# A study on status of indigenous medicinal plants and their use as traditional medicines at Rahim Yar Khan District

**Muhammad Rizwan Shahid**
**202-FBAS/MSES/S14**

**Department of Environmental Science**
**Faculty of Basic and Applied Sciences**
**INTERNATIONAL ISLAMIC UNIVERSITY ISLAMABAD**
**PAKISTAN**

**2016**

Accession No. TH7224

NIS
615.32
SHS

1. Medicinal plants
2 Traditional Medicine

# A study on status of indigenous medicinal plants and their use as traditional medicines at Rahim Yar Khan District

By

**Muhammad Rizwan Shahid**
**202-FBAS/MSES/S14**

Supervised By

**Dr. Muhammad Ibrar Shinwari**


**Department of Environmental Science**
**Faculty of Basic and Applied Sciences**
**International Islamic University, Islamabad-Pakistan**

**2016**

**Acceptance by the Viva Voce Committee**

**Thesis Title:** A study on status of indigenous medicinal plants and their use as traditional medicines at Rahim Yar Khan District

**Name of Student**: Muhammad Rizwan Shahid

**Registration No:** 202-FBAS/MSES/S14

Accepted by the Faculty of Basic & Applied Sciences, Department of Environmental Sciences, International Islamic University, Islamabad in partial fulfillment of the requirements for the Master of Studies in Environmental Science

**Viva Voice Committee**

Dean, FBAS

DEAN
Applied Science
International Islamic University

**(Prof. Dr. Muhammad Sher)**

Chairman, DES

**(Prof. Dr. Muhammad Sher)**

Supervisor

**(Dr. Muhammad Ibrar Shinwari)**

External Examiner

**(Prof. Dr. Zabta Khan Shinwari)**

Internal Examiner

**(Dr. Muhammad Asad Ghuffran)**

*Dedicated to My Beloved Parents*
*And*
*Beloved Brother Adnan*

*For their endless affection, support and encouragement*

# DECLARATION

I hereby declare that the work present in the following thesis is my own effort, except where otherwise acknowledged and that the thesis is my own composition No part of the thesis has been previously presented for any other degree

**Date 31-12-2016**

**Muhammad Rizwan Shahid**

# ACKNOWLEDGEMENTS

I would like to express my sincere gratitude to my dissertation supervisor Dr Muhammad Ibrar Shinwari for his continuous support during my research for his patience, motivation, enthusiasm and immense knowledge His dynamic supervision and constructive criticism has helped me to complete this work in time

I would also like to thank to Dr Waseem Sadiq, Hakeem Abdul Rehman Wasi, Hakeem Gulzar Hussain, Hafiz Faisal Mughal, Abdul Waheed and Awais Munir who guided, encouraged with valuable knowledge, assistance, cooperation, kind attention and guidance throughout the completion of this dissertation They have always pushed me to work hard and gave me confidence

I would also like to thank to my students who helped in specimen collection and data analysis especially Majid Mehmood, Adeel Ansari and Basra brothers

I also acknowledge the help, the encouragement, endless love, support and prayers of my family, which have always been a source of inspiration and guidance for us all the way

**Muhammad Rizwan Shahid**

# Abstract

Pakistan is a country with majority of the population living in remote areas (villages, tribes and desserts communities) taking benefit of local medicinal plants by many ways District Rahim Yar Khan is geographically and ecologically diverse area where local people carry traditional knowledge of medicinal plants but its documentation is poor This study aimed to prepare an ethno-botanical data-base and analyze the medicinal value of plant species by the local community The research methodology opted for the study is through extensive survey technique from (70 respondents of Drug market and local people while from 16 Hakims and Homeopathic doctors) A total of 65 medicinal plant species were recorded belonging to 32 families and 59 generas at 4 study site (Tehsil Rahim Yar Khan, Sadiq-a-bad, Khan Pur and Liaqat Pur) Fabaceae and Poaceae families are predominant Most important medicinal plants are *Calotropis procera* Linn, *Coriandrum sativum* Linn, *Foeniculum vulgare* Mill *Mentha longifolia* (L ) L , *Ocimum tenuiflorum* Linn *Phoenix dactylifera* Linn , *Tamarix aphylla* (Linn ) Karst and *Ziziphus jujube* Mill While plant species having lowest medicinal value are *Bombax ceiba* Linn *Convolvulus arvensis* Linn *Eucalyptus globules Labill* , *Hibiscus rosa-sinensis* Linn, *Hordeum vulgare* Linn, *Lathyrus sativus* Linn, *Melilotus indica* Linn , *Oxalis corniculata* Linn and *Phalaris minor* Retz etc It is concluded that indigenous plant species play very important role in the life of inhabitants of District Rahim Yar Khan as these are main source of the herbal medicines Detailed research is required and restoration of the natural habitat of the these medicinal indigenous plants is recommended

# Contents

# List of Tables

# List of Figures

## Chapter 1

# Introduction

### 1.1 Subject area

#### 1.1.1 Ethno-botany at global level

Ethno-botany includes the study of plants in relation to the residents of a particular area and deals with traditional system of categorization through its physical structures, surroundings, tradition and further parameters (Berlin, *et al*., 1973) Initially methodology which was opted in the field of ethno-botany comprises on quantitative methods such as listing the native plants and their uses to make a database But Plants have been used as folk medicine throughout the world (Smitherman, *et al*., 2005) Through Research local and global organizations (WHO) have been discovered that for 75-90 % of the people residing in the rural areas of the world and the local herbalists single-handedly manage their therapeutic problems (Aikman, 1977, Morton, 1975, Jain, 1965) Conventional use of medicinal plants is quickly rising because the drugs made out of these have not shown any side effects and these are easily available at reasonable price In modern times it is only the affordable source to be cured and remain healthy for the poor (Acharya, *et al*., 2009)

Mennis (2006) analyzed relationship of people and plants socially as well as economically He accomplished that transformation is not only forcing natural resources and in addition changing the value of living for numerous people Nevertheless, the main concern in this hi-tech age is the pasting of aboriginal information which possibly will provide as an instruction for several botanists and environmentalists as well from any part of the world if they want to conduct the research on plant-based medicines Medicinal plants are of the rural areas took the great attention for the local population and they trade these plants (Elisabetsky, 1990)

Use of herbal medicines is not only restricted to the local tribal areas but now it has share in the drug Market of the developed countries (Poonam, *et al*., 2009) In United States approximately 25 percent of all prescriptions which were given by doctors in community clinics are comprises of extracted pharmaceuticals from vascular plants and nearly 64

percent of the whole overall population stay put needy on conventional medication for their health (Cotton, 1996) In India only, around 7 500 medicinal plants are conventionally used against a range of diseases Whereas China, Malaysia, Korea and Japan jointly among a small number of further Southeast Asian countries are leading the world in utilization of herbal medicines (Rao, 1996, Kala, *et al* , 2007)

### 1.1.2 Geographical setting of Pakistan and ethno-botany:

Pakistan is situated between 60° 55'to 75° 30' Eastern longitudes and 23° 45 to 36° 50' Northern latitudes Whereas the entire area of Pakistan according the political boundaries is 80,943 $km^2$ (Haq, *et al* , 2010) Pakistan has been blessed with the diversity of plants due to a multiplicity of climatic zones, landscapes and several environmental regions (Haq, *et al* , 2010)

Pakistan represented an orthodox case study for investigating the role of traditional medicine for several healthcare settings It is a largely rural country with 67% population living in remote areas (villages, tribes and desserts communities) taking benefit of local medicinal plants by many ways (Tovey, *et al* , 2005) The rural communities exploit plants for local use as well as sale outside their area where medicinal plants are easily available (Ahmad & Hussain, 2008) While the lesser economic situation and unavailability of current health services in countryside areas restrict the access of local people to man-made medicines While the educated persons are usually conscious in relation to the harmful effects of man-made goods and are realizing the significance of additional natural way of life (Said & Saeed, 1996)

The native community of Pakistan carries century's old conventional knowledge of medicinal plants which lies not only in the remote areas (villages, tribal areas) but also the people living in the cities of all four provinces Baluchistan, Sindh, Punjab, AJK and the northern areas of Pakistan The Knowledge of Ayurvedic, Homeopathy and Unani (methods of medication practiced in the south Asia) traveled from generations to generations by their elders, are completely dependent on local medicinal plants

Various studies have been prepared in the discipline of ethno-botany observing by a hawk eye view of medicinal and other functional plants in diverse parts of Pakistan (Durrani *et al*., 2009, Ibrar, *et al*., 2007, Qureshi *et al*., 2007, Qureshi & Bhatti, 2008) Some medicinal and ethno-botanical studies also have been done in the surronding regions of the study site (Shinwari, *et al*., 2003a, Shinwari, *et al*., 2003b) also done the comprehensive research work on the medicinal plants of district Swat Ali and Qaisar (2009) listed the aboriginal utilization of 83 taxa from Chitral district (Barkatullah, *et al*., 2009) conducted ethno-botanical survey of Charkotli Hills, Batkhela The work done showed to us that of total plant biodiversity in Pakistan comprises of nearly 5000 species and less than 10 percent of these are used either as herbal medicine or used in about 350 traditional formulations to cure a range of diseases Rural areas along coastal region of Pakistan (Sindh and Balochistan provinces) showed a traditional example of having wealthy past of utilizing herbal medicine Ethno-medicinal surveys showed the therapeutic significance of 54 plant species from 27 families of that particular area (Qasim *et al*., 2014)

**1.2 Study area**

Rahim Yar Khan is situated between 27°40'-29°16' northern latitudes and 60°45'-70°01' eastern longitudes It is the district of the Punjab province in the country of Pakistan It is bordered on north side by district Muzaffargarh, on the east by district Bahawalpur, on the southern side by Jaisalmair city of the nearest country India and district Ghotki of Sindh province and on the west by district Rajanpur (ASER 2010)

This district is divided into three main geographical zones Riverine area, Canal irrigated area and Desert area which is called Cholistan It is situated in the south of the irrigated area up to the India Pakistan border

District comprises of area of 11,880 square kilometers The district comprises four Tehsils Rahim Yar Khan, Sadiqabad, Liaquatpur and Khanpur The total population of Rahim Yar Khan District was 3 3 million 19 6 percent of the total population lives in urban areas (ASER 2010) The climate of the district is hot and dry in the summer, on

the other hand cold and dry in the winter season The summer season is relatively longer than other seasons in this particular region It starts in April and continues until October The winter season goes from November to March The average rain fall is about 100 millimetres (3 9 in)

### 1.3 Problem Statement:

The study area is geographically diverse area containing three main physical features riverside area, canal-irrigated area and desert area. So, it is ecologically diverse as well The local people have traditional knowledge about medicinal plant use but it is very unfortunate that its documentation is poor and could not catch the attention of any researcher with modern tools and technologies Through this study a baseline record will be built which will be available for the other interested researcher as primary data source

### 1.4 Objectives:

1. To preserve the local traditional knowledge
2. To report new as well as rarely reported medicinal properties of medicinal plants
3. To calculate the medicinal value of the selected plants used by the local persons as herbal medicine

### 1.5 Significance of Study:

1. There is no previous record of ethno-botanical resources from the area So, the data baseline of the medicinal plants will be documented for the future generation

2. The local status of the ethno-botanically important plants will be established which is still unavailable

3. There is a possibility of discovery of some new inventories in the documentation of indigenous knowledge

## Chapter 2

### Literature Review:

### 2.1 History of Ethno-botany

Ethno-botany is the study that why people use plants for the welfare of man If one considers the questions how and why people are using plants, the ethno-botanist approaches this problem by gathering data from living people The exact meaning of the word "ethno-botany" is the study of botany of primitive human race In this way, an understanding is developed not just of the present uses of plants, but also of the importance of plants for food, medicine construction, etc in their past existence It also gives an indication of people's traditional ecological knowledge exclusively associated to plants and the influence of this knowledge on the research and methods used in ethno-botany

From the very beginning plants provide a lot of services for us like food, medicines, shelters and fodder for animals, materials for mats and baskets and many other useful items which we used in our daily life Men make full benefits from plants for their basic needs but usually do not recognize their uses and extensive exploitation resulting in habitat losses and decreased in biodiversity Thus it was realized by the scientists to record the local knowledge, their potential uses and application of indigenous knowledge for the development of human being all over the world

The awareness of ethno-botany increase wealthy utilization and accomplishment in trying on human being and guide to our ordinary foods and medicines (Campbell, *et al*, 2002) The perception of ethno-botany happening to build up in 1895 after address in Philadelphia by Dr John Harshberger where he used the word "ethno-botany" to explain his study area, namely "the study of plants used by primitive and aboriginal people" (Robbin, *et al*, 1916) The significance of the word "ethno-botany" changed from the "study of native uses of plants" to a more scientific approach (Robbin, *et al*, 1916)

First international congress of Ethno-botany was held in 1998 in Belam, Paro, of country Brazil Ethno-botanists and native people from the niebhourhood from twenty five

countries of the World get together to talk about conventional knowledge significance and its applications for the development and benefit of people From prehistoric times, in hunt out for treatment of their disease, the people searched for drugs in nature The beginnings of the medicinal plants use were deep-seated, as is the case with animals (Stojanoski, 1999)

In view of the reality that at the time there was not enough information either regarding the reasons for the illnesses or regarding which plant and how it could be utilized as a cure, the entire thing was based on practice Usage of plants typically relates to people s understanding of the importance of plants, medicinally and or else, and their experience of plants moving in their local environment

**2.2 History of Traditional Herbal Medicines**

While the utilization of plant species for medicinal purposes came up from the start of civilization, as written records, a clay slab from Nagpur showed that it was firstly used for preparation of drugs during the Sumerian Period, roughly 5000 years ago It consisted of twelve recipes for drug preparation referring to over two hundred and fifty different plants (Kelly 2009) The Chinese book on grasses and roots ' Pen T Sao ' written by Emperor Shen Nung circa 2500 BC, talk about 365 dried parts of medicinal plants, many of these plants are used even in these days such as the following *Rhei rhisoma, camphor, Cinnamon bark, Podophyllum, Ginseng, Theae folium, Jimson weed,* and *Ephedra* (Bottcher, 1965, Wiart 2006) Indian holy book Vedas talk about healing of numerous diseases with herbals and native plant species, which are still plentiful in that country India Numerous seasoning plants used even today start off from India *nutmeg, pepper, clove,* etc (Tucakov, 1971) According to data from the Bible and the holy book of the Talmud, during different rituals associated a cure is done through the aromatic plants like incense and myrtle (Dimitrova, 1999)

The local medicinal knowledge of medicinal plant species is supportive to ecologists, taxonomists, pharmacologists watershed and wild life managers in civilizing the opulence of the study area, above and beyond reporting the conventional uses (Ibrar, *et al* , 2007)

Starting from the prehistoric era to today people have cured themselves with medicines have been from the native plants Medicinal plants have been utilized since ancient times Still, the making use of plants as a supply of medicine is very greatly significant for human beings (Kultur, 2007) Since the plants are in frequent use by the local people and are of gigantic impact that s why a group of natives are engaged in the deal of important medicinal herbs all through the world (Elisabetsky, 1990) Mainly, local people living in villages have been utilizing aboriginal plants as medicines since ages because this knowledge travels from the older generation to the newer generation and is based on lifelong experiences In addition, the villages are situated far away from city areas and mostly require proper health facilities

In the modern days one can monitor an international drift of significance in the long-established structure of medicines (Cragg & Newman, 2003) Evaluation of the very popular herbal medicines has turn into a latent basis of biodynamic substances of therapeutic value Ethno-medicinal studies have been steadily converted into fitness and protection programs in a variety of parts of the globe In a range of countries the use of local medicinal plants ranges from four to twenty percent, about twenty five hundred species of medicinal plants are being traded globally (Schippmann, *et al* , 2002)

**2.3 Medicinal plants usage in central and Sothern American Region**

In most Latin American countries, the population extensively uses herbal medicines Internationally 387 million people currently have been diagnosed with diabetes and it is expected that this condition will be the 7$^{th}$ important reason of death worldwide by the year of 2030 The research study has been conceded out to evaluate the plant species which are being used as herbal medicines in seven Central American countries which were Belize, Costa Rica, El Salvador, Nicaragua, Guatemala, Honduras and Panama to cure diabetes and verify that plant recorded as conventional medicines diabetes mellitus, cardio vascular disease, sexual dysfunctions, urinary problems, kidney disease, skin diseases and infections, visual loss, and nerve damage Results showed that out of Five hundred and thirty five recognized species used to manage diabetes and its sequelae, One hundred and four species are used to manage diabetes However, only seven of these

species were recorded as continiously *Momordica charantia* L., *Tecoma stans* (L.) *Juss ex Kunth Neurolaenalobata* (L.) *R Br ex Cass., Psidium guajava* L., *Persea americana Mill., Anacardium occidentale* L. and *Hamelia patens Jacq* (Giovannini, *et al*., 2016)

