



1. Environmental Sciences Dept., COMSATS Institute of Information and Technology, Vehari Campus
2. Dept. of Forestry, Range and Wildlife Management, Islamia University of Bahawalpur
3. Dept. of Forestry, Range and Wildlife Management, Islamia University of Bahawalpur
4. Institute of Agri. Extension and Rural Development, University of Agriculture, Faisalabad
5. Institute of Agri. Extension and Rural Development, University of Agriculture, Faisalabad
6. Dept. of Forestry, Range and Wildlife Management, Islamia University of Bahawalpur
7. Chemistry Dept., Islamia University of Bahawalpur

Correspondence Address:

Fariha Rehman
Environmental Sciences Dept.,
COMSATS Institute of Information
and Technology, Vehari Campus
fariharehman@ciitvehari.edu.pk

Article received on:

08/04/2015

Accepted for publication:

19/05/2015

Received after proof reading:

12/10/2015

INTRODUCTION

The use of medicinal plants for the treatment against disease is as old as civilization itself. For the majority of the world's population these medicinal plants supply an economical source of drugs.¹ Herbal medicine is useful in treating many diseases including hypertension, infectious diseases, etc. that they can save the lives of many, particularly it is indisputable in the developing countries.² World Health Organization has estimated that most of the population living in the developing countries depends upon the traditional medicine for their health related needs.³

Mass population residing in the developing countries is struggling to increase the living standard and to upgrade the delivery of health care in the face of growing poverty as well as population. It has been projected that about 70 to 80 percent of population in the developing countries has only their conventional herbal remedies for their diseases as the expensive pharmaceuticals are out

ETHNOBOTANICAL SURVEY; COMMON MEDICINAL PLANTS USED BY PEOPLE OF CHOLISTAN DESERT

Fariha Rehman¹, Tanveer Hussain², Muhammad Abdullah³, Ijaz Ashraf⁴, Dr. Khalid Mahmood Ch.⁵, Muhammad Rafay⁶, Ismat Bibi⁷

ABSTRACT... Medicinal plants are used for the production of different medicines and also for the treatment of different diseases. **Study Design:** Study is based on a survey. **Setting:** Traditional medicinal uses of common medicinal plants of Cholistan desert. **Objectives:** The present investigation is aimed to conserve and create awareness about the ethno medicinal value of the plants and their uses to draw the attention of pharmacologists, phytochemists and pharmaceuticals. **Methods:** In the study area a total of 33 plant genres belonging to 21 families are reported. In current study the medicinal plants and their indigenous medicinal uses are only presented by interviewing the local informants and Hakims. The information gained by these sources is presented here. For every plant basic information like family of plant genus, botanical name, local name, plant origin, abundance, status, plant form, part used and medicinal importance are given. **Results:** Field observations showed that deforestation, over grazing, agricultural expansion and unscientific collection, processing and preservation of natural vegetation are the major threats in the investigated area. **Conclusion:** There is dire need to conserve plant resources of Cholistan desert.

Key words: Ethnobotany, Indigenous plant resources, Desert

Article Citation: Rehman F, Hussain T, Abdullah M, Ashraf I, Chaudhry KM, Rafay M, Bibi I. Ethnobotanical survey; common medicinal plants used by people of Cholistan desert. Professional Med J 2015;22(10):1367-1372. DOI:10.17957/TPMJ/15.2880

of their reach.

