apiaceae and Lamiaceae (Table 1). Resulted in 28 formulation used for treating fever from medicinal plants. In all 32plant species belonging to 23 families were documented and authentically identified. The percentages of plant drug parts used were in order of leaves, stem, root, whole plant, and fruit.

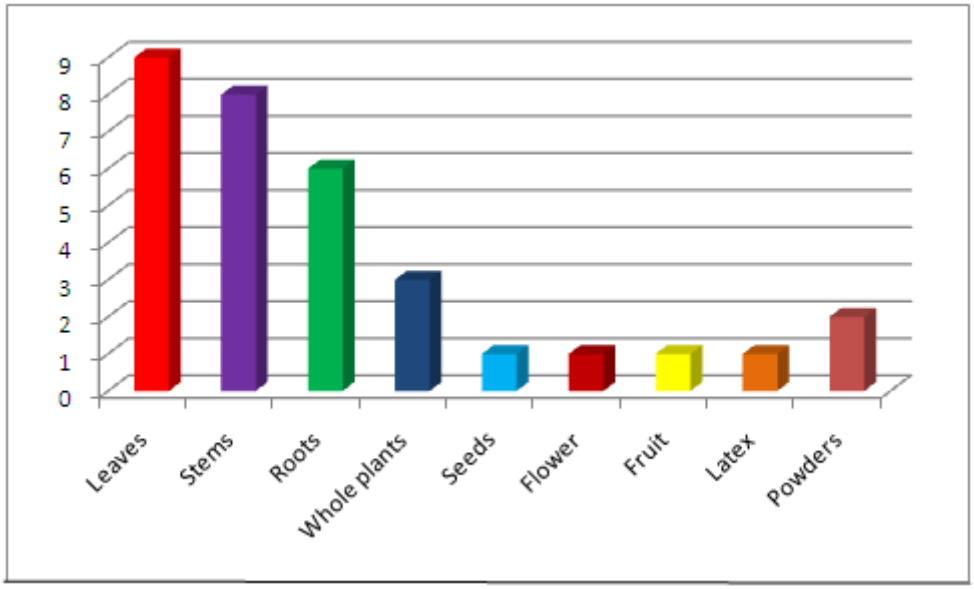

Fig: - Plant parts used by healers

The herbal specialist collects medicinal plants and plant products from their natural habitat whenever a patient or another villager with a health complaint approaches him, prepare decoctions or paste with plant parts and administer the respective medicine in appropriate doses to the patient duration of the treatment vary for different ailments. The medicinal use of plants leaves and roots in the management and treatment of diseases has been an age long practice Plant derived medicines are widely used because they are relatively safer than the synthetic alternatives, they are easily available and cheaper The medicinal use of plants leaves and roots in the management and treatment of diseases has been an age long practice. Seasonal availability of certain species is observed at the time of survey.

V. Conclusion

Healers never charge any fee for treatment however; they ask farmers to bring additives like Pepper, chilies, Curcuma powder, Jiggery etc. while preparing medicine. The present investigation revealed that medicinal plants still play a vital role in the primary health care of the people. Valuable herbal practices which are being practiced by tribal communities of Telangana State have to be studied scientifically and it is important to document and publicize the ethno medicinal plant knowledge among the young generations to raise awareness of and appreciation for traditional values The information gathered from the tribal is useful for further researchers in the field of ethno botany, taxonomy and pharmacology. It also helps to conserve the sustainable use of the plants as well as to keep the traditional medical knowledge. This study offers a model for studying the relationship between plants and people, within the context of traditional medical system. The tribes living in and around the forest area are very much dependent on herbal practices due to lack of communication and cost of allopathy. The purpose of standardizing traditional remedies is obviously to ensure therapeutically efficacy .The value of using ethno medical information is to initiate drug discovery efforts .This study also

generated a broad spectrum of information concerning medicinal plants used by tribals. Due to lack of interest among the younger generation of tribal's as well as their tendency to migrate to cities for lucrative jobs, we face the possibility of losing this wealth of knowledge in the near future.

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