**2.4 Medicinal plants used in different tribal areas of continent Africa**

African medicinal plants are developing new research methodologies to regulate/to stimulate much needed ethno-pharmacological research and to encourage the commercialization of African plant species. A review of past and current research publications and the baseline data on the World Wide Web to present proportional analysis of the comparative recognition and importance of commercialized African herbal plants used for medicines. Comparative studies have been done between the general popularity and commercial importance of the species with their scientific popularity and importance. The review was based on literature data, Scopus and Google searches, commercial data and the author's own understanding and observations. Results showed that more than 5400 plants species are used as traditional medicine in Africa, while merely 10% have been commercially developed to some degree. Africa has eighty valuable commercial species that are frequently traded in international markets, including phyto-medicines ( like *Harpagophytum procumbens* and *Pelargonium sidoides*), functional foods (e.g. *Hibiscus sabdariffa and Adansonia digitata*) and sources of pure chemical bodies (E.g. caffeine from *Coffea arabica* and yohimbine from *Pausinystalia johimbe*). According to the Scopus results, about sixty percent of all recent publications on African medicinal plants of last decade showed Eighty five famous plant species were the part of global trade. In spite of a perceptible new increase in the quantity of publications on local medicinal plants and nutritional supplements, Africa is left behind of Europe and Asian countries in number of products that have been commercialized and the percentage of the flora that is utilized for global trade. (VanWyk, 2015)

In South Africa, Ethno-botanical research studies have been concluded possessions of traditional knowledge on medicinal plant species and their uses amongst old people of KhoiSan and Cape Dutch decent in the Murraysburg regions and Graaff-Reinet (south-

eastern Karoo) The *Materia Medica* includes at least eighty six species, most of which appear to be still in everyday use The use of exotic plants twelve species and similarities with the Xhosa therapeutic ethnicity exemplify that the traditional system is active and adaptive Medicines to treat problems of the stomach, kidneys, bladder, back, as well as colds and other minor ailments have a high frequency Compound medicines made from the different plant species are often used These include new uses, new vernacular names and new medicinal plants *Abutilon sonneratum, Aloe striata, Helichrysum pumilio, Osteospermum herbaceum, Eberlanzia spinosa, Peliostomum cf origanoides Pentzia punctata, Pachypodium succulentum, Rhigozum obovatum* and *Stapelia olivacea* A general idea of the most important plants shows a number of interesting measures that have been remained un-documented New records of plants e g *H pumilio* and *O herbaceum* that are commonly used in the niebourhood verify that the medical ethno-botany of the Karoo is still need to be investigated (VanWyk, *et al* , 2008)

Ethno-botanical study in year of 2013 at study area Tabiya Gemeda district Northern Ethiopia on traditional medicinal plants was done in the months of April and May, And documented different types of traditional medicinal plants used by the native people of Ethiopia which is the most poorest country in the Africa and facing food shortage in these days Results showed total thirty one medicinal plant species were gathered and acknowledged from the study area for treating thirty two human diseases Out of these eighteen plant species (Fifty eight percent) were wild where as eleven plant species (thirty five percent) of them were cultivated and two plant species (almost six and half percent) were wild and cultivated plants The most foremost plant part was leaf (fifty percent) The course of direction was oral direction about twenty plants species (sixty four and half percentages) and the most common technique of preparation is grinding about seven plant species (twenty two and half percentage) (Mesfin *et al* 2013)

Many Research Studies have been documented on medicinal plants of the Swiss Flora more than the last two thousand years ago, which gives a wealthy supply of knowledge. utilization of plants for the welfare of man and use patterns of the local plants The people were asked the question that which local plant species were matured and used for

the treatment of the diseases and how the intensity of plant families, growth forms and habitats of these plant species changed over time Twenty five research papers from the old times and the ethno-botanical studies of the modern era were considered Use patterns were analyzed with the Bayesian approach Out of total Seven hundred and sixty eight species, thirty two percent of the vascular plants of the Swiss plant species have been recorded as medicinal plants One hundred and four species are documented through all time spans of the history Archeophytes, forest plants and trees are usually represented in herbals all through the time from ancient era to the modern one Plants species which were used as timberline are generally in lowest numbers throughout the history of two thousand years Most extensively used medicinal plants of the families Lamiaceae and Apiaceae were reported ( Cero, *et al* , 2014)

**2.5 Use of Medicinal plants in European countries by local communities**

This Comparative study investigation was based on the Utilization of wild plants of Southern Cantabria in country Northern Spain This paper compares four index based on informant accord Each index aims to evaluate the cultural importance of medicinal plant species and is appropriateness for statistical testing of diverse hypothesis For the comparison, we used data with reference to plants conventionally used in the Campoo selected study area of southern Cantabria in northern part of the Spain Our outcome illustrates a encouraging and noteworthy relationship among the number of uses (NU) and the frequency of citation (FC) of the plant species It looks to be a wide regulation that the more adaptable a plant species, the more widespread its usefulness In addition, NU is highly predisposed by the number of use-categories in this ethno-botanical study We propose the use of the cultural importance index (CI), which is defined as the summation of the informant's proportions that mention each of the uses of the species The CI index is highly associated with FC and, even though it also considers variety of use, each use group is suitably weighted by the number of informants describing it Despite the use of cultural importance index being asked we think that indices based on in detail semi-structured interviews are still extremely helpful for collection studies of

submissive knowledge. such as most ethno-botanical workings conducted in the last thirty years in Europe (Tardío and Santayana, 2008)

In this study use of plant species medicinally in the study area of Eastern Black Sea Region of country Turkey was determined Total fifty species in twenty four families have been sorted out in twenty five research papers, using the face to face interviews with the herbs sellers and purchasers Fourteen species of plants species were endemic and recorded as endangered species with respect to the IUCN red data list (The World Conservation Union) In which health problem the medicinal plants are used, their usage area, art and the used parts have been resolute too The research results show that almost twelve and half percent of the species are used in intestinal problems and eight and half percent for diuretic Due to the increasing demand medicinally used plants have been raised the medically used plant companies about sixty percent in the last decade (Toksoy, *et al* , 2010)

The purpose of the study includes identifying unknown plants which have been collected by the native people of Maden County for the medicinal point of view which is located in the Eastern Anatolia Region of Turkey, And to set up the uses and naming of these plants Field study was passed out over a period of about 2 years from 2008 to 2010 During this period, one hundred and thirty one vascular plant specimens were collected Demographic characteristics of participants, utilized parts local plant names and preparation methods of the plants were investigated and reported The scope of the study was the collection of these plant species, herbarium materials were organized, and the specimens were named properly The Zazas are of the major racial group in the area In addition, the relative importance value (RIC) of the plant species was determined and then the informant consensus factor (FIC) was calculated for the medicinal plants included in the study A total of eighty eight medical plants belonging to forty one families were identified in the region Four plants out of eighty eight were reported to be used for curative purposes for the first time in the history It was determined that the local names of four different kinds of plants used in Maden were same as the various types of plants used in different regions The most encountered medicinal plant families were

*Urticaceae* (twenty one percent), *Rosaceae* and *Lamiaceae* (seventeen percent), *Asteraceae* (thirteen percent), *Fabaceae* (eight percent), *Brassicaceae* (seven percent), *Poaceae* (four percent), the most common preparations were decoction and infusion *spicata, Rosa canina L., Mentha spicata L. subsp and Urtica dioica L.* was the plants most used by the local people *Anthemis wiedemanniana Fisch. and Mey., Bunium paucifolium DC. var. brevipes (Freyn & Sint.) Hedge & Lam., Thymus haussknechtii Velen., Tchihatchewia isatidea Boiss.*, were establish as the endemic plants used for medical purposes in Maden, Turkey (Cakılcioglua, *et al.*, 2011)

The therapeutic uses of *Bunium paucifolium DC. var. brevipes (Freyn & Sint.) Hedge & Lam., Gladiolus atroviolaceus Boiss, Hippophae rhamnoides L. subsp. caucasica Roussi., Ixiolirion tataricum (Pallas) Herbert subsp. montanum (Labill.) Takht.* were recorded for the first time in the history. Herbal treatment has become a tradition for the local residents of the study area. These plant species are used in the management of many diseases. Contrast of the data obtained in this study from the plants growing in Maden with the experimental data obtained in the earlier laboratory tests results proved nearly all of the ethno-botanical utilization. Previous Literature assessment showed that curative plants of Maden are used in different parts of the world in the cure of the same or different diseases. If a plant is used to treat the same disease in different countries all across the world then its pharmacological effects could be passed by the ethno-botanist. It would be beneficial to conduct pharmacological studies on these plants. These plants, used in the treatment of many different diseases, are in this study area at plentiful amounts. Drying made the local inhabitants to be able to use medicinal plants throughout all weather conditions of the year. This study acknowledged not only the wild plants collected for medicinal purposes by local residents of County Maden in the Eastern Anatolia Region, but also the uses and local names of these plants. It is tried to create a resource for students studying in ethno-botany, chemistry and pharmacology sciences by comparing knowledge obtained from conventionally used herbs with earlier laboratory studies (Cakılcioglua, *et al.*, 2011)

## 2.6 Medicinal plants usage in Asia

An ethno-botanical research study has been carried out on the herbal plant species marketed in Mashhad city, of northeastern part of the country Iran it was done to regulate documentation of conventional medicinal information and relevance of medicinal plants This study has been carried out from 2011 to 2012 The local knowledge of conventional healers used for medicinal purposes were collected through opinion poll and individual interviews for the duration of field trips The current study reported medicinal data for about two hundred and sixty nine plant species, belonging to eighty seven vascular plant families and one fungi family The most significant family was *Lamiaceae* with twenty six species, followed by *Asteraceae* with twenty three, *Fabaceae* with twenty, and *Apiaceae* with nineteen species Herbal medicine uses reported by herbalists was groped into one hundred and thirty two different uses which show noteworthy consequences to delicacy a wide range of human diseases Plants species which were being traded at the local market were frequently used for digestive system disorders, respiratory tribulations, nervous system disorders, urological difficulty, skin troubles, and gynecological diseases This ethno-botanical survey concluded that though people in study area have access to western medicinal services, a bunch of them still continue to rely on medicinal plants for the cure of their serious health problems The present paper shows important ethno-botanical information on medicinal plant species which gives baseline information for upcoming pharmacological and phyto-chemical research studies (Amin & Joharchi, 2013)

From prehistoric era individuals have used diverse plants, minerals and animals to avoid and care for a range of diseases In this reverence plants have been of exacting significance Ethno-botany is the discipline of reviewing how native people and neighboring tribes have used their district plants for picky purposes such as curing diseases in the history The data collected from these type of studies can assist to recover national health systems and yet guide to the finding of new medicines Keeping this in mind, in this ethno-botanical study a survey of Sirjan study area was conducted for the duration of from 2011 to 2012 At the start, 13 native inhabitants were interviewed about the region s medicinal plants and their uses in the local market These plants species were

collected and recognized by means of detection keys The data gathered was analyzed using quantitative value index FIC, CI and RFC A lot of plants collected have medicinal characteristics and have been utilized by local inhabitants to cure different diseases Of these plants, 19 families thirty seven genera and forty three species belonged to medicinal plants species Among them, *Lamiaceae* with eight species and *Malva L* with three species were the major medicinal plant families and genera, respectively These plants are frequently used as decoction (twenty eight percent) and as powder (twenty one percent) Also, the fruit of these plants are used most often used as medicinal plants, they have additional uses such as fuel, food, etc *Malva sylvestris* has the biggest value of relative frequency of citation and cultural importance index Uncontrolled harvesting of the medicinal plants such as *Satureja bachtiarica, Bunium persicum, Zataria multiflor,* and *Cuminum cyminum* in this area by local inhabitants has enlarged the threat of their extermination and calls for a confine management safety by the authorities (Nasab & Khosravi, 2014)

Medicinal plants of country Lebanon are experiencing great pressure because of a range of environmental circumstances, human development of foot prints and current rising worldwide demand Planned study and information on native therapeutic plant species and information have been very restricted and small hard work have been done to build up a entire record for native medicinal plant species and related conventional knowledge in the country Lebnon Data collection by the present study is significant in preserving aboriginal knowledge of Mount Hermon community and stimulating conventional herbal medicines (Baydoun, *et al* , 2015)

Ethno-pharmacological data was collected by semi-structured designed interviews with fifty three local informants (traditional healers, midwives, herbalists and local elder villagers) in thirteen towns and villages nearby Mount Hermon The interviews were taken through guided field trips and discussion groups while on the other hand the collection of plants specimens was also done for the herbarium The results showed that one hundred and twenty four plant species of Mount flora are still utilized in conventional medicine by the native inhabitants as an vital source of primary health care and cure of a large amount of various ailments These species belonged to forty two families and one

hundred and two genera Compositae (nineteen species) Labiatae (eighteen species) Rosaceae (eleven species) and Umbelliferae (eleven species) formed the dominant families This study documents for the first time the ethno-pharmacological knowledge concerning part of the Lebanese vegetation in Mount Hermon The infinity of this information of succeeding generation scan be used as an trade in and means for the future phyto-chemical, pharmacological, and toxicological studies, as well as conservation and management of medicinal plants as part of the restricted artistic heritage (Baydoun, *et al*, 2015)

The ethno-pharmacology of Southwest China is enormously motivating because of cultural and medicinal plant species variety in the targeted study area Small effort has been done to document the conventional medicinal utilizations in the study area This assessment aims to give a general idea of the present information of how medicinal plant species in this area are utilized, and conserved A literature review was conducted of four hundred and thirty six publications from 1979 to the year 2014 were elected for investigation Most research studies have been done in Southwest China focused on the first level discovery of conventional usage, geographical allocation, and classification of medicinal plants species Only a small percentage of conventional uses or cures have been tested by modern ethno-botanical techniques Knowledge on racial and civilizing aspects of medicinal plant species, to build up efficient conservation and sustainable use protocols is missing (Liu, *et al* 2016)

For thousands of years, medicinal plant species have played a key role all the way through in curing and preventing a diversity of diseases Kani native inhabitants living in the tribal system in Tirunelveli hills are still reliant on medicinal plants Most of them have common information of medicinal plant species which are used as first aid medicines, to temporary ailments like cough, fever, cold, poisonous bites, headache This research work was initiated with a plan to identify conventional healers who are working with herbal medicine amongst the Kani peoples of tribes in Tirunelveli hills of Western Ghats, country India Field study was conceded out over a time of four years in Tirunelveli hills The ethno-medicinal data was collected through interviews among the Kani traditional healers The analysis of the collected data through use value (UV),

fidelity level (FL), informant consensus factor (FIC), and relative importance (RI) Total of ninety species of plants distributed in eighty three genera belonging to fifty two families were recognized as normally used ethno-medicinal plants by the Kani conventional healers in Tirunelveli hills for the cure of sixty five kinds of diseases Skin infection or complex diseases of skin and gastro-intestinal disorders had highest use-reports and twenty nine species of plants had the highest fidelity level of hundred percent The most significant plant species according to their use value were *Gymneme sylvestre* (2 00), *Murraya koenigii*, *Melia azedarach*, *Terminalia chebula* and *Syzygium cumini* (1 83) Result of the current ethno-botanical study showed plants like *Alpinia galanga*, *Gymnema sylvestre*, *Leucas aspera*, *Azadirachta indica*, *Calophyllum inophyllum*, *M azedarach*, *Mollugo nudicaulis*, *T chebula*, *Tribulus terrestris*, *Ocimum tenuiflorum* and *S cumini* (With high UV and RI values) *Bambusa arundinacea*, *Opuntia dillenii* *Evolvulus nummularius*, *Datura metel* and *Physalis minima* (newly reported plant species with maximum FL) for further ethno-pharmacological studies for the discovery of potential of new medicines (Ayyanar & Ignacimuthu, 2011)

This study was conducted to witness the medicinal plant species of study area Uthapuram Village, district Madurai, Tamilnadu state, South India And the utilization of these medicinal plants to was used amongst the local inhabitants of the study area Field trips were arranged to the village round the year from the month of April 2012 to the month of the May 2013 to survey the medicinal plant species and collect the data from the local inhabitants of these villages From this ethno-medicinal study of fifty two species of precious medicinal plants belonging to 36 families were recorded and their ethno-medicinal values were collected from the local inhabitants of the rural area This ethno-medicinal study focuses the significance, consumption and preservation of the medicinal plant species among the local people (Sivasankari, *et al* , 2013)

Various plant species have been used for the avoidance and treatment of a range of diseases of humans and their animals (pets or cattle) With the evolution of human culture, many systems of therapy Homeopathy, Ayurveda, Unani and Sidda are conventional systems of medicines have been developed mainly based on plant species In India, the utilization of plant species for medical treatment is started nearly five

thousand years It was legitimately accepted that twenty five hundred plant species have medicinal value (MUI) whereas more than six thousand plants are predictable to be discovered in conventional, old and herbal medicine An significant requirement for appropriate use of unprocessed resources of the India is the survey of its expected assets and the setting of an inventory It is essential that one should have complete knowledge about the habitat, distribution, frequency and phenology of a variety of plants for their appropriate use The forests and infertile patches of state Rajasthan have immense potentiality from the economic and ethno-botanical point of view (Chaudri & Khan, 2008)