Medicinal ethno botany refers to the study of conventional usage of plants and Indigenous knowledge regarding plants, human health care and prevention of human illness by using plants. Botanical information about medicinal plants and their usages by local culture is effective not only in the conservation of biodiversity and traditional culture, but also for drug development and community health care. This information is handled as a guide for drug development under the assumption that has been utilized by local people over a long period of time.⁴

Pakistan has an altitude ranging from 0 to 8611 m, therefore, has a unique biodiversity and a variety of climatic zones. It has been reported that there are about 6,000 species of higher plants, from which 600 - 700 species are used for medicinal purposes. It has also been estimated that 30% of the total species are bi-regional and about 70%

are uni-regional.⁵

The word Cholistan is derived from the Turkish word Chol, which means Desert. Cholistan thus means Land of the Desert. Cholistan desert (locally known as Rohi) an extension of Great Indian desert is spreading over an area of 26,000 km². Geographically the Cholistan desert lies between 27° 42' - 29° 45' N and 69° 52' - 75° 24' E, in the southern Punjab province of Pakistan. Based on topography, this desert is divided into two geomorphic regions: Northern region Lesser Cholistan (broader canal irrigated area) covers about an area of 7,770 km² and Southern region the Greater Cholistan (the wind resorted sandy desert is seldom use for grazing due to lack of water and inaccessibility) covers an area of 18,130 km².^{6,7} The desert has an average rainfall of 5 inches a year and there is a very little cultivation.

Cholistan desert is an important region for its endemic and medicinal plant species. The dwellers of Cholistan desert have always used medicinal plants for their ordinary health problems by traditional method. Indigenous knowledge of desert dweller about medicinal plant is directly linked to their culture and history. There are large number of plant species available in the area which could be proved useful.⁸ The local community has the knowledge of centuries old customary usages of the majority of the plants of that area. This indigenous knowledge of plants is transmitted from generation to generation by their ancestors.

Although the great role of medicinal plants and traditional medicine in the primary health care, yet there has been so far a little work done to promote and properly document the indigenous knowledge of medicinal plants. Therefore, the present study was designed to compile and popularize the indigenous knowledge related to medicinal plants to conserve the rapidly disappearing traditional knowledge.

MATERIALS & METHODS

The study was conducted in the Cholistan Desert. The population for the study consisted of the desert dweller. The study intends to look into the

range of medicinal plants that are used by desert dweller. Thus, the population for the study was consisted of the desert dwellers that use the medicinal plants. As it was impossible to interview all the units of the population, so, keeping in view the limitations of time and financial resources, the sample of population was limited to 120 desert dwellers selected through simple random sampling technique. From the whole population eight localities were selected purposively including Kudwala, Mansoor, Kala Pahar, Moj Garh, Din Garh, Thandi Khoi, Choki Bana, Yazman. From each locality 15 persons were selected through simple random sampling. The data were collected with the help of validated and reliable interview schedule. Group discussions, observations and field visits were also arranged to gain information regarding the uses of numerous plants.



Fig-1. Map of Cholistan Desert

RESULTS

The current research work is based on the indigenous knowledge of most frequently used medicinal plants of cholistan desert. A total of 33 plant genres belonging to 21 families are reported from study area. Research work was focused on the traditional medicinal uses of that area. During this work local informants and Hakims were interviewed. Ethnomedicinal uses and data about management of various ailments based on the information collected from indigenous people by using interview schedule are given accordingly.

	Family	Botanical name	Local name	Part used	Abundance	Plant origin	Status	Plant form	Medicinal importance
					Rare/ Abundant/ Common	Indigenous/ exotic	Wild/ Cultivated	Tree/Herb/ Shrub/ Forbe/ Grass/ Climber	
1	Acanthaceae	Blepharis sindica	Gandi-buti	Seeds, root	Rare	Indigenous	Wild	Herb	General debility, dysmenorrhoea, urinary discharge
2	Aizoaceae	Sesuvium sesuvioides	Bari ulwaiti, Kori Lonk	Stems, roots,	Common	Indigenous	Wild	Herb	Smallpox, measles, cough, flu and cold
3	Amarathaceae	Aerva javanica	Bui	Leaves, root, flowers	Abundant	Indigenous	Wild	Shrub	Renal stone, sore- throat, snake bite treatment, and nasal blockage.
4	Asclepiadaceae	Calotropis procera	Aak	Whole plant and latex	Common	Indigenous	Wild	Shrub	Cough, asthma, pain killer, dog bitten wounds, anti lice, ringworm, skin diseases
		Leptadenia pyrotechnica	Khip	Whole plant, seeds and flowers	Common	Indigenous	Wild	Shrub	abdominal colic, rheumatism, kidney stones, backache, constipation, joint pains, dysmenorrhoea
5	Asteraceae	Echinops echinatus	Unt-katara	Whole Plant	Common	Indigenous	Wild	Herb	Liver disorder, bladder problem, jaundice, sexual debility, skin itching and anorexia
6	Boraginaceae	Heliotropium strigosum	Gorakh Pan	Whole Plant	Common	Indigenous	Wild	Herb	Open wound, tuberculosis sore eyes, boils, sore nipples of breast, ulcer
7	Caesalpiniaceae	Cassia italica	Ghoray-wall/ Sana	Leaves, root, bark,	Rare	Indigenous	Wild	Herb	Constipation, mental disorder, snake bite, malaria, painful menstruation, rheumatism and arthritis
8	Capparaceae	Gynandropsis Gynandra	Karalia	Seed, root, leaves	Rare	Indigenous	Wild	Herb	Gastrointestinal diseases, respiratory, analgesic, anti inflammatory, anaemia, head lice, scabies
9	Capparidaceae	Capparis decidua	Kubber/Karir/ Kary	Leaves, bark, roots, fruit, shoots, buds	Abundant	Indigenous	Wild	Shrub	Blood purifier, asthma, cough, inflammation, toothache, acute pain, to kill lice, fever and bone fracture
	Capparaceae	Dipterygium glaucum	Phel	Whole plant, leaves, stem, roots, fruits	Abundant	Indigenous	Wild	Herb	ring worms and psoriasis
10	Chinopodiaceae	Haxloxyon recurvum	Khar	Whole plant	Abundant	Indigenous	Wild	Shrub	Intestinal ulcers
		Haloxylon salicornicum	Lana	Whole plant	Abundant	Indigenous	Wild	Shrub	Smog used for cold and Anti-diabetic
		Salsola baryosma	Lani	Whole Plant	Abundant	Indigenous	Wild	Shrub	Skin disease
		Suaeda fruticosa	Koori lani	Whole Plant	Abundant	Indigenous	Wild	Shrub	Eye Problem and skin disorder
11	Cucurbitaceae	Citrullus colocynthis	Tumma	Leaves, seeds, pulp of the peeled fruit, and roots	Common	Indigenous	Wild	Herb	Rheumatic diseases Constipation, diabetic, breast inflammation and asthma
		Cucumis melo var agrestis	Chibbar	Fruit	Common	Indigenous	Wild	Herb	Constipation and anorexia
12	Cyperaceae	Cyperus rotundus	Deela	Fruit, root	Common	Indigenous	Wild	Grass	Burning micturation, hotness, vermicide, vomiting, distaste, colitis, diarrhea, dyspepsia, regulates the menstruation, and loose texture of breast.
13	Mimosaceae	Acacia nilotica	Kikar / Babul	Pods, seeds, gum, root, leaves, stem bark	Common	Indigenous	Wild	Tree	Children sore eyes, asthma, spermatorrhoea, sexual debility, skin diseases, anti hypertensive, diarrhea, and night fall