## 2.7 The ethno-botanical studies of medicinal plants in Pakistan

The ethno-botany in Pakistan is going to be fully grown with the course of time and a range of studies have been documented from various regions of the country. Pakistan counting tribal areas of Sindh, Baluchistan and Islamabad the capital territory and tribal areas The ethno-botanical study was conceded out to record medicinal use of native plants by the inhabitants of the Hingol National Park, Baluchistan Thirty nine plant species belonging to thirty two genera and twenty two families were reported having medicinally important and are being used by the native inhabitants for treating their different diseases (Qureshi, 2012)

In another research study which was based upon a survey conducted on conventional medicinal uses of common medicinal plant species of district Mirpur AJK, Pakistan The local especially elder people use medicinal plants for diverse diseases A total of twenty nine plant species belonging to twenty families were recorded that are being used by local inhabitants for different purposes (Mahmood, *et al.* 2011) Another study was conducted to collect information on how people of a particular culture and region make use of indigenous plants For this purpose, an ethno-botanical survey was conducted in Kohat Pass, Khyber Pakhtunkhwa (KPK), and Pakistan The study exposed that there were sixty plants belonging to forty nine genera and thirty families which are being used to triumph over six utilize categories by the native inhabitants (Shinwari, *et al* 2011)

An ethno-botanical survey was carried out to gather data on conventional uses of plant resources of Hazar Nao forest, Malakand country Pakistan About ninety vascular plant species, belonging to fifty six families were utilized by the local inhabitants for different natural uses Out of these ninety plants, seventy two plant species were used as medicinal, fifty plant species as fuel wood species thirty two as fodder plants species, twenty two as edible fruit, twenty nine species for attraction of honey bees, ten species utilized in agricultural tools, eleven species for fencing, eight species as timber, eight species reported as ornamental, eight species used for thatching and sheltering, seven species as vegetable and pot herb, six species were reported poisonous, four species significant for veterinary medicines and twenty plant species had miscellaneous uses such as making of ropes, wooden spoons, kites, fans and brooms (Murad, 2012) An ethno-botanical inventory along with their local names is provided in this communication However, the study area has never been explored before ethno-botanically, so it was felt sensible to record folk awareness of medicinal plants in district Rahim Yar Khan

Pakistan has an exceptional biodiversity, having nine main ecological zones Due to its exclusive climate the country is very loaded with medicinal plants distributed in its large area. Pakistan is approximately bestowed with six thousand plant species out of which four hundred to six hundred plants were important in medicinal point of view (Hamayun, *et al*, 2003) Climate of Pakistan is wide ranging and is relatively wealthy in medicinal plant species spread in remaining area. These aboriginal medicinal plants have been used by Hakims and in traditional medicines, people who live in villages and sub-urban areas, are mostly reliant in traditional system of medicines (Ikram and Hussain, 1978) The local community of Pakistan has the awareness of centuries old traditional ethics of important medicinal plants of their area This valuable information is travelling from these people from older generations to newer generations by their forefathers Ayurvedic, Homeopathy and Unani which are techniques of medication in the eastern part of the world, are completely dependent on native medicinal values of plants Our modern generation is not known to this precious knowledge of plants This native information is in danger of being lost by modern generation There is dare need to preserve this information of the plants by recording it in the database (Shinwari, *et al*, 2002)

Margalla Hills National Park has been used by the local people as medicinal plants for various diseases These plants have been used for food. shelter, fodder, health care and other cultural activities by the local community A total of fifty species belonging to twenty seven families have been reported used by the local people as medicine Two from these species *Asparagus adescendens* Roxb and *Viola canesence Wall ex Roxb* were vulnerable due to over harvesting (Shinwari & Khan 2000) Medicinal plants used in the Muzaffarabad district are used for the treatments of different ailments are great in number but they are the source of fuel wood, timber, fruit. fodder and vegetables for the local residents About fifty three plant species belonging to thirty three families were reported in which some plants were used against different diseases like cough. dysentery bronchitis and stomachache Some plants were laxative, poisonous and blood purifier (Saghir, *et al* , 2001)

Plant resources were hastily declined in Bulashbar valley, Astore, District Diamer and this was due to unsustainable harvesting and over collection of medicinal plants and their business in the local markets Total of 33 economic, aromatic and medicinal plants were recorded along with their habitats, general distribution and great quantity in the study area In the same way traditional uses and pharmaceutical values of every plant species were also reported Two species, *Bunium persicum and Ephedra gerardiana,* were optional for in vitro cultivation to obtain instant profit While *Hippophae rhamnoides* might be used for socio-economic support of the local community (Shinwari & Gilani, 2003)

Women of District Chakwal have rich native knowledge about the uses of medicinal plants that are very widespread in the quantity in their locality They thought that these ordinary resources are effortlessly available, economical and unending cure for ordinary daily diseases local knowledge about neighboring medicinal plants was collected from 50 women of different age groups from twenty years and eighty years Plants were collected and information was gathered from resident women and they have been questioned about the local names of plant species, medicinal usage of these plant species and part used of these local plants (Sultana, *et al* , 2006)

People used different plants for the cure of different diseases from which they are suffering Conventional old medicines have been prepared from plants by the local residents of Sudhan Gall and Ganga Chotti Hills and established prospective benefits 33 medicinal plants species belonging to 17 families were collected and its phyto-sociogical studies were also reported Due to phonological studies, medicinal plant species were simply recognized in their relevant months and that had a positive step towards the conservation of natural possessions of the area (Qureshi, *et al* . 2007)

Ethnobotanical surveys have been conducted in the Nara Desert Sindh, Pakistan Local people which are called than of the particular area used local plant species for different diseases 51 plant species belonging to 28 families were recorded Twenty one new species of these plants have been not used as folk herbal medicines which were not available in the folk medicinal literature These 51 medicinal plants were used for the treatment of 44 different types of ailments in which whole plant was used higher (53%) than leaves (18%), roots (14%) and fruits (10%) alone (Qureshi & Bhatti, 2008)

Traditional medicines or herbal medicines are used by Pakistani migrants from Mirpur living in Bradford in these days, Northern England Pakistani migrants in Bradford chose TMs treatments than the modern Western medicine 56 different plant species which are still used among migrants as herbal medicines for their daily ailments, and Mostly of these species are recorded as the food-medicines can be easily used However, TMs or herbal medicinal knowledge is lacking interest amongst newer generations and it seems to be reliant on time-span that when you migrated from Pakistan to the England (Pieroni *et al*, 2008)

Most of the natural medicinal plants of Samahni valley were recorded to be used for the treatment of sexual diseases in women and also manage family magnitude Decoctions and infusions were made from these plant species and were taken consequently to the medications About Sixty eight percent of people used herbal medicines at first on getting any ordinary to complex diseases and people are still dependent on these plants Samahni valley was rich in wild medicinal plants but it is steadily decreasing due to utilization and indefensible uses of these natural resources (Chaudri & Khan, 2008)

Ethno-botanical survey was held in Ratwal village, District Attock, Pakistan The study area was rich in wild plant species but only Forty three plants belonging to thirty three families were reported Local people were interviewed through questionnaires and semi-structured interviews in local language, it was accomplished that they used these natural resources for different purposes like food, shelter, fodder, timber, fuel, health care (Noor & Kalsoom, 2011)

Gokand valley, District Buner is one of the greenish mountainous valleys which are rich in natural flora and fauna Ethno-botanical studies have been done and they collected 138 plant species in which 40 plant species were cultivated The local people used these plants for different purposes like fuel wood, vegetables, pot herb, fodder, forage, timber wood and fruit species The area was also rich in medicinal plants and wild animal species (Khan, *et al* , 2003)

There is a diversity of plant species present in Manikhel forests of Orakzai Tirah of country Pakistan which are widespread up to Hindu Kush Mountain ranges This work was mostly focused on those plants which were commonly used either for local purposes or for other daily uses of life One hundred and seventy two plant species belonging to Eighty families were collected which were used by native people for various chores because the whole population of study area was poor Poor natives were entirely reliant on this forest property for their daily necessities (Ahmad, *et al* , 2005)

Most of the plant species are collected from high summer grasslands and these focused study areas are at great risk due to extreme grazing This study was conducted in Palas valley in which one hundred and thirty nine important plant species from ethno-botanical point of view was collected belonging to seventy two families Most of the collected plant species were used as a medicine by native people Among them 10 plants were tradable plant species which were the source of income for poor native people Apart from that some species had other applications like fodder, agriculture tools, fuel wood, food, veterinary medicine, etc Native people of the study area should be addressed about the importance of aboriginal medicinal plants, their protection and conservation sustainable collection and dropping the quantity of livestock to decrease pressure on pastures (Saqib & Sultan, 2005)

Since from prehistoric time, human used medicinal plants for treatment of different diseases Even now people residing in villages are completely depends on medicinal plants for basic healthcare An ethno-botanical study in which main focus was the medicinal plants was conducted in Buneer district and collected data about indigenous knowledge of medicinal plants Matured people of the area in particular women had more knowledge about medicinal plant species and how to use them for the cure of various diseases as compared to modren generation About sixty seven percent of population was reliant on these medicinal plants for curing different diseases Most frequently used plants in an area were *Ajuga bracteosa Acorus calamus Trachyspermum ammi Thymus serphyllum, Skimmia laureola Paeonia emodi, Valerianajatamansi* and *Viola serpens* (Humayun, *et al* , 2006)

Precious ethno-botanical information is swiftly dying due to lack of interest of modren generation So this knowledge is limited to elder ones only People of Ayubia National Park used medicinal plants species for a variety of diseases and they used these plants for different purposes like shelter food, medicines, health fodder and a range of other cultural purposes Twenty one significant plant species belonging to nineteen families were reported which were used medicinally by the local people *Podophyllum emodi Wall ex Royle* and *Viola canescens Wall ex Roxb* were reported to be susceptible to harvesting (Gilani, *et al* , 2006)

Ethno-botanical data was collected from Khirthar National Park and it was observed that about seventy five percent of the men and twenty five of women have knowledge about medicinal plants folk uses Elderly people had more knowledge about plant usage for the welfare of men The native people used about fifty different species for various diseases They used these plants in crude form as they had multiple uses Uprooting and Over grazing of medicinal plants and deforestation was the main cause of exploitation of natural resources which results in poor vegetation cover (Panhwar & Abro, 2007)

People of Ranyal hills are very poor and lack daily basic facilities like hospital, electricity, gas and coal etc Thus forests are the main source of fuel wood for them Ethno-botanical information was collected from Ranyal Hills District Shangla Pakistan And Ninety Seven plant species were sorted These plants were categorized on the bases

of their traditional medicinal and economic uses Vegetation of the area was under great pressure due to overgrazing of livestock and heavy deforestation which greatly affect natural vegetation In the same way uprooting of medicinal plants by the local inhabitants for selling and fuel wood purposes was also one of the factors causing deforestation (Ibrar, *et al* , 2007)

Many allopathic medicines have been prepared by various pharmaceutical industries, But the usage of the medicinal plants in cure of various diseases is still practicing in many villages About sixty six plant species belonging to forty five families have been reported which were used against diseases and in folk cosmetics in the middle of ancestral communities of North-West Frontier Province Highly utilized parts of the plants were leaves followed by other aerial parts like fruits, roots, seed, tubers, bark, flowers, rind rhizome, and bulb Local inhabitants still used these plants species for different skin ailments due to low cost in comparison with allopathic medicines Most of plant species were rare and wild, thus a great consideration is required for their conservation (Abbasi, *et al*, 2010)

Brah, Totay Kot, Pir khel, Mekhband and Haryankot are the beautiful villages of tribal regions of Dargai, Malakand District which have varied natural flora Majority of local inhabitants of Hazar Nao forest depends on medicinal plant species available in the study area for cure of different diseases The study area was un-explored before the study has been taken on and indigenous knowledge was still unreported therefore about seventy five plant species was reported and folk uses for a range of diseases was recorded Consequently the study area had been facing an extreme hazard of losing important medicinal plant species due to overgrazing, deforestation, soil erosion and agricultural expansion (Murad, *et al*, 2011)

Forests which contain the wild animals and various plant species are the chief source of medicinal plants, but increase in population of human beings causing deforestation and violation of land for agriculture purposes had occurred This affecting local vegetation greatly and they are decreasing in numbers towards extermination This study was conducted to quantify the three medicinal plants viz *Persicaria amplexicaule D Don, Valeriana jatanzansi Jones* and *Viola serpens Wall ex Roxb* in coniferous forest of

Northern Parts of country Pakistan Collecting of targeted plants by the native people was varied with change in height These three species were collected in great number in the past Now these plants are in grave danger in the study area (Sher, *et al* 2011)

An ethno-botanical study of twenty two villages of Chagharzai valley, District Buneer was conducted in order to find out native knowledge of medicinal plants One hundred forty one plants species belonging to twenty six families was documented which were used as a medicine for various ailments by the local people Aged people especially the old women had more knowledge about medicinal plants uses as compared to modern generations and thus indigenous knowledge of medicinal plant species is dying with the passage of time Only few species were reported to be used for precise cure of the particular diseases while other plant species were used in combination (Alam, *et al* 2011)

Ethno-botanical studies was carried out with the plan to inspect and manuscript the native medicinal information and frequently used medicinal plant species from district Gujranwala of country Pakistan and to set up a baseline data for the future generations Rapid appraisal approach (RAA) was used to collect the ethno-medicinal data, group meetings with the local inhabitants and interviews of the native people were conducted About seventy one species of medicinal plants belonging to thirty eight families have been reported through 203 informants Most preferential part of plant used for native medicine was leaves (thirty eight percent) followed by the seed (thirteen percent), whole plant (eleven percent), flower (nine percent), fruit (eight percent), root and bark (six percent) and the main source of these medicines was wild herbs (fifty four percent) followed by the wild shrubs, wild trees (thirteen percent) cultivated herbs (ten percent), cultivated trees (five percent), cultivated shrubs (three percent) and wild grasses (two percent) The herbal arrangements were mostly administrated orally District Gujranwala has vast variety of medicinal plant species and people are conscious concerning their therapeutic ethics (Mahmood, *et al*, 2013)

Present study aimed to categorize and manuscript the huge digit of therapeutic plant species used in conventional medication in Soan Valley situated in Salt Range, Pakistan Casual interviews were reported concerning a total of twenty fifty five villagers (one hundred fifty five male and sixty five female and thirty five herbalists) to obtain the information and use of medicinal plant species Native people residing in the study area have knowledge about of fifty eight medicinal plant species relating to thirty five families to treat fifteen sickness categories Whole plant and leaves were the most frequently used plant parts (twenty four percent) followed by seed (fourteen percent), root (twelve percent), flower (seven percent), bulb (six percent), fruit (four percent) stem (three percent), latex and rhizome (two percent) and sap and gum (one percent) Commonly used development forms of medicinal plant species were wild herbs (sixty three percent) followed by cultivated herbs (fourteen percent), wild trees (eleven percent), wild shrubs (ten percent) and wild and cultivated herbs (two percent) Native inhabitants were well-known typically with the plant species in order to compact ordinary illnesses chiefly cough, cold, fever, problems headache, digestive and skin infections Complex diseases were treated by conventional healers This study revealed that despite steady socio-cultural alteration, local inhabitants residing in the study area still grasp sufficient facts of plants and their further uses (Bibi *et al*, 2014)

Aboriginal plant species have played a key part in the management of human illnesses This ethno-pharmacological study was intended to description the native therapeutic plant species from district Bahawalnagr of South Punjab, Pakistan Rapid appraisal approach (RAA) implicated direct dealings with local inhabitants and elucidation during the field trips, was used to gather information during from the month of March to June and August to December of year 2012 Total sixty three plant species were recorded to be efficient for cure of disease in the traditional medical system of the targeted area These plant species belong to fifty six genera and thirty for families Among those families Fabaceae was the prime by contributing nine species (Ahmed, *et al*, 2015)

Ethno-medicinal research studies are noteworthy for the finding of new basic drugs from native reported therapeutic plant species The present ethno-medicinal study intended to

account the original therapeutic information of plant species and herbal remedies utilized by people local as folk medicines in desert of Cholistan, Province Punjab, Pakistan Rapid appraisal approach (RAA), semi-structured interviews, group meetings with land owners, herbalists and local residents of the study area having knowledge about the therapeutic use of plants were engaged to gather the information This ethno-medicinal study recorded seventy medicinal plant species belonging to twenty seven families that were distributed among sixty different genera and Poaceae was the predominant family over others with thirteen recorded medicinal plant species Significant medicinal plants, recorded in this ethno-medicinal study have been screened for phyto-chemical and pharmaceutical actions in unusual parts of the world It is suggested that recorded medicinal plant species having effective accomplishment for cancer and hepatitis be obliged to be screened for pharmacological actions (Ahmed *et al* 2014)

The Cholistan desert can be divided into two distinct regions on the basis of topography, soil type and texture, and vegetation structure the northern Lesser Cholistan and southern Greater Cholistan A multiplicity of medicinally significant chemical compounds have been obtained and recognized from the plant species of the Desert Cholistan, part of the southern Punjab country Pakistan, including terpenes and triterpenoids phenolics, flavonoids, sterols and steroids, gums and resins anthocyanidines, quinones antioxidants, saponins and fatty acids Habitat deprivation, severe farming practices and over-exploitation of resources create a severe danger to the variety of ethno-botanically imperative plant species Modren medicines are usually very high priced and not in achieve for numerous of the poor local residents Herbal medicines are mostly used by local community for the reason that they are cheaper than modren medicines and have comparatively a small number of side effects (Hameed, *et al*, 2011)

Consequently, it is very important to work out strategies to meet up the rising demand for medicinal plant species not only for the local population but also for global markets Institutional support can play a crucial role in civilizing the medicinal plant region while giving monetary hold up, farming and protection of some significant medicinal plant species and promote the household and global market systems (Hameed, *et al* 2011)

## Chapter 3

## Methodology

The research methodology for this study is description in nature So, the survey approach was considered during this study And this contains the following steps

### 3.1 Interviews

The interviews were conducted in the Punjabi and Urdu language The interviews contained the questions about (age, gender, literate or other one as well) while these interviews were taken from the people which are attached to the herbal medicine business, Hakims, Homeopathic doctors and local Pansaries

### 3.2 Study area site Selection

Study area was divided into following main physical site that would riverside area site, canal irrigated area site and desert area site While these sites were in four different tehsils desert area site is near the Qsre-Abu Dahbi. Canal irrigated area is near Chowk Shabaz Pur Chani Goth and the riverside area site is head Malkani Zahir Pir City

### 3.3 Specimen collection and identification

First of all the specimen or vegetative samples was collected from the four study area sites Then they was pressed, dried, pasted on the herbarium sheets and was be labelled Their identification was done with the existing samples in the herbarium

### 3.4 Data Analysis

#### 3.4.1 Relative Frequency of Citation (RFC):

After the data collection data analysis was done through two formulas First one was the Relative Frequency of Citation (RFC) which gave the significance of each plant species It was calculated from frequency of citation (FC, the number of informants mentioning the use of plant species) divided by the total number of informants (N)

participated in the survey with no used categories for consideration (Tardio & - Santayana 2008)

$$RFC = \frac{FC}{N}$$

### 3.4.2 Medicinal Used Value (MUV)

While the second one is the MUV (Medicinal Used Value) demonstrates the relative medicinal importance of plants The medicinal use value was calculated with little modification (Tardio & Pardo-de-Santayana, 2008) and through the following formula

$$MUV = \sum \frac{XMUi}{N}$$

Where XMUi in number of the mentioned medicinal uses by each informant for a given plant species and N is the total number of informants included in the survey

### 3.5 Drug Market Surveys

Medicinal value of the medicinal plants utilized in the study area was tested through the local hospital surveys In this regard, a questionnaire has been adopted to interview the Hakims, Doctors of homeopathy, local Pensaeries and Dua Khana that is Main Rahim Yar Khan City Regarding qualitative approach questionnaire was adopted to investigate the number of patients most frequent diseases and mostly used medicines (Phillips and Gentry, 1993) Intensive surveys were conducted

### 3.6 Criterion for the Assessment of Species

According to the Red Data Book of IUCN, the status of commercially important indigenous species (in terms of threatened condition) in the study area were determined through four parameters, Availability, Collection Growth and Part used providing a total score for each species (IUCN, 1970 2001) The relative importance for indigenous plants were classified into, Rare, Infrequent and

Common/Dominant species While the quadrat method was opted for the phytosociological classification of the plant species

## Chapter 4

### Results

### 4.1. Medicinal uses of Plants in Homeopathy, Hikmat and Tib-e-Nabvi

In total 65 medicinal plant species utilized belonging to 32 families and 59 generas at 4 study site (Tehsil Rahim Yar Khan, Sadiq-a-bad, Khan Pur and Liaqat Pur) Fabaceae and Poaceae families are predominant (Table 4 1) Based on indigenous and local knowledge most important medicinal plants found were *Aloe vera, Calotropis procera. Coriandrum Sativum, Ficus carica, Phoenix dactylifera, Tamarix aphylla* and *Ziziphus jujuba* While plant species having lowest medicinal value are *Bombax ceiba, Convolvulus arvensis,* and *Eucalyptus globules* etc (Table 4 1)

### 4.2 Drug Preparation Method

Homeopathic and Hikmat medicines are very diverse, despite the fact that the cause of some homeopathic prescriptions is herbs The two vary extensively in their endorsing techniques and prescription planning Homeopathy utilizes profoundly weakened medications In Homeopathy dilution of solution 1 10 implying that one a player in the mother tincture or power is diluted in 9 parts of a water liquor blend When again, the cure's name is trailed by a number to show what number of phases of dilution and succussion it has been through and the Roman numeral "X" to demonstrate its 1 10 dilution proportion A 3X strength, for instance, shows three phases of dilution and succussion as per the decimal scale while a 12X demonstrates that the procedure has happened 12 times While In Hikmat the weighing scale used by the local Hakims is Tola, Masha, chtank and Ratti

1 tola = 12 masha or 11 67 gram

1 chtank = 4 mashas or 3 88 gram

1 masha = 8 ratti or 0 97 gram

1 Ratti = 182 gram

**Table 4.1: Local knowledge about Indigenous Medicinal Plants at Rahim Yar Khan District**

| Ser No | Species with (Family) Voucher Sp No | Local Names[1] | Habit | Occurrence* | Part Used[2] | Medicinal uses of Plants in Homeopathy, Hikmat and Tib-e-Nabvi |
|---|---|---|---|---|---|---|
| 1 | Acacia jacquemontii Benth (Mimosaceae) 11 | (UR) Babul<br>(SN) buber<br>(PB) Kiker<br>(EN) Acacia | T | Common | BN, SD FL | **Hikmat:**<br>• Its branches are used to make Miswak which is used on the teeth to clean them<br>• 5 masha of stem part, 1 masha of post (white poppy), 3 masha of zeera (Carum) with 2 masha seeds of pomegranate are crushed to make the powder and used for the treatment of the dysentery and gastric problems in children and men<br>• Latex is used to maintain shape of the tablets |
| 2 | Albizzia lebbek (L.) Benth (Mimosaceae) 34 | (UR) Sars<br>(PB) Sharenh<br>(SN) Sirnahun<br>(EN) Lebbek tree | T | Rare | WP | **Hikmat:**<br>• 5 masha of stem with 2 masha of seeds are used in the powdered form to heal piles, diarrhoea, and dysentery<br>• Flowers extract is applied externally to treat skin diseases<br>• Powdered form of seeds is used in eyes for enhancing the sightedness |
| 3 | Alhagi maurorum Medic (Papilionaceae) 33 | (UR) Kandera<br>(PB) Jowahan<br>(EN) Camel thorn bush | H | Common | WP | **Hikmat.**<br>• The decoction of plant is useful against skin diseases as bath |
| 4 | Allium cepa Linn (Alliaceaea) 44 | (UR) Piyaz<br>(PB) Gundha<br>(SR) Vassal<br>(SN) Baser<br>(EN) Onion | H | Common | RZ S | **Hikmat.**<br>• 3 Masha of seeds are crushed and mixed with the egg yolk to increase the maleness characteristics<br>• 150 grams of onion, 450 grams of brown sugar and 450 grams of honey are mixed in a way that each layer of onion would contain the paste of honey and sugar, kept for whole night and the onion part will dispose off. While remaining syrup is used to cure the flue, cough and fever<br>**Tibe-Nabvi**<br>• The juice of onion is sniffed through the nostrils to relax the mind<br>• The juice of the seeds is applied on the skin externally to remove white spots<br>• The juice of the onion is applied in the eyes to stop the watery secretions from the eyes |

| Ser No | Species with (Family) Voucher Sp No | Local Names[1] | Habit | Occurrence* | Part Used[2] | Medicinal uses of Plants in Homeopathy, Hikmat and Tib-e-Nabvi |
|---|---|---|---|---|---|---|
| 5 | Allium sativum Linn (Alliaceaca) 59 | (UR) Lehsen<br>(SN,PB) Lhom<br>(EN) Garlic | H | Infrequent | I BU | **Hikmat:**<br>• 3 Masha of bulb in raw form is used to treat the paralysis, asthma and heat stroke<br>• Pomegranate seeds, mentha, ginger and 3 to 5 bulbs of garlic are crushed to make a chatni which is very good for the acidity, gass trouble and the indigestion<br>• Juice is made through 4 masha garlic and 2 to 6 masha of water to make a tonic for the inhanced working of the human body<br>• Local medicine ***Aloe vera* Eqwa** consists of *Aloe vera* extract, Ginger extrat, Garlic extract, **Sodium Chloride (black salt)**, Borax and Ammonium Chloride is used to treat Anorexia, Flatus, Hepatitis and Splenomegaly<br>• Local medicine **Garlion** medicine contains lemon extract, ginger extract garlic extract apple vinegar and honey used to maintain the cholesterol level, and blood pressure<br>**Homeopathy:**<br>• It is good for obesity, its mother tincture is very useful to maintain cholesterol and sugar level<br>• It is good for acidity, flatulence and indigestion (Potency, 3x-6x)<br>**Tibe-Nabvi**<br>• 2 gram powder with 2 gram of honey is good for the Mucus and kills the stomach worms<br>• It digests the food and good for the pain in the teeth |
| 6 | Aloe vera (L.) Burm. f. (Asphodelaceae) 29 | (UR) Ghakwar<br>(PB) Kanwar Gndal<br>(SN) Kanwar Boti<br>(EN) Aloe Vera | H | Rare | L | **Hikmat.**<br>• The 5 Masha of leaves is crushed in water to form a paste which is kept open in clay vessel at night and used to treat jaundice. The same amount is given to the patients as liver tonic in the same way<br>• Paste is made from 8 Masha of fresh leaves is used on the face especially during night time for cleaning of old black spots and for freshness<br>• The 5 to 7 Masha of fresh leaves is crushed in the water to form a pulp like paste is used to cure the arthritis and back bone pain<br>• Aloe vera Eqwa consists of Alovera extract, Ginger extrat, Garlic extract, black salt, Sodium Chloride, Borax and Ammonium |

| Ser. No. | Species with (Family) Voucher Sp No | Local Names[1] | Habit | Occurrence* | Part Used[2] | Medicinal uses of Plants in Homeopathy, Hikmat and Tib-e-Nabvi |
|---|---|---|---|---|---|---|
| | | | | | | Chloride is used to treat Anorexics Abodominal, Flatus, Hepatitis and Splenomegaly<br>**Homeopathy:**<br>• It extract is used to cure the dysentery of the children and stop water to coming out from the eyes and nose of the children (Potency, 3x-7-200) |
| 7 | Amaranthus virdis Linn (Amaranthaceae) 2 | (UR) Jangli cholai<br>(SN) Mierho<br>(PB) Paneer<br>(LN) Slender amaranth | H | Rare | WP, S | **Hikmat:**<br>• 7 masha of whole plant is used for chronic constipation<br>• 7 masha of seeds are crushed in the presence of water which is used to wash rice and used for constantly three weeks to stop bleeding in the Menstruation of girls |
| 8 | Avena fatua Linn (Poaceae) 63 | (PB,UR) Jai<br>(SR) Juwi<br>(EN) Oats | H | Common | WP | **Homeopathy:**<br>• It is used to treat infertility and increase sperm count in men (Potency, Q-1x-20) |
| 9 | Azadirachta indica A Juss (Meliaceae) 26 | (UR) Neem<br>(PB) Nim<br>(EN) Indian Lilac | T | Common | F, S, FL, FT | **Hikmat.**<br>• 1 tola leaves are boiled in 250 grams mustard oil for half an hour and applied over skin for the treatment of chicken pox in children and for burnt skin<br>• Decoction of leaves is antiseptic and used for ulcer and wounds of the skin<br>• Seed oil (not more than thirty drops) is used as an antiseptic<br>• 8 masha of dry flowers are crushed and used as tonic with some sweetening agent e g honey or shakar (brown sugar) to lower its bitterness<br>• Latex of stem, leaves, and seeds are used externally on the skin to treat snake bite |
| 10 | Bombax ceiba Linn (Bombacaceae) 84 | (PB) Sumbal<br>(EN) Silk Cotton tree | S | Rare | FL | **Hikmat**<br>• Dried ground leaves is taken with water as blood purifier<br>• Powdered root is taken with water twice a day in case of leucorrhoea |
| 11 | Brassica nigra Linn (Brassicaceae) 41 | (UR) Kali Sarsoon<br>(SN) Sarhiyon<br>(PB) Sarson<br>(EN) black mustard | H | Common | WP, S | **Hikmat:**<br>• 5 Masha of crushed seeds mixed with honey are used to treat the stomach-ache and indigestion<br>• Seed oil is used to massage the body for relieving the muscular pain |

| Ser No | Species with (Family) Voucher Sp. No. | Local Names[1] | Habit | Occurrence* | Part Used[2] | Medicinal uses of Plants in Homeopathy, Hikmat and Tib-e-Nabvi |
|---|---|---|---|---|---|---|
| | | | | | | • Seed oil is commonly used to increase the length and strength of hairs |
| 12 | Calotropis procera Linn (Asclepiadaceae) 51 | (UR,PB) AK<br>(SN, SR) Akh<br>(I N) Apple of sodom | S | Common | R ST FL WP | **Hikmat.**<br>• Whole dried plant in powder form is employed as a good energizer and anthelmentic<br>• Tablets made from root and black pepper in the ratio of 2 5 with the solution of mint are used against cholera and indigestion Root powder is used to treat cough and influenza<br>• 2 to 3 drops of latex is commonly used for stomach problems and flatulence<br>• Tea made from 1 - 3 flowers is used as tea for flatulence, sore throat and flu<br>**Homeopathy**<br>• Stem is used for the irritation and itching in anus, and other parts of the body and for intestinal pain<br>• Root is used for the treatment of haemorrhoids and prostitis (infection of the prostate) (Potency 3x-6-30)<br>• Flower is used for itching wounds on the tongue and in throat (Potency, 3x-30-200) |
| 13 | Cannabis sativa Linn (Cannabaceae) 73 | (UR) Bhang<br>(PB) Pung<br>(SR) Saavi<br>(I N) Indian Hemp | H | Common | I | **Hikmat.**<br>• Paste made from crushing 3 masha of leaves is used to cure whooping cough digestive disorders and asthma |
| 14 | Capparis decidua (Forssk ) Edgew (Capparidaceae) 8 | (UR) kraal,Krear<br>(PB) Dela<br>(SN) Karurjodun<br>(I N) Caper berry | H | Common | BN FL, WP | **Hikmat.**<br>• 2 masha branches ash mixed in oil is used to treat backache and joint pains<br>• Ash of the stem is mixed up with seasamum and mustard oil is applied externally to treat muscular injuries and ulcers |
| 15 | Capsicum annuum Linn (Solanaceae) 65 | (UR) Surkh Mirch<br>(SN SR) Garha Mirch<br>(I N) Red Pepper | H | Rare | FL fruit | **Hikmat:**<br>• Tablets made from ½ to 1 masha of fruit along with the heng (*Ferula asafoetida*) and Camphor (*Cinnamomum camphora*) is used for the treatment of cholera<br>• Paste in water is applied over skin to treat dog bite and for other irritations |

| Ser. No | Species with (Family) Voucher Sp No | Local Names[1] | Habit | Occurrence* | Part Used[2] | Medicinal uses of Plants in Homeopathy, Hikmat and Tib-e-Nabvi |
|---|---|---|---|---|---|---|
| | | | | | | **Homeopathy**<br>• It is used to treat homesickness, bloating and stomach irritation<br>• It is used to treat hemorrhoids (Q-3x-200) |
| 16 | Chenopodium album Linn (Chenopodiaceae) 42 | (UR) Batho<br>(SN) Nibho boto<br>(PB) Bthwa<br>(SR) Jo sagbuto<br>(I N) White Goose Foot | H | Common | S, WP | **Hikmat**<br>• 5 to 7 masha of seeds are used against jaundice and hepatitis<br>**Homeopathy**<br>• Whole plant extract is used to treat chronic joint pains or the stiffness in right/left shoulder (in pure form of the mother tincture) |
| 17 | Cichorium intybus Linn (Asteraceae) 39 | (UR, PB) Kasni<br>(I N) wild endive | H | Common | L, S | **Hikmat.**<br>• Decoction is prepared from fresh leaves and mixed with normal sugar to treat the jaundice and hepatitis (very common disease of study area)<br>• Powder made from 5 grams of Kasni seeds, 5 grams of Kalvangi seeds (*Nigella sativa*) and 5 grams seeds of Methi (*Trigonella foenicum-graecum*) are used against diabetes<br>**Tibe-Nabvi**<br>• Paste of the fresh leaves in water is applied externally on the stomach against inflammation |
| 18 | Cirsium arvense (L ) Scop (Asteraceae) 45 | (UR) Jangli Bengun<br>(PB) Jiu<br>(SN) Aaden<br>(I·N) Indian Night Shade | H | Infrequent | I ST, IT R | **Hikmat.**<br>• Tea made from 5 - 9 masha of fresh leaves is used to treat mild fever and chronic headache<br>**Homeopathy.**<br>• Stem is used to increase the sperm count in man (Potency, Q-3x-7)<br>• Flower is used for severe indigestion (potency, Q-3x-7) |
| 19 | Citrus limon (Linn ) Burm f (Rutaceae) 64 | (PB) Nimbo<br>(UR) Lemo<br>(SN) Neebo<br>(I N) Lemon | I | Infrequent | I I, S | **Hikmat**<br>• Drink called shkanjabeen made from lemon juice, sugar and water is good for digestion and as good cooling agent<br>• 1 tola of lemon juice 1 tola of onion juice and 1 rati of camphor leaves in the powdered form are mixed and used as syrup to treat the cholera<br>• Powder (made from crushing 10 grams of each Cardamom, Clove lemon s peal and 15 grams of Cinnamon and 5 gram Peppermint) is used externally as repellent against insects and mosquitoes |