		<i>Prosopis cineraria</i>	Jandi/ Khejari	Flowers	Abundant	Indigenous	Wild	Tree	Contraceptive, wounds, skin diseases and blood purifier
14	Neuradaceae	<i>Neurada procumbens</i>	Chapparri	Leaves and fruits	Rare	Indigenous	Wild	Herb	General debility, impotency and general and nerve tonic
15	Papilionaceae	<i>Alhagi maurorum</i>	Jawasa	whole plant, leaves, flowers	Common	Indigenous	Wild	Herb	Blood born diseases, respiratory, antiseptic bleeding piles, treatment of rheumatism, diuretic and laxative
16	Poaceae	<i>Aeluropus lagopoides</i>	Dahasir, Khario Ga, Lolar, Anah kaah, Loona kaah	Whole plant	Common	Indigenous	Wild	Grass	Wound healing, pain killer
		<i>Panicum antidotale</i>	Kallar, Ghamur, ghum ghah	Seeds	Common	Indigenous	Wild	Grass	Treatment of bone fracture
17	Polygonaceae	<i>Calligonum polygonoides</i>	Phog	Roots	Abundant	Indigenous	Wild	Shrub	GIT upsets, sore eyes, tonsillitis and sever thirst
18	Salvadoraceae	<i>salvadora oleoides</i>	Pilu	Fruits, seeds, leaves	Rare	Indigenous	Wild	Tree	Rheumatism, nutritive, anorexia, skin boils, ulcers and purgative
19	Solanaceae	<i>solanum nigrum</i>	Mako	Whole herb	Rare	Indigenous	Wild	Herb	aphrodisiac Fevers, constipation colitis, eczema, asthma, severe burns and ulcer
		<i>solanum surattense</i>	Kundiari	Root, leaves, berries	Rare	Indigenous	Wild	Herb	Expectorant, sore throat and pain killer
		<i>withania coagulans</i>	Paneer	Whole plant	Rare	Indigenous	Wild	Herb	anorexia, jaundice and skin problem
		<i>withania somnifera</i>	Asghan / Ashwagandha	Seeds, leaves and root	Rare	Indigenous	Wild	Herb	debility, cold, cough, tuberculosis, leucorrhoea and constipation
20	Tiliaceae	<i>corchorus depressus</i>	BohPhali	Whole plant	Common	Indigenous	Wild	Herb	male urino-genital diseases, Spermatorrhoea, skin eruptions and gonorrhoea
21	Zygophyllaceae	<i>Peganum harmala</i>	Harmal Harmala shrub	Seeds	Rare	Indigenous	Wild	Herb	Asthma, fevers, narcotic, stimulant and antiseptic
		<i>Tribulus terrestris</i>	Bhakra / Gokhru	Whole plant	Rare	Indigenous	Wild	Herb	kidney , urinary tract infections, liver, cardiovascular, heart disease, cough, male impotency and stimulate for sexual activity

Table-I: Indigenous knowledge of most commonly used medicinal plants

DISCUSSION

The use of plants traditional purposes is an old practice. The primitive people of all ages had knowledge of medicinal plants which they acquired as a result of trial and error. It is clear that folk phyto-therapy today is greatly reduced and largely abundant, swept away by pharmaceutical technology. What remains of this centuries old knowledge relates mainly to minor disease and ailments. This knowledge is still alive and several hundred species were used in herbal remedies, where the whole plant part or its extraction was used.

The present research survey was aimed to provide medicinally valuable information about 33 indigenous plants belonging to 21 families. The main focus of this research was to ar-

range the medicinal uses of plants. Ethnobotany is very useful in identifying and untangle conservations issues in the cases where the harvesting rate beats the re-growth rates. It is thriving to conserve the medicinal plants, which were harvested.⁹ This is in favor of the upcoming generations, so that they may possibly benefit from this treasure of God, which is a real blessing and gift of nature for mankind. In modern era it is alarming that the knowledge of ethnobotany is disappearing rapidly. A principal aim of such a study is to make sure that local natural history becomes a living tradition in communities; it is being transmitted orally from time to time. The outcomes of this work can later be applied to biodiversity, conservation and community development.^{10,11} These medicinal plants are a source of income and treatment

for local people. In Cholistan, various Hakims use common local plants to cure their patients. In spite of study area, all over the world the medicinal plants are used actively in the trade and economy of the country. Plant drugs were frequently utilized in the form of powder, paste, sap, extracts, inhaling smoke of medicinal plant and chewing the raw plant. Leaves were the most mentioned plant parts utilized by the healers for the preparation of conventional medicines. Herbal preparation methods and dosage depend on the type of disease. Some plants were boiled while others were applied directly in fresh form. The herbal medicines were generally given to patients until patients reported positive results.