| Ser No | Species with (Family) Voucher Sp No | Local Names[1] | Habit | Occurrence* | Part Used[2] | Medicinal uses of Plants in Homeopathy, Hikmat and Tib-e-Nabvi |
|---|---|---|---|---|---|---|
| 20 | Convolvulus arvensis Linn (Covolvulaceae) 62 | (SR) Wanvehri,Galvehri (PB) Hirankhuri (UR) Lehli (EN) Field bindweed | H | Common | WP | **Hikmat.**<br>• Whole plant in the powdered form is used to cure chronic constipation |
| 21 | Cordia dichotoma Forster f (Boraginaceae) 74 | (SN PB) Lesora (EN) Glue berry | T | Infrequent | LF | **Hikmat-**<br>• 9 to 15 fruit are used to soften throat and chest cavity to cure cough and asthma<br>• Ash of leaves is used on the open wounds of skin |
| 22 | Coriandrum sativum Linn (Apiaceae) 44 | (UR,PB) Dhania (SN) Dhana (EN) Coriander | H | Common | WP | **Hikmat.**<br>• Decoction made from 6 grams of whole plant mixed with sugar and milk is used to improve the digestion<br>• Drink made by soaking the crushed whole plant in water over night to treat the person who was affected by the sunstroke<br>• Powder made from whole plant and seeds is taken with water to treat inflammation, thirst and mild fever<br>• 50 grams of its fresh whole plant, 50 grams of fennel and 100 grams of sugar is mashed in the grinder is taken for the eye weakness |
| 23 | Coronopus didymus Linn Smith (Brassicaceae) 1 | (UR) Jangli Halon (PB) Chairmi booti (SR) Chri-hatha (EN) lesser swine-cress | H | Common | WP, S | **Hikmat-**<br>• Paste of the whole plant is used on the burnt skin or over body rashes<br>• Smoke from its plant is used as insect repellent |
| 24 | Dalbergia sissoo Roxb (Papilionaceae) 24 | (UR) Shesham (PB) Tahli (EN) North Indian Rosewood | T | Common | LF, ST, S | **Hikmat.**<br>• Its leaves and seeds are said to be used in stomach disorder<br>• Decoction of its leaves are used as hair wash by women to strengthen the hairs root and increase length |
| 25 | Datura stramonium Linn (Solanaceae) 20 | (UR,SR) Dhatura (SN) Chervdatoro (EN) Jimson weed | H | Common | L, S | **Hikmat**<br>• ½ ratti of seed having acrid and bitter taste used as tonic and febrifuge (*Precaution Taken with care as overdose because it is poisonous in higher concentrations*)<br>• Leaves after boiling are used to relieve all types of body aches |
| 26 | Daucus carota Linn (Apiaceae) 58 | (UR) Gajar (EN) carrot | H | Common | RZ | **Hikmat**<br>• Juice of its fruit with the grapefruit juice is taken to remove burning sensation of liver and stomach |

| Ser No. | Species with (Family) Voucher Sp. No | Local Names[1] | Habit | Occurrence* | Part Used[2] | Medicinal uses of Plants in Homeopathy, Hikmat and Tib-e-Nabvi |
|---|---|---|---|---|---|---|
| | | | | | | • Fresh carrots are used as salad (vitamin A and phosphorus) Also used in the form of murabba and as halwa (cooked with the oil and sugar) to increase the eye sightedness |
| 27 | Desmostachya bipinnata (L ) Stapf (Poaceae) 77 | (SR) Drub, Lalla (PB) Khabbal Kha (EN) Big Cordgrass | S | Common | WP | **Hikmat.** • Extract of whole plant used by the local Hakims to control the vomiting and vaginal discharges in the un-married girls **Homeopathy** • It is used to treat the urinary tract Inflammation and stomach acidity |
| 28 | Eucalyptus globulus Labill (Myrtaceae) 30 | (UR,PB) Sufaida (EN) Blue Gum Tree | T | Common | L, S | **Hikmat.** • Tea made from 9 masha of its leaves are used to treat cold, cough, flue and influenza **Homeopathy**· • Oil of Eucalyptus is used for the mind relaxant and for the body weakness (only 5 drops) |
| 29 | Ficus benghalensis Linn (Moraceae) 18 | (UR) barh, bohat (EN) Banyan tree (PB) Both | T | Infrequent | F, Fl, Fl, R | **Hikmat**· • Aerial roots are used to cure diarrhoea • Fruit is used to maintain the blood sugar level by diabetic patient • Paste made by mixing 2 -3 drops of its latex mixed with 4 ratti honey is used to cure the emission of piles • Ash from leaves is sprinkled on open wounds for healing |
| 30 | Ficus carica Linn (Moraceae) 22 | (UR,PB) Angeer (EN) Fig | T | Rare | F | **Hikmat** • 5-7 fruits are cooked in milk to be used as bandage over wounds and abscesses • Dried fruits are useful for the treatment of stones of bladder and kidneys **Tibe-Nabvi** • The Prophet (PBUH) mentioned figs and then stated, ' If I had to mention a fruit that descended from paradise then I would say that is fig, because the fruits of paradise do not have seeds inside, eat this fruit because it prevent haemorrhoids, piles and gout '(Bukhari) |
| 31 | Ficus religiosa Linn (Moraceae) 52 | (UR) Peepal (SN) Pupper (EN) Sacred fig | T | Rare | St, Fl R | **Hikmat:** • Its powdered fruit is used to treat asthma • Root ash (1 masha) is used to treat dysentery |

| Ser. No. | Species with (Family) Voucher Sp. No. | Local Names[1] | Habit | Occurrence* | Part Used[2] | Medicinal uses of Plants in Homeopathy, Hikmat and Tib-e-Nabvi |
|---|---|---|---|---|---|---|
| | | | | | | • Decoction of stem is used as antiemetic in the gastric problems of children |
| 32 | Foeniculum vulgare Mill (Apiaceae) 61 | (UR PB) Sonf<br>(I N) Fennel Fruit | S | Common | S | **Hikmat.**<br>• Powder made from 50 grams of fennel seed 50 grams of fresh whole coriander plant and 100 grams of sugar is taken for eye sight weakness<br>• 5-7 masha of its fruit is good for back pain and sore throat |
| 33 | Grewia asiatica Linn (Tiliaceae) 72 | (UR, PB) Falsa | T | Infrequent | Fl, S | **Hikmat.**<br>• Drink made from 5 tola powdered fruit with sugar and water is used to give relief from heat and thirst<br>• Fruit juice is digestive and lessens stomach-ache, regulates heart beat and blood pressure |
| 34 | Hibiscus rosas-inensis Linn (Malvaceae) 27 | (UR) Ghrhill<br>(SR) Hodil,Ghorhan<br>(SN) ghorhawal<br>(I·N) China Rose | H | Rare | Fl | **Hikmat:**<br>• Extract from 7 masha of flowers is used in the treatment of dysuria |
| 35 | Hordeum vulgare Linn (Poaceae) 49 | (SR, PB) Jo<br>(I·N) Barley | H | Common | WP | **Hikmat·**<br>• Bread made from its flour is used to remove extra fats from the body<br>• Drink made from its ground seed quenches thirst and hence is a very good summer drink |
| 36 | Ipomoea batatas (Linn ) Lam (Convolvulaceae) 56 | (UR,PB) Shkar qandi<br>(I N) white yam | H | Infrequent | RZ | **Hikmat.**<br>• It increases the sperm count in men and good for infertility |
| 37 | Lathyrus sativus Linn (Papilionaceae) 40 | (UR PB) jangli mater<br>(SR) Matri<br>(I N) grass pea | H | Infrequent | WP, S | **Hikmat·**<br>• Ripened seeds are known to be used as narcotic and are used to soothe severe body pain<br>• Powder made from whole plant is applied to skin burns externally |
| 38 | Magnifera indica Linn (Anacardiaceae) 12 | (UR) Aam<br>(PB,SR) Anb<br>(I N) Mango | T | Common | Fl, Fr, R,I | **Hikmat·**<br>• Fruit, fresh juice and milk shake are famous due to the sweet taste all over the world (Especially *Chaunsa* local type of Rahim Yar Khan)<br>• Raw fruit is used to make the Masalah(spice) which is called *Aamchur* very good for digestion and gastric problems<br>• Powder made from flower is used to increase the sperm count |

| Ser. No | Species with (Family) Voucher Sp No | Local Names[1] | Habit | Occurrence* | Part Used[2] | Medicinal uses of Plants in Homeopathy, Hikmat and Tib-e-Nabvi |
|---|---|---|---|---|---|---|
| | | | | | | Moreover, it is good for stomach, kidneys intestines and urinary bladder<br>• Powder made from 3 Masha flower and raw fruit is used for the treatment of diarrhea<br>**Homeopathy**<br>• Leaves are used to treat throat allergies and body weakness in the form of mother tincture (potency, 2x two times a day) |
| 39 | Melia azedarach Linn (Meliaceae) 25 | (UR) Bkayien<br>(SN) Bkayien Nim<br>(PB) Bkain<br>(EN) White cedar | I | Infrequent | L, S | **Hikmat**<br>• Extract made from 7 masha leaves is used as anthelmintic<br>• Only 5 seeds are used in oil are applied on the skin to cure rheumatism<br>• Decoction made from 2 rati of fruit is used as hair wash to kill hair lice and to keep hair strong |
| 40 | Melilotus indica Linn (Papilionaceae) 7 | (UR) Sr Sinjhi<br>(SN) Sinjhi<br>(EN) Indian sweet-clover | H | Infrequent | WP, FL, L | **Hikmat.**<br>• Whole plant with black pepper (kali mirch) is used as niswar to give relaxation to mind<br>• While the cooked leaves in water are usually used for the bandage of the hurt parts of the body |
| 41 | Mentha longifolia (L.) L (Lamiaceae) 21 | (UR) Podina<br>(PB) Podna<br>(SN) Phowanu<br>(EN) Pepper Mint | I | Common | L | **In Hikmat.**<br>• Qurs-e-podina (a powder made from Bishop's weed (Ajwain), Fennel, Peppermint (in dried form), Cinnamon , zanjeel, Black Cumin red pepper, black pepper latex of Neem, salt Ammonium Chloride) is used for the treatment of stomach and liver in case of hepatitis A, B or jaundice<br>• Powder (made from crushing 10 grams of each, Cardamom, Clove, lemon's peal and 15 grams of Cinnamon and 5 gram Peppermint) is used as insect and mosquitoes repellent externally<br>• Decoction made from 6 grams of pepper mint and 3 grams of Cardamom (Elaichi) is used as drink for the stomach, in case of indigestion and gas trouble |
| 42 | Moringa oleifera Lam (Moringaceae) 36 | (UR,PB) Suhanjana<br>(SN) Sohanjro<br>(EN) Moringa Tree | I | Infrequent | WP | **Hikmat**<br>• Tablets made from it (known as the *Moringa* supplements) are taken against body-aches, gastric problems and blood pressure |

| Ser No | Species with (Family) Voucher Sp No | Local Names[1] | Habit | Occurrence* | Part Used[2] | Medicinal uses of Plants in Homeopathy, Hikmat and Tib-e-Nabvi |
|---|---|---|---|---|---|---|
| 43 | Morus nigra Linn (Moraceae) 50 | (UR,PB) Toot-e-Siah (E N) Black Mulberry | T | Rare | F F, ST, L | **Hikmat:**<br>• Fresh or dried fruit (1 tola) is eaten for digestion and constipation<br>• Fresh leaves (2 tola) are used for the softening of skin by women<br>• Stem is used as anthelmintic<br>• Its seeds are used to cure the flu, fever, and sore throat |
| 44 | Musa paradisiaca Linn (Musaceae) 79 | (UR,PB) Kaela (SN) Kaelo (EN) Banana | T | Infrequent | F F | **Hikmat.**<br>• Fruit regulates bowel in case of constipation Eating a banana after every food intake enhances digestion notably<br>• Bananas are used as tonic by athletes because it contains potassium which can make a person very attentive |
| 45 | Ocimum tenuiflorum Linn (Lamiaceae) 86 | (UR,PB) Rehan,Nazbo (E N) Holy Basel | H | Rare | L , WP | **Hikmat.**<br>• Fresh leaves dipped in honey are very effective against the whooping cough<br>**Homeopathy.**<br>• Elevated amount of uric acid intestinal inflammation and bloody diarrhea<br>• Used to treat Stomach irritation lung allergies and whooping cough (Q-3x-7) |
| 46 | Oxalis corniculata Linn (Oxalidaceae) 54 | (UR) Khtti mithi boti (PB) Meeni booti (EN) creeping woodsorrel | H | Common | WP | **Hikmat:**<br>• Decoction of root is used to treat mild temperatures and scurvy |
| 47 | Phalaris minor Retz (Poaceae) 6 | (UR,PB) Dumbi Sittee, Gandum Dewana (E N) bunchgrass | H | Common | WP | **Homeopathy:**<br>• For weak eye sight and black spots of the cornea and for tinnitus (Potency, 6x- 9) |
| 48 | Phoenix dactylifera Linn (Palmae) 32 | (UR) Khajoor (PB) Khajr (SN) Katl (E N) Date | T | Infrequent | F F, S | **Hikmat.**<br>• 3-5 fruits are taken in the morning to kill the bacteria worms and as an energizer for body<br>• Used to make Majon (Jelly) to strengthen the body muscles<br>• Used in herbal medicines as sweetener or as binder for making tablets<br>**Homeopathy**<br>• Royoll jelly (potency, 2x) is used to increases the sperm count and power |

| Ser No | Species with (Family) Voucher Sp No | Local Names[1] | Habit | Occurrence* | Part Used[2] | Medicinal uses of Plants in Homeopathy, Hikmat and Tib-e-Nabvi |
|---|---|---|---|---|---|---|
| | | | | | | **Tibe-Nabvi:**<br>• It is very good for stomach and protects it from the harmful bacteria and viruses<br>• Powdered seed are taken by women to get pregnant |
| 49 | Phyla nodiflora Linn (Verbenaceae) 75 | (PB) Toot Boti<br>(E N) Match weed | H | Common | L | **Hikmat:**<br>• Powder made from ½ chatank of leaves and seven black pepper is used to treat bleeding hemorrhoids<br>• Decoction of leaves mixed with sugar to cure fever |
| 50 | Punica granatum Linn (Punicaceae) 23 | (UR PB) Anar<br>(SN) Darhon<br>(E N) Pomegaranate | T | Infrequent | F FL, S | **Hikmat:**<br>• Fruit juice (2-5 tola) can be used to cure hepatitis<br>• Powdered dried seeds (*'Anardana'*) are regularly used for the proper digestion of food in the study area<br>**Tibe-Nabvi.**<br>• In both of them are fruit and palm trees and pomegranates So, which of the Blessings of your Allah would you refuse? (55 68-69)<br>• Hazrat Ali bin Abi Talib (R A ) narrated that the Prophet (ﷺ - PBUH) said, 'Pomegranate and its peel make stronger digestion (or stomach)<br>• Fruit with seeds, peel juice (100 grams) with 1 tablespoon honey is mixed is used in the eyes (as surma), to improve sightedness and to remove the paleness of eyes |
| 51 | Raphanus sativus Linn (Brassicaceae) 43 | (UR,PB) Mooli<br>(SN) Mori<br>(E N) Winter Radish | H | Common | WP RZ S | **Hikmat.**<br>• Paste made from seed (1 -3 grams) is used to treat amenorrhea<br>• Leaf juice (20-25 ml)is used to remove stone from kidney and bladder<br>• Rhizome with oil, mustard seeds cumin seeds, hing, turmeric chilli and salt are cooked on the fire for 12 minutes to be used against constipation and hemorrhoids |
| 52 | Rosa chinensis Jacq (Rosaceae) 83 | (UR,PB) Gulab<br>(SN) Jarphal<br>(E N) Rose | S | Infrequent | FL | **Hikmat.**<br>• Its flower petals are mixed with sugar and kept for some time until smooth and is used for stomach disorders and mild fever<br>• Extract of the flower petal (Rose water) is used as cleanser and tonic for facial skin |