CONCLUSION

The arid ecosystem of cholistan desert exhibits a great variety of geology, physiography and peculiar edaphic and climatic conditions. The region is a rich repository of genetic material of important arid medicinal plant wealth. These studies of ethnomedicinal aspects will be useful for further researches in the field of pharmacology, phytochemistry and pharmaceutical chemistry. In conclusion it is necessary to point out that what remains of folk uses of medicinal plants survives and still plays a role in public health of the study area must be preserved and documented.

ACKNOWLEDGEMENT

We acknowledge Higher Education Commission, Pakistan for providing funds through the Startup Research Grant Program (SRGP) to the Islamia University of Bahawalpur, Pakistan. The authors have no clash of interest to affirm.

Copyright© 19 May, 2015.

REFERENCES

1. Ballabh, B., O.P. Chaurasia, Z. Ahmed and S.B. Singh. **Traditional medicinal plants of cold desert Ladakh-used against kidney and urinary disorders.** J. Ethnopharmacol, 2008;118(2): 331-339.
2. Nanjunda, D.C., **Ethno-medico-botanical investigation of Jenu Kuruba ethnic group of Karnataka State, India,** Bangladesh J. Medical Sci. 2010;9(3): 161-169.
3. WHO. **Traditional medicine fact sheet No 134.** 2008. Available at: www.who.int/mediacentre/factsheets/fs134/en/.
4. Farnsworth, N.R., **Ethno pharmacology and future drug development: the North American.** J. Ethnopharmacol, 1993;38 (2-3): 145-152.
5. Ali, S.I. and M.Qaiser, **A Phytogeographical Analysis of the Phanerogames of Pakistan and Kashmir.** Proc. R. Soc. Edinburg, 89B, 1986; 89-101.
6. Baig, M.S., M. Akram and M.A. Hassan, **Possibilities for range development in Cholistan desert as reflected by its physiography and soils.** Pak. J. Forestry, 1980;61-71.
7. Khan, F.M., **Ethno-veterinary medicinal usage of flora of Greater Cholistan desert (Pakistan).** Pak. Vet. J., 2009;29(2): 75-80.
8. Hameed, M., M. Ashraf, F. Al-Quriany, T. Nawaz, M.S.A. Ahmad, A. Younis and N. Naz, **Medicinal flora of the Cholistan desert: a review.** Pak. J. Bot., 2011.;43: 39-50.
9. Bopana, N. and S. Saxena, **Asparagus racemosus—ethnopharmacological evaluation and conservation.** J. Ethnopharmacol., 2007;110: 1-15.
10. Martin, G.J., **Ethnobotany: A Methods Manual.** Earthscan London, UK. 2004.
11. Qureshi, R.A., M.A. Ghufuran, S.A. Gilani, Z. Yousaf, G. Abbas and A. Batool, **Indigenous Medicinal Plants used by Local Women in Southern Himalayan Region of Pakistan.** Pak. J. Bot. 2009;41(1): 19-25.



“If you don't accept the change,
it will change you.”

Muhammad Shuja Tahir



AUTHORSHIP AND CONTRIBUTION DECLARATION

Sr. #	Author-s Full Name	Contribution to the paper	Author=s Signature
1	Fariha Rehman	Identification of research area Literature Review, Data collection	
2	Tanveer Hussain	Literature Review, Data collection final proof reading	
3	Muhammad Abdullah	Data analysis, writing the manuscript	
4	Ijaz Ashraf	literature review weite up discussion	
5	Khalid Muhammad Ch	Final proof reading, Data analysis, Supervision	
6	Muhammad Rafay	Writing the article, Data collection & analysis	
7	Ismat Bibi	Write up discussion literature review, Final proof reading	