| Ser. No | Species with (Family) Voucher Sp No | Local Names[1] | Habit | Occurrence* | Part Used[2] | Medicinal uses of Plants in Homeopathy, Hikmat and Tib-e-Nabvi |
|---|---|---|---|---|---|---|
| | | | | | | • Rose water is used to improve eye sight |
| 53 | Saccharum bengalense Retz (Poaceae) 78 | (SR) Bota<br>(PB) Kanha<br>(UR) Sarkanda<br>(E N) Munj Sweetcane | S | Common | R | **Homeopathy:**<br>• It is used to treat the kidney stones (Potency, Q-3x-30) |
| 54 | Saccharum officinarum Linn (Poaceae) 9 | (UR,PB) Ganna,Kamad<br>(SN) Kumand<br>(E N) Sugar Cane | S | Infrequent | BN, F F S I | **Hikmat**<br>• Its fresh juice with half lemon and 2 masha ginger is good against the heat stroke, stomach and liver<br>• Its juice is good for the chest cough and lungs<br>• Its juice aids in digestion and good for malaria and cholera<br>• Shakar (brown sugar) can be used as an alternative for sugar which has less side effects on the human body |
| 55 | Sesbania bispinosa Jacq W F (Papilionaceae) 3 | (PB) Jantar<br>(SR) Taeter<br>(E N) Prickly Sesban | T | Infrequent | R, BK | **Hikmat:**<br>• Paste made from root and bark is used to ease throbbing and swelling related to arthritis and Gout |
| 56 | Solanum nigrum Linn (Solanaceae) 76 | (SN) patperon<br>(PB) Kanwan<br>(UR) Mako<br>(E N) black nightshade | S | Common | F F L, R | **Hikmat.**<br>• Leaf extract (4-5 tola) in water is used to treat the swelling of liver and stomach<br>• Leaves are chewed in the treatment of phthisis<br>**Homeopathy.**<br>• Root is used to treat tooth decay, increases shine and whiteness of teeth because it contains fluoride in it (Potency, Q-1x-3x-6)<br>• Fruit is used to treat all type of diseases related to the liver (most common Hepatitis B and the swelling or injuries of liver) (Potency, Q-3x-6x) |
| 57 | Solanum surattense Burm f (Solanaceae) 4 | (UR) Katai Klan<br>(PB) Bari Kandayari<br>(SN) Aadern | H | Infrequent | F | **Hikmat**<br>• Paste made from 9 Masha of fruit in water is applied externally for the treatment of scabies and ringworm twice a day<br>• Powder made from 2 masha of its leaves is used for the treatment of cough, fever and flu |
| 58 | Sorghum bicolor (Linn ) Moench Menth (Poaceae) 55 | (SR, PB) Jowar<br>(SN) Joeir | H | Common | WP | **Hikmat.**<br>• It is used as anthelmintic |

| Ser. No. | Species with (Family) Voucher Sp No | Local Names[1] | Habit | Occurrence* | Part Used[2] | Medicinal uses of Plants in Homeopathy, Hikmat and Tib-e-Nabvi |
|---|---|---|---|---|---|---|
| 59 | Spinacia oleracea Linnaeus (Chenopodiaceae) 46 | (UR,PB) Paluk (EN) Spinach | H | Common | L | **Hikmat:**<br>• 25 ml juice of its leaves 50 ml of apple juice and 15-20 ml of lemon juice is used to treat anaemia and the heavy bleeding during menstruation<br>• Regular eating of spinach as salad or cooked meal is used to cure constipation<br>• Fresh juice of its leaves is used to cure urinary problems like infection or burning sensation |
| 60 | Syzygium cumini Linn (Myrtaceae) 15 | (UR,PB) Jaman (SN,SR) (EN) Jambul | T | Rare | BN, S, FL | **Hikmat**<br>• Extract of the fruit is mixed in equal parts with the Mango extract and given to the patient of diabetes<br>• 2 masha powdered form of seed is used to cure all types of teeth ailments<br>**Homeopathy.**<br>• Used to cure kidney failure and to lower creatinine and blood urea level in blood |
| 61 | Tamarix aphylla (Linn.) Karst (Tamaricaceae) 35 | (UR) Farash, Gazesurkh (PB) Mayien (EN) Athel tree (SN, SR) Jal | T | Common | L, WP | **Hikmat.**<br>• Decoction is used for the treatment of chronic diarrhoea and dysentery<br>• Steam of leaves is used for the treatment of the ulcer and piles<br>**Homeopathy:**<br>• Used to cure the injuries of female reproductive organs and leucorrhoea (Potency, 2x-6x-30) |
| 62 | Trigonella foenum-graecum Linn (Papilionaceae) 47 | (UR,PB) Maithi (EN) Fenugreek | H | Common | L, S | **Hikmat**<br>• 100 grams seeds are crushed in 1 liter of water and is used as hair wash for long and shiny hairs<br>• Paste made from crushing 3-5 masha seeds in water for black dots and spots of skin<br>**Tibe-Nabvi.**<br>• Tea made from leaves is taken in flue throat infections and chest pain<br>• Its leaves extract is used to cure abscesses of abdomen and also for lung diseases |

| Ser No. | Species with (Family) Voucher Sp No | Local Names[1] | Habit | Occurrence* | Part Used[2] | Medicinal uses of Plants in Homeopathy, Hikmat and Tib-e-Nabvi |
|---|---|---|---|---|---|---|
| 63 | Vitis vinifera Linn (Vitaceae) 10 | (UR,PB) Angor (E N) Grape | H | Rare | F L | **Hikmat.**<br>• It is used as tonic in the form of regular drink<br>• In murakbat (compound medicines), it is used to add sweetness<br>• It is used to treat cough, flu and fever<br>**Tibe-Nabvi.**<br>• It is used mostly as dry fruit in the winter season and is part of many drinks and dishes<br>• It is used to keep the body temperature high and to treat indigestion of food particles |
| 64 | Ziziphus jujuba Mill (Rhamnaceae) 82 | (UR) Unab (PB, SR) desi beri (E N) Jujube | T | Rare | F L, R | **Hikmat:**<br>• The dried fruit is soaked in water over night along with *Ficus carica* L and is given for the treatment of jaundice<br>• The juice of crushed fruit purifies blood, used to raise blood pressure and used for the treatment of mild fever<br>**Homeopathy:**<br>• Its fruits are used for stomach ulcers, indigestion, acidity, ulcer and for the early stages of the cancer (Potency , 2x-30-Q)<br>**Tibe-Nabvi:**<br>• Paste of compressed fresh leaves and ground loaf sugar (shakr) and is joined with a cloth as dressing on the abscesses The dressing is changed on daily basis and treatment is continued for 3 to 4 days As a result the new abscesses will vanish and the older ones will rupture This is an effective conventional phyto-therapy |
| 65 | Ziziphus mauritiana Lam (Rhamnaceae) 31 | (UR) beri (E N) Indian plum (PB) Jungli beri | T | Infrequent | F , FT | **Hikmat:**<br>• Its fruit is prescribed by the local hakeems for diabetic patients<br>• Its leaves mixed in turmeric, wheat flour and oil are made into paste after heating is used externally to relieve of spinal pain |

[1]Sindhi SD Siraiki SR Urdu=UR English EN Punjabi PB

Bark BK Branches BN Bulb=BU Flower FL Fruit=F I Latex LT Leaves L Rhizome RZ Root=R Seed S Stem ST Whole Plant WP

Fig 4 1 The habit of the plant species at R Y Khan district

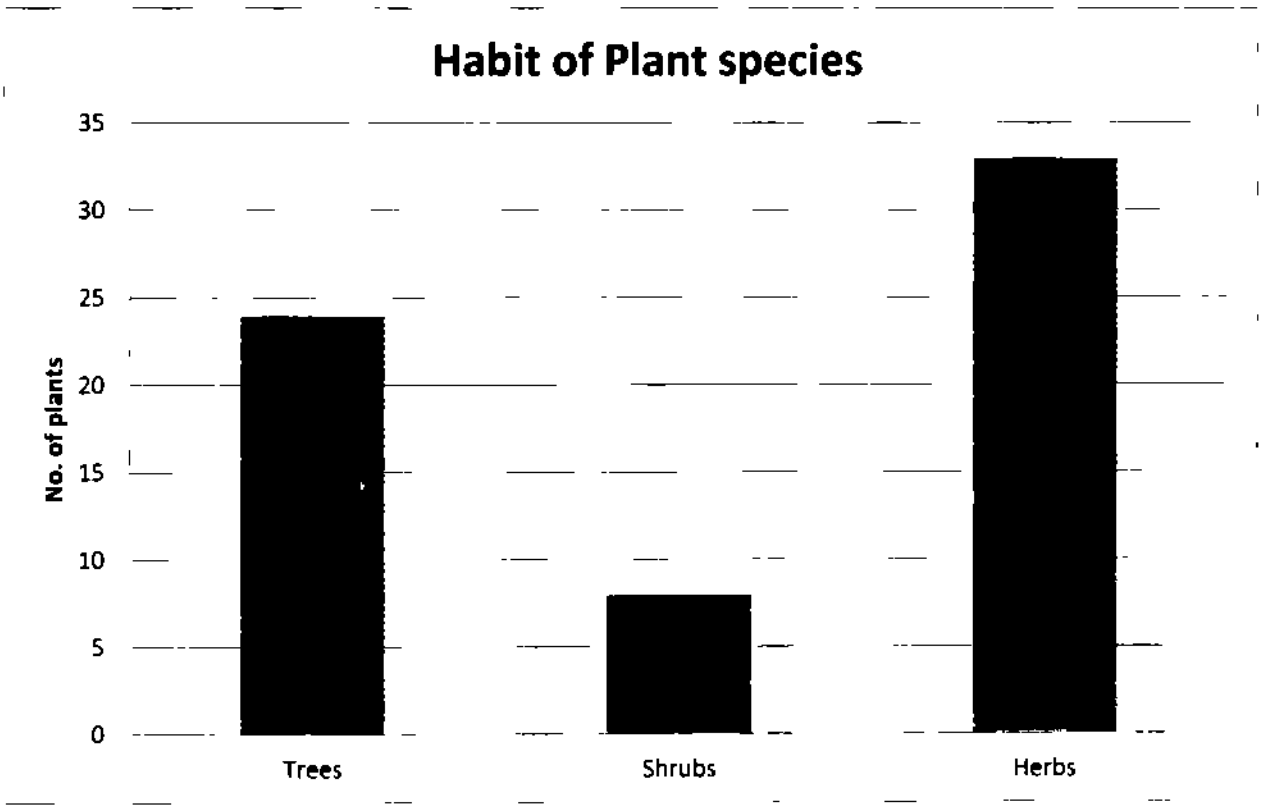



Fig 4.2 Status of the plant species present at the study site

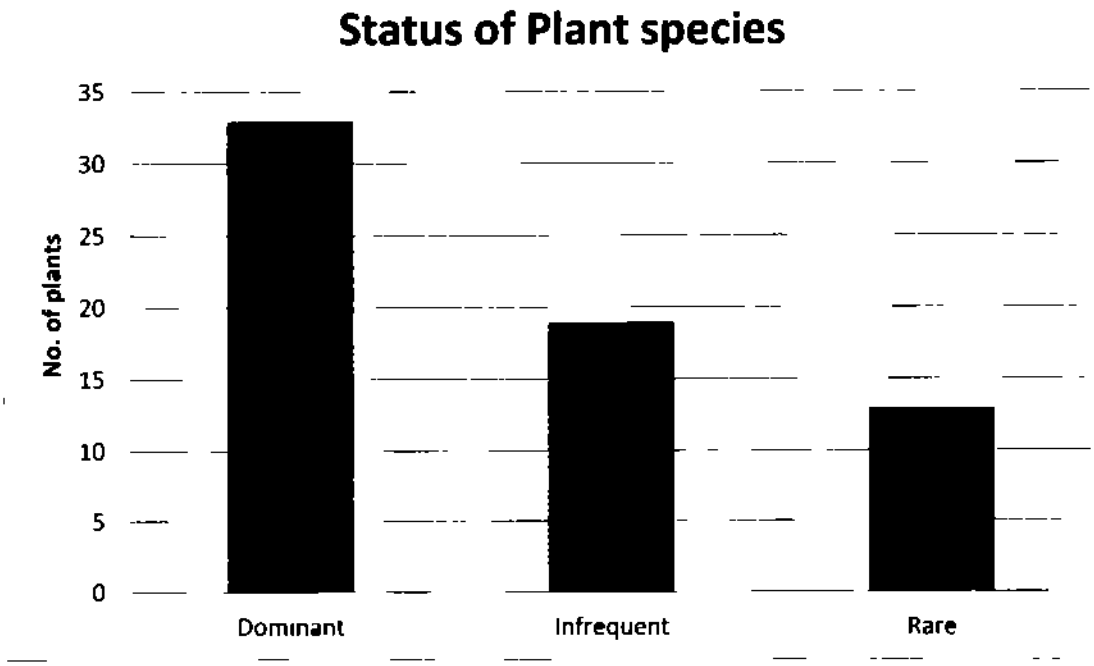


Fig 4 3 The ratio of plants species used in three types of medicinal techniques (Hikmat, Homeopathy and Tib-e-Nabvi)

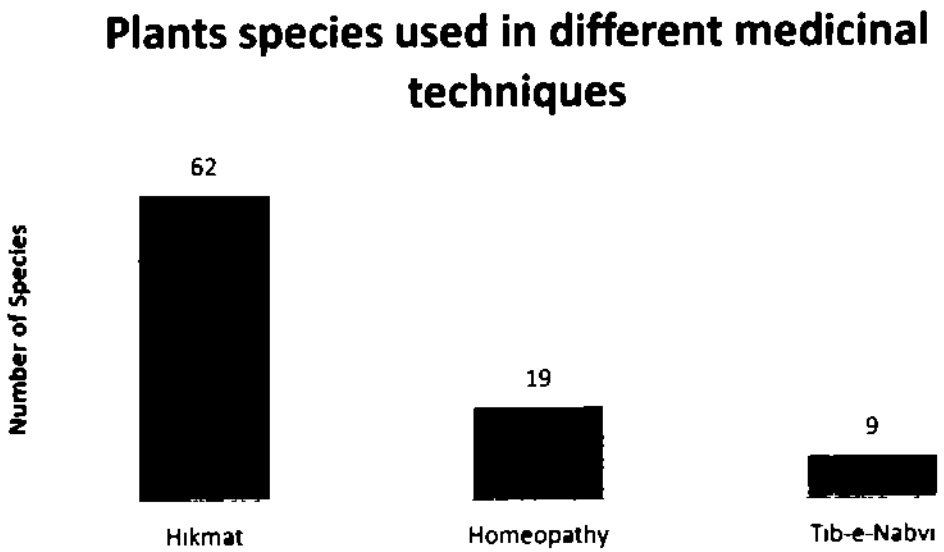


Fig 4 4 The number of plant species according to their families

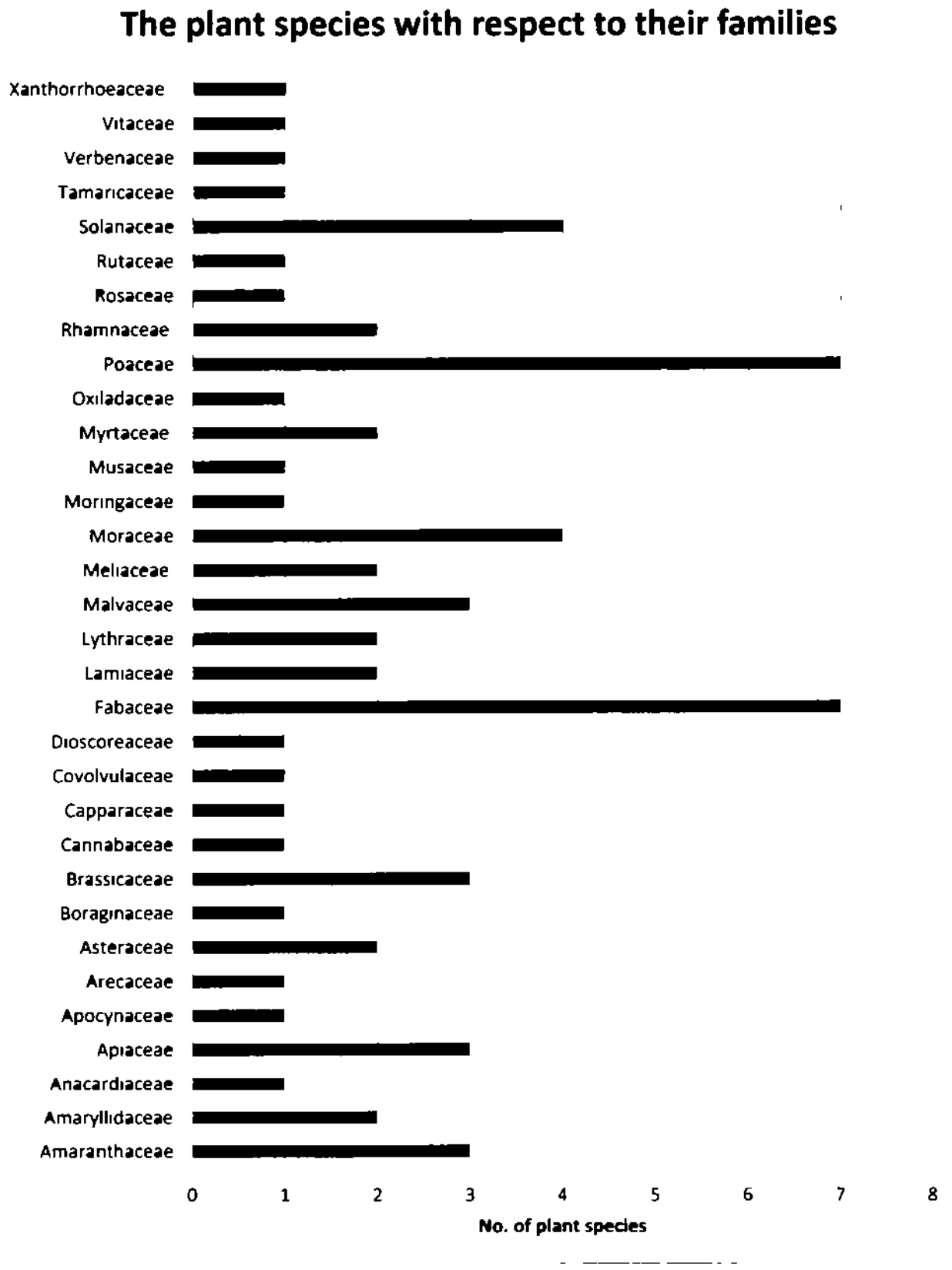


Table 4 2 The MUV, FC of RFC and the plant species at the study site Rahim Yar Khan

| S/No. | Botanical Name | MUV | RFC | FC |
|---|---|---|---|---|
| 1 | *Acacia jacquemontii* Benth | 0 36 | 0 32 | 23 |
| 2 | *Albizzia lebbek* (L ) Benth | 0 35 | 0 34 | 24 |
| 3 | *Alhagi maurorum* Medic | 0 56 | 0 61 | 43 |
| 4 | *Allium cepa* Linn | 0 57 | 0 65 | 46 |
| 5 | *Allium sativam* Linn | 0 81 | 1 00 | 70 |
| 6 | *Aloe vera* (L ) Burm f | 1 00 | 0 67 | 47 |
| 7 | *Amaranthus viridis* Linn | 0 32 | 0 38 | 27 |
| 8 | *Avena fatua* Linn | 0 23 | 0 40 | 28 |
| 9 | *Azadirachta indica* A Juss | 0 54 | 0 33 | 23 |
| 10 | *Bombax ceiba* Linn | 0 10 | 0 30 | 21 |
| 11 | *Brassica nigra* Linn | 0 55 | 0 31 | 22 |
| 12 | *Calotropis procera* Linn | 1 00 | 0 61 | 43 |
| 13 | *Cannabis sativa* Linn | 0 59 | 0 33 | 23 |
| 14 | *Capparis decidua* (Forssk ) Edgew | 0 81 | 0 34 | 24 |
| 15 | *Capsicum annuum* Linn | 0 43 | 0 65 | 46 |
| 16 | *Chenopodium album* Linn | 0 48 | 0 69 | 48 |
| 17 | *Cichorium intybus* Linn | 0 91 | 0 69 | 48 |
| 18 | *Cirsium arvense* (L ) Scop | 0 39 | 0 61 | 43 |
| 19 | *Citrus limon* (Linn ) Burm f | 0 74 | 0 39 | 27 |
| 20 | *Convolvulus arvensis* Linn | 0 14 | 0 35 | 25 |
| 21 | *Cordia dichotoma* Forster f | 0 38 | 0 37 | 26 |
| 22 | *Coriandrum sativum* Linn | 0 91 | 0 38 | 27 |
| 23 | *Coronopus didymus* Linn Smith | 0 22 | 0 31 | 22 |
| 24 | *Dalbergia sissio* Roxb | 0 55 | 0 33 | 23 |
| 25 | *Datura stramonium* Linn | 0 60 | 0 32 | 22 |
| 26 | *Daucus carota* Linn | 0 62 | 0 65 | 46 |
| 27 | *Desmostachya bipinnata* (L ) Stapf | 0 31 | 0 39 | 48 |
| 28 | *Eucalyptus globulus* Labill | 0 14 | 0 32 | 22 |
| 29 | *Ficus benghalensis* Linn | 0 64 | 0 65 | 45 |
| 30 | *Ficus carica* Linn | 1 00 | 0 38 | 26 |
| 31 | *Ficus religiosa* Linn | 0 77 | 0 39 | 27 |
| 32 | *Foeniculum vulgare* Mill | 1 00 | 0 31 | 22 |
| 33 | *Grewia asiatica* Linn | 0 41 | 0 38 | 27 |
| 34 | *Hibiscus rosas-mensis* Linn | 0 13 | 0 35 | 25 |
| 35 | *Hordeum vulgare* Linn | 0 12 | 0 36 | 25 |
| 36 | *Ipomoea batatas* (Linn ) Lam | 0 13 | 0 66 | 28 |
| 37 | *Lathyrus sativus* Linn | 0 14 | 1 00 | 70 |
| 38 | *Magnifera indica* Linn | 0 67 | 0 39 | 27 |
| 39 | *Melia azedarach* Linn | 0 85 | 0 38 | 27 |
| 40 | *Melilotus indica* Linn | 0 19 | 0 31 | 22 |
| 41 | *Mentha Longifolia* (L ) L | 0 97 | 0 39 | 27 |

| S/No. | Botanical Name | MUV | RFC | FC |
|---|---|---|---|---|
| 42 | *Moringa oleifera* Lam | 0 53 | 0 38 | 27 |
| 43 | *Morus nigra* Linn | 0 21 | 0 39 | 27 |
| 44 | *Musa paradisiaca* Linn | 0 21 | 0 63 | 47 |
| 45 | *Ocimum tenuiflorum* Linn | 1 00 | 0 35 | 25 |
| 46 | *Oxalis corniculata* Linn | 0 15 | 0 32 | 22 |
| 47 | *Phalaris minor* Retz | 0 39 | 1 00 | 70 |
| 48 | *Phoenix dactylifera* Linn | 1 00 | 0 37 | 26 |
| 49 | *Phyla nodiflora* Linn | 0 59 | 0 39 | 27 |
| 50 | *Punica granatum* Linn | 0 42 | 0 32 | 22 |
| 51 | *Raphanus sativus* Linn | 0 78 | 0 34 | 24 |
| 52 | *Rosa chinensis* Jacq | 1 00 | 0 37 | 26 |
| 53 | *Saccharum bengalense* Retz | 0 40 | 0 35 | 25 |
| 54 | *Saccharum officinarum* Linn | 0 47 | 0 36 | 26 |
| 55 | *Sesbania bispinosa* Jacq W F | 0 19 | 0 36 | 26 |
| 56 | *Solanum nigrum* Linn | 0 91 | 0 35 | 25 |
| 57 | *Solanum surattense* Burm f | 0 36 | 0 38 | 27 |
| 58 | *Sorghum bicolor* (Linn ) Moench . Menth | 0 24 | 0 31 | 22 |
| 59 | *Spinacia oleracea* Linnaeus | 0 63 | 0 32 | 22 |
| 60 | *Syzygium cumini* Linn | 0 84 | 0 35 | 25 |
| 61 | *Tamarix aphylla* (Linn ) Karst | 1 00 | 0 68 | 48 |
| 62 | *Trigonella foenum-graecum* Linn | 0 89 | 1 00 | 70 |
| 63 | *Vitis vinifera* Linn | 0 91 | 0 69 | 48 |
| 64 | *Ziziphus jujuba* Mill | 1 00 | 0 61 | 43 |
| 65 | *Ziziphus mauritiana* Lam | 0 89 | 1 00 | 70 |

## Chapter 5

### 5.1 Discussion

In the past, no research has been carried out regarding the current status of native plant species of District Rahim Yar Khan which is one of the biggest districts in Punjab province of Pakistan neither by the government nor by the academia While NGO s and other private organization like WWF World wide fund (WWF) for Nature are focusing only on the agricultural species The main concern of these organizations is the development of agriculture sector for revenue enhancement At present indigenous botanical diversity is threatened at immense rate due to urbanization

Natural and social changes created by monetary and mechanical advancement have laid to a profound change of demeanors and qualities with respect to plants (Hynes *et al* 1997) Most social changes in provincial groups are connected with expanding collaborations with cutting edge social frameworks, consequently a great part of the learning and utilization of plant assets and in addition assets themselves, are vanishing in numerous districts (Berg, 1994, Boom 1987)

Ethno-botanical resources have great importance for the wellbeing of the common people of the particular area Ethno-botanical overview likewise uncovers a rich nearby information of these indigenous plants assets of District Rahim Yar Khan Majority of people responded in favor of herbal treatment by Hakim and Homeopathic doctors or through Tib-e-Nabvi with locally accessible restorative plants This has been verified and proved from some locally available literature (Awan 2010, Rehman *et al*, 2015, Malik 2008)

In remote areas of the Rahim Yar Khan where access to modem pharmaceutical is constrained customary mending frameworks have necessary influence in giving medicinal services to the neighborhood individuals So it is very necessary to keep record of documentation about the medicinal use of native plants by the local people It will be helpful for the new researchers to know the ethno-medicinal use of the plants

Results of present study enlist different plant species, their life forms and local knowledge found in the study area A total of 65 plant species belonging to 59 genera and 32 families were recorded in all the four regions Among these Fabaceae and Poaceae are the dominant families with maximum plant species in the study area (Table 1)

The proportion of prevailing indigenous local knowledge among the Homeopathy, Hikmat and Tib-e-Nabvi on the basis of their share in the local market of the district Rahim Yar Khan is mentioned in Fig 3 In general, 62 local medicinal plant species were used by the local Hakims 19 by the homeopathic doctors and only 9 by the local inhabitants as mentioned in Tib-e-Nabvi (Awan, 2010, Rehman *et al*, 2015, Malik, 2008)

According to the interviews of medical practitioners i e Hakeems, Homeopathic doctors, and herbalists, medicinally important plants are *Aloe vera* (L ) Burm f, *Calotropis procera* Linn, *Coriandrum sativum* Linn, *Ficus carica* Linn *Foeniculum vulgare* Mill, *Mentha longifolia* (L ) L , *Ocimum tenuiflorum* Linn *Phoenix dactylifera* Linn , *Rosa chinensis* Jacq , *Tamarix aphylla* (Linn ) Karst and *Ziziphus jujube* Mill These species has obtained the highest MUI value While plant species with lowest MUI values are *Bombax ceiba* Linn *Convolvulus arvensis* Linn , *Dioscorea melanophyma* Burkill & Prain, *Eucalyptus globules* Labill , *Hibiscus rosa-sinensis* Linn *Hordeum vulgare* Linn *Lathyrus sativus* Linn, *Melilotus indica* Linn , *Oxalis corniculata* Linn and *Phalaris minor* Retz (Table 2)

Previous study carried out near the study area i e , Bahawalnagar district (Ahmed *et al* 2015) has reported 63 plants as effective in the local healthcare system, belonging to 56 genera and 34 families Among families Fabaceae was the predominant Ahmed *et al* , (2014) reported 70 medicinal plants belonging to 27 families distributed among 60 different genera from Cholistan desert adjacent to the area studied and Poaceae was the predominant family Medicinal value of 187 plants belonging to 52 families found in South Punjab has been studied (Mughal, 2008) While current study reported 65 medicinal plant species belonging to 32 families and 59 genera

## Chapter 6

### 6.1 Conclusion

From Data analysis of the market survey and interviews with the local inhabitants, it is concluded that indigenous local knowledge and plant species play a very important role in the life of inhabitants of District Rahim Yar Khan as these are main source of the herbal medicines either in Hikmat Homeopathy or Tib-e-Nabvi The targeted study area (district Rahim Yar Khan) constitutes more rural area So, the inhabitants rely on the herbal treatment option than that of modern allopathy system Most abundant medicinal plant is *Calotropis procera* Linn and *Ziziphus jujuba* Mill is rare While there is a need of detailed research and restoration of the natural habitat of these medicinal indigenous plants and local knowledge under threat

Over expanding population has dependably unfavorably influenced the indigenous habitat All endeavors for asset preservation in the study territory improvement would be fruitful if general public increments at the present rate Loss of Habitat is a solitary biggest contributing element for the loss of different species and this is due to the urbanization Project related to Habitat restoration should be launched started in designated sites Ownership should be given to the local community so that they have the power in hand to restore these sites Seed banks for vital rare species must be built Medicinal plants are rich asset base of District Rahim Yar Khan Endeavors ought to be made for the protection of therapeutic plants

## References


Abbasi, A M ,Khan, M , Ahmad, M , Zafar, M ,Jahan, S , & Sultana, S (2010) Ethnopharmacological application of medicinal plants to cure skin diseases and in folk cosmetics among the tribal communities of North-West Frontier Province, Pakistan Journal of Ethnopharmacology, 128(2), 322-335

Acharya K P , R P Chaudhary and O R Vetaas (2009) Medicinal plants of Nepal Distribution pattern along an elevational gradient and effectiveness of existing protected areas for their conservation Banko Jankari 19 16-22

Ahmad S S and Husain S Z (2008) Ethno medicinal survey of plants from salt range Kallar Kahar) of Pakistan Pak J Bot, 40, 1005-1011

Ahmad, H , Khan, S , Khan, A , & Hamayun, M (2005) Ethnobotanical Resources of Manikhel Forests, Orakzai Tirah, Pakistan Ethnobotanical Leaflets 2005(38), 1-13

Ahmed N , Mahmood A Ashraf A , Bano A , Tahir S S , Mahmood A (2015) Ethno-pharmacological relevance of indigenous medicinal plants from district Bahawalnagar, Punjab, Pakistan Journal of Ethnopharmacology 175, 109–123

Ahmed N , Mahmood A , Tahir S S , Bano A Malik R N Hassan S , and Ashraf A (2014) Ethno-medicinal knowledge and relative importance of indigenous medicinal plants of Cholistan desert, Punjab Province, Pakistan Journal of Ethno-pharmacology 155, 1263–1275

Aikman, L (1977) Nature`s Healing Arts From Medicine to Modern Drugs *Nation Geog Soc* 2, 21-23

Alam, N , Shinwari, Z K , Ilyas, M , & Zahidullah (2011) Indigenous Knowledge of Medicinal Plants of Chagharzai Valley, District Buner, Pakistan Pakistan Journal of Botany, 43(2), 773-780

Ali, H and M Qaisar (2009) The Ethnobotany of Chitral Valley, Pakistan with particular reference to medicinal plants Pak J Bot 41(4) 2009-2041

Amiri M S., and Joharchi M R (2013) Ethnobotanical investigation of traditional medicinal plants commercialized in the markets of Mashhad Iran Avicenna Journal of Phytomedicine 3, 254-271

ASER (Annual Status of Education Report-Rural) (2010) South Asia Forum for Education and Development – SAFED Idara-e-Taleem-o-Aagahi (ITA) Pakistan

Annual Status of Education Report (Rural) ASER-Pakistan (2010) South Asia Forum for Education and Development – SAFED

Awan M A (2010) Batarz-e-Jadeed Batasveer Kitab AlMufaradat Shiekh Ghulam Ali Sons Private Ltd Anar Kali, Lahore

Ayyanar M., and Ignacimuthu S (2011) Ethnobotanical survey of medicinal plants commonly used by Kani tribals in Tirunelveli hills of Western Ghats, India Journal of Ethnopharmacology 134, 851–864

Barkatullah, M Ibrar and F Hussain (2009) *Ethnobotanical studies of plants of Chairkoth Hills, Batkhela District Malakand, Pakistan* Front Biol China 4(4) 539-548

Baydoun S Lamis C., Helena D., and Nellya A (2015) Ethno-pharmacological survey of medicinal plants used in traditional medicine by the communities of Mount Hermon, Lebanon Journal of Ethno-pharmacology 173 139–156

Berg M v d (1994) Ver-o-peso The ethnobotany of an Amazonian market In G T Prance & J A ) Ethnobotany in the neotropics Advances in Economic Botany 1, 140-149, The Nev Garden, New York, USA

Berlin B., D E Breedlove and H P Raven (1973) General principles of classification and nomenclature in folk biology *Amer Anthropol* 75 214-242

Bibi S., Sultana J., Sultana H., Malik R N (2014) Ethno-botanical uses of medicinal plants in the highlands of Soan Valley, Salt Range, Pakistan Journal of Ethno-pharmacology 155, 352–36

Boom, B M e (1987) Ethnobotany of the Chacobo Indians, Beni, Bolivia Advances in economic Botany, 4, 1-68, The New York Botanical Garden, New York, USA

Bottcher H (1965) Miracle drugs Zagreb Zora 23–139

Cakılcıoglua U., Khatunb S., Turkogluc I., and Haytad S (2011) Ethnopharmacological survey of medicinal plants in Maden (Elazig-Turkey) Journal of Ethnopharmacology, 137 469–486

Campbell MJ, Hamilton B, Shoemaker M, Tagliaferri M Cohen I Tripathy D, (2002) Anti-proliferative activity of Chinese medicinal herbs on breast cancercells *in vitro* Oikos, 89 275-282

Cero D M., Saller R., and Weckerle S C (2014) The use of the local flora in Switzerland A comparison of past and recent medicinal plant knowledge Journal of Ethnopharmacology 151, 253–264

Chaudri, M I., & Khan M A (2008) An ethnomedicinal inventory of plants used for family planning and sex diseases in Samahni valley, Pakistan Indian Journal of Traditional Knowledge 7(2), 277-283

Cotton CM (1996) Ethnobotany Principle and application New York John Wiley and Sons 399

Cragg, G M., Kingston, D G I., Newman D J (Eds.), 2005 *Anticancer Agents from Natural Products* Brunner-Routledge Psychology Press, Taylor & Francis Group, Boca Raton, FL

Dimitrova Z (1999) The history of pharmacy Sofija St Clement of Ohrid 13–26

Durrani, M J A M Malik and F Hussain (2003) Folk Medicinal plants of Nushki, District Chaghi, Pakistan Jour Sci & Technol., 27(1&2) 45-52

Elisabetsky (1990) Plants used as analgesics by Amazonian cabocols *International Journal of Crude Drug Research* 28, 309-320

Gilani, S A., Qureshi R A & Gilani, S J (2006) Indigenous Uses of Some Important Ethnomedicinal Herbs of Ayubia National Park, Abbottabad Pakistan Journal of Ethnobotanical Leaflets (2006)

Giovannini P., M-Jayne R H and Edwards S E (2016) Medicinal plants used in the traditional management of diabetes and its sequelae in Central America A review Journal of Ethnopharmacology 184, 58–71

Hameed M , Ashraf M , Qurainy F A Nawaz T , Ahmad M S A Younis A and Naz N (2011) MEDICINAL FLORA OF THE CHOLISTAN DESERT A REVIEW *Pak J Bot* 43, 39-50

Haq, F , H Ahmad, M Alam, I Ahmad and Rahatullah 2010 Species diversity of vascular plants of Nandiar valley western Himalaya Pakistan Pak J Bot 42 213-229

Hamayun, M , Khan, A and M A Khan (2003) Common medicinal folk recipes of District Buner, NWFP Pakistan J Ethnobot 31 56-64

Humayun, M , Khan, A Afzal, S , & Khan M A (2006) Study on Traditional Knowledge and Utility of Medicinal Herbs of District Buner, NWFP Pakistan Indian Journal of traditional Knowledge 5(3), 407-412

Hussain G , personal communication, March 12, 2016

Hynes A L , Brown, A D & Grau, H R G (1997) Local Knowledge and the use of plants in rural communities in the montane forests in northwest Argentina Mountain Research and Development, 17(3), 262-271

Ibrar, M Hussain, F , & Sultan A (2007) Ethnobotanical Studies on Plant Resources of Ranyal Hills, District Shang la, Pakistan Pakistan Journal of Botany 39(2), 329-337 IUCN (1970) Red Data Book of Plants Gland, Switzerland IUCN (1994) Red Data Book of Plants Gland, Switzerland

Ibrar M Hussain F & Sultan, A (2007) Ethnobotanical Studies on Plant Resources of Ranyal Hills, District Shang la, Pakistan Pakistan Journal of Botany 39(2) 329-337

Ikram, M Hussain, S F , 1978 Compendium of Medicinal Plants Pakistan Council of Science and Industrial Research

Jain, S K (1965) Medicinal plants-Lore of the tribal of Bastar *Economic Botany* 19 236-250

Kala C P and Sajwan B S (2007) Revitalizing Indian systems of herbal medicine by the National Medicinal Plants Board through institutional networking and capacity building Curr Sci 93, 797-806

Kelly K (2009) History of medicine New York Facts on file 29–50

Khan, A , Gilani, S S , Hussain, F & Durrani, M J (2003) Ethnobotany of Gokand Valley, District Buner, Pakistan Pakistan Journal of Biological .Sciences, 6(4), 363-369

Kultur, S 2007 *Medicinal plants used in Kirklareli Province* (Turkey) *J Ethnopharmacol*, 111 341-364

Liu B , Bussmann R , Li F , Li J Q , Hong L Y , and Long C L (2016). Ethnobotanical approaches of traditional medicine studies in Southwest China A literature review *Journal of Ethnopharmacology*

Mahmood A Mahmood A, Tabassum A Ethnomedicinal survey of plants from District Sialkot Pakistan J Appl Pharm2011, 2(3) 212-220

Mahmood Ad , Mahmood Aq, Malik N R and Shinwari Z K (2013) Indigenous knowledge of medicinal plants from Gujranwala district, Pakistan Journal of Ethnopharmacology 148, 714–723

Malik K M (2008) ENCYCLOPEDIA of modern homeopathic medicines (Rohi, Thal and Daman Bilmisl al Advia Jadidia H P Rumi S M

Mennis, J (2006) Socioeconomic-vegetation relationships in urban, residential land The case of denver, colorado Photogrammetric Engg Remot Sens 72, 911-921

Mesfin K , Tekle G and Tesfay T (2013) Ethnobotanical Study of Traditional Medicinal Plants Used by Indigenous People of Gemad District Northern Ethiopia Journal of Medicinal Plants Studies 1, 32-37

Morton, J F (1975) Current folk Remedies of Northern Venezuela *Quart J Crude Drugs ReMs* 13, 97-121

Mughal, A T (2008) Ethnomedicinal studies of flora of southern Punjab and isolation of biologically active principles Department of chemistry Lahore college for women university Lahore

Murad, W , Ahmad A , Gilani S A , & Khan, M A (2011) Indigenous knowledge and folk use of medicinal plants by the tribal communities of Hazar Nao Forest

Malakand District, North Pakistan Journal of Medicinal Plants Research, 5(7), 1072-1086

Murad, W , Ahmad, A , Ishaq, G , Khan, S M , Khan M A , Azizullah, A I , and Khan, I (2012) Ethnobotanical studies on plant resources of Hazar Nao forest district Malakand, Pakistan Pak J Weed Sci Res , 18(4) 509-527

Nasab F K , and Khosravi A R (2014) Ethnobotanical study of medicinal plants of Sirjan in Kerman Province, Iran Journal of Ethnopharmacology 154, 190 –197

Noor, J M , & Kalsoom, U (2011) Ethnobotanical Studies of Selected Plant Species of Ratwal Village, District Attack, Pakistan Pakistan Jorunal of Botany 43(2), 781-786

Panhwar, A Q , & Abro, H (2007) Ethnobotanical Studies of Mahal Kohistan (Khirthar National Park) Pak J Botany, 39(7), 2301-2315

Phillips, O , & Gentry, A H (1993a) The Useful Plants of Tambopata, Peru I Statistical Hypothesis Tests with a New Quantitative Technique Economic Botany, 47(1), 15-32

Phillips, O , & Gentry, A H (1993b) The Useful Plants of Tambopata, Peru II Additional Hypothesis Testing in Quantitative Ethnobotany Economic Botany, 47(1) 33-43

Pieroni, A , Sheikh, Q Z , Ali, w ,& Torry,B (2008) Traditional medicines used by Pakistani migrants from Mirpur living in Bradford, Northern England Complementary Therapies in Medicine 16, 81-86

Poonam K, Singh GS (2009) Ethnobotanical study of medicinal plants used by the Taungya community in Terai Arc Landscape Indian J Ethnopharmacol 123, 167-176

Qasim, M , Z Abideen, M Y Adnan, R Ansari, B Gul and M A Khan 2014 Traditional ethno-botanical uses of medicinal plants from coastal areas of Pakistan J Coast Life Med , 2 22-30

Qureshi R A (2012) Medicinal flora of Hingol national park Baluchistan, Pakistan Department of Botany, Pir Mehr Ali Shah Arid Agriculture University Pak J Bot , 44(2) 725-732

Qureshi R A , S A Gilani and M A Gufran (2007) Ethnobotanical studies of plants of Mianwali district Punjab, Pakistan Pak J Bot 39(7) 2285-2290

Qureshi, R A , Gelani, S A , & Ashraf, M (2007) Ethnobotanical Studies with Special Reference to Plants Phenology at Sudhan Gali and Ganga Chotti Hills (District Bagh, A K ) Electronic Journal of Environmental, Agricultural and Food Chemistry 6(7), 2207-2215

Qureshi, R , & Bhatti, G R (2008) Ethnobotany of plants used by the Thari people of Nara Desert Pakistan Fitoterapia, 79, 468-473

Rao RR (1996) Ethnobiology in India some key issues on traditional knowledge and sustainable development In Ethnobiology and conservation of cultural and biological diversity proceedings of the Fifth International Congress of Ethnobiology, Nairobi, Kenya National Museums of Kenya 2

Rehaman A , Jawziyya I Q. , Nadvi M A, and Asim A L (2015) Tib-e- Market Nabvi Darulbalagh Publishers and Distributers Rehman, Ghazni street, Lahore

Robin W W , Harrington J P and Friere-Marreco B (1916) Ethnobotany of the Tewa Indians Bureu of American Ethnology 55 12-124

Sadiq W ,, personal communication, March 19, 2016

Saghir, I A , Awan, A A , Majid, S Khan, M A , Qureshi, S J & Sofia B (2001) Ethnobotanical Studies of Chikar and its Allied Areas of District Muzaffarabad Online Journal of Biological Sciences, 1(12), 1165-1170

Said H M , and Saeed, A (1996) Medicinal herbal vol 1 A Text Book for Medical students and Doctors A Res Publication of Bait-Al-Hikmahat Madina-AlHikmah, Karachi, vol 1 MASPrinters Karachi, pp 1–294

Saqib, Z , & Sultan, A (2005) Ethnobotany of Palas Valley, Pakistan Journal of Ethnobotanical Leaflets

Schippmann, U , J D Leaman and A B Cunningham (2002) *Impact of cultivation and gathering of medicinal plants on biodiversity* Global trends and issues, Inter-Departmental Working Group on Biological Diversity for Food and Agriculture, Rome

Shafique M , personal communication, February 6, 2016

Shah, M , & Awan, M R (2002) Plant Biodiversity of Mountains of Pakistan Paper presented at the International Symposium on Mountains of Pakistan-Protection, Potential and Prospects Organized by Global Change Impact Studies Centre (GCISC), Islamabad

Sher H , Elyemeni, M , Hussain K , & Sher H (2011) Ethnobotanical and Economic Observations of Some Plant Resources from the Northern Parts of Pakistan A Journal of Plants, people, and Applied Research, 9, 27-42

Shinwari, M I & Khan, M A (2000a) Folk use of medicinal herbs of Margalla Hills National Park, Islamabad Journal of Ethnopharmacology, 69 45-56

Shinwari, M I , & Khan, M A (2000b) Vegetation Comparison of Sacred Reserved and Unreserved Sites of Rumli Village at Margalla Hills National Park, Islamabad Pakistan Journal of Biological, Sciences, 3(10), 1681-1683

Shinwari, Z K , & Gilani, S S (2003) Sustainable harvest of medicinal plants at Bulashbar Nullah, Astore (Northern Pakistan) Journal of Ethnopharmacology, 84, 289-298

Shinwari, Z K and S S Gilani (2003a) *Sustainable harvest of medicinal plants of Astore, Northern Pakistan* J Ethno-pharmacol 2 289-298

Shinwari, Z K , S S Gilani and M Rehman (2003b) *Medicinal and other useful plants of Swat*

Sivasankari B , Pitchaimani S , and Anandharaj M (2013) A study on traditional medicinal plants of Uthapuram, Madurai District, Tamilnadu, South India Asian Pacific Journal of Tropical Biomedicine 3, 975-979

Smitherman, L C , J Janisse and A Mathur (2005) The use of folk remedies among children in an urban black community remedies for fever, colic, and teething Pediatrics 115, 297-304

Stojanoski N (1999) Development of health culture in Veles and its region from the past to the end of the 20$^{th}$century Veles Society of science and art 13–34

Sultana, S , Khan M & Mushtaq (2006) Indigenous knowledge of folk herbal medicines by the Women of District Chakwal Pakistan Journal of Plants, Research and Applications, 10 243-256

Tardío, J., and Santayana, P D M., (2008) Cultural importance indices a comparative analysis based on the useful wild plants of Southern Cantabria (Northern Spain) J Econ Bot 62, 24–39

Toksoy D Bayramoglu M., and Hacisalihoglu S (2010) Usage and the economic potential of the medicinal plants in Eastern Black Sea Region of Turkey Journal of Environmental Biology 31, 623-628

Tovey P A., Broom A F., Chatwin J Ahmad S and Hafeez M (2005) Use of traditional, complementary and allopathic medicines in Pakistan by cancer patients Rural Remote Health 5, 447

Tucakov J (1971) Healing with plants – phytotherapy Beograd Culture 180–90

VanWyk B E (2015) A review of commercially important African medicinal plants Journal of Ethnopharmacology 176, 118–134

VanWyk B E, Wet D H and Heerden V F R (2008) An ethnobotanical survey of medicinal plants in the southeastern Karoo, South Africa South African Journal of Botany 74, 696–704

Wasi A R, personal communication, February 20, 2016

Wiart C (2006) Ethno-pharmacology of medicinal plants New Jersey Humana Press 1–50

Yousaf, M, & Chaughtai, S M (1976) The Ecology of the Native vegetation of Kohat, N W F P Pakistan Pakistan Journal of Botany, 8, 27-36

## Appendices

### Appendix 1: Plates

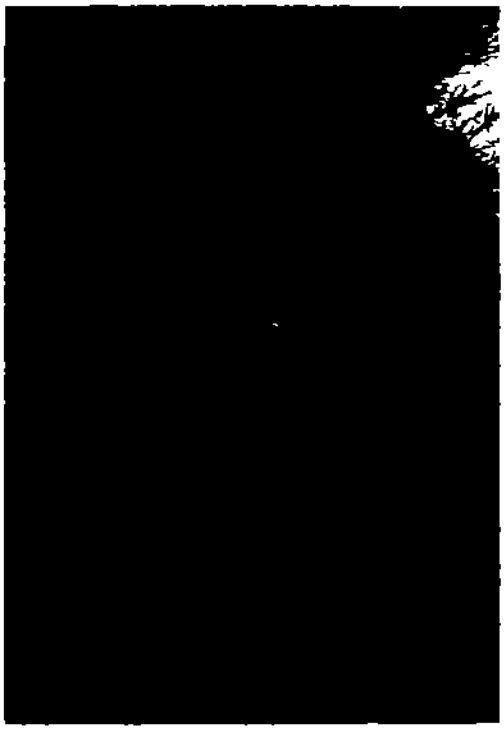
Important indogenous Medicinal plant species of District Rahim Yar Khan

*1 Acacia jacquemontii* Benth (Kiker)

*2 Albizzia lebbek* (L ) Benth (Shree)

*3 Alhagi maurorum* Medic (Jowahan)

4 *Calotropis procera* Linn (Ak)



5 *Capparis deciduas* (Forssk ) Edgew (Kareer)

6 *Cichorium intybus* Linn (Kasni)

7 *Foeniculum vulgare* Mill (Sonf)

8 *Magnifera Indica* Linn (Anb)

9 *Tamarix aphylla* (Linn ) Karst (Nrlaya)

10 *Phoenix dactylifera* Linn (Khajı)

11 *Allium sativam* Linn (Lehsen) (Mehndı)

12 *Lawsonia inermis* Linn

13 *Zizıphus jujuba* Mill (Jungle beri)

14 *Vitis vinifera* Linn (Angor)

15 *Trigonella foenum-graecum* Linn (Maithi)

16 *Syzygium cumini* Linn (Jumo)

17 *Solanum nigrum* Linn (Mako)

18 *Punica granatum* Linn.(Anar)

19 *Ficus Carica* Linn (Angeer)

20 *Desmostachya bipinnata* (L ) Stapf (Dib)

21 *Cirsium arvense* (L ) Scop (Liu)

22 *Allium Cepa* Linn. (Piyaz)

Some important medicinal products of Rahim Yar Khan District


23 Rose water

24. Jasmine oil


25 Henna Powder


26 Qurs-e-podina 27 Alovera Eqwa 28 Moringa Olifera 29 Arq-e-kasni


30 Hepa liver B tonic

31 Garlion