

**PLANTS TREASURES, TRADITIONAL KNOWLEDGE AND
BALOCH SOCIETY**

Botany

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ABSTRACT

This paper covers Indigenous Knowledge of medicinal plants, its application in Baloch area and its importance in the rural life and impact on the Baloch society. Baloch society possesses rich history and culture of tribalism and nomadism with regard to indigenous knowledge of folklore plants. The uses of medicinal plants are diverse and for the treatment of jaundice, cold, fever, stomachache, headache, diarrhea, gonorrhoea, dysentery, eyes and skin diseases, kidney pain, toothache, typhoid, hairfall, abortion purpose, sunstroke, joints pain, swelling of body, purification of blood, constipation, intestinal worms, pimples, chest infection, liver complaints, snake and insect bites, diabetics, high blood pressure, backache problem, birth related troubles, and child diseases. Pupu, one of the main character of this study, centuries old expert in traditional knowledge on useful folk medicines known to the pupu women through experience of ages is usually passed on from generation to generation, developed over time and continuous to make use of it. Pupu women are illiterate in the sense that they have no education except some knowledge of medicinal plants and their usages. Generally, the indigenous knowledge about folklore plants is demolishing, hence further research on these beneficial plants, location identification and composition is required for larger development and conservation of these precious floras. Nobody knows the collection date of all the medicinal plants are being sold in various pansar shops. There are more than 50 medicinal shops in Quetta city. Only pupus are not responsible to

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bring medicinal knowledge to the end users but hakims are the right practitioner to take care of medicinal herb knowledge for human treatment. There is growing demand for plant-based medicines, health products, food supplements; cosmetics etc in the regional and international markets. It is suggested that their value addition may bring foreign exchange for the country. The transmission of knowledge from folk had been decreasing, however due to involvement ethno botanical research, awareness of local community and overall global trend towards resurgence of transmission of knowledge from herbalist to community will bring modern knowledge to the end users.

INTRODUCTION

Indigenous knowledge (often called traditional knowledge, folk wisdom and/or folk knowledge) is a local knowledge of any field of human inquiry that does not originate in academic or corporate research institutions but rather is based on local level accumulated knowledge that is inherited through tribalism and culture (Niazi, A.R., 2011). Indigenous knowledge that is unique to a given culture or society which provides pedestal for agriculture, health care, food preservation, education, environmental conservation and other life processes on the local level (Thomas 1995). Indigenous communities for different localities of the world have developed their own specific knowledge on the plant resources, its usage, natural resource management and conservation (Cotton, 1996). Developed countries needs to access biodiversity resources and developing countries seek to ensure that access is regulated and to ensure fair and equitable sharing of benefits through transfer of technology (Latif & Shinwari, 2005). In the Baloch area the local communities of different regions have centuries old knowledge and traditional practices for the usage of medicinal plants and treatment of various diseases (Bhardwaj & Gakhar, 2005). This knowledge of plants has been transferred from generation to generation through oral communication and personal experiences (Shinwari, 2010). In early 1950 up to 84% of Pakistani population was dependent on indigenous medicines for traditional health practices, but now this is practiced only in the remote areas (Ibrar et al., 2007) because Indigenous knowledge develops and changes with the passage of time, medicinal plants and health facilities.

Baloch are living in the hefty populated area comprising some 350,000 km of western Pakistan and a further 400,000 km of southern Iran and southwestern Afghanistan. The Baloch are the inhabitants of the arid and desert areas of Balochistan. The climate is arid to semi- arid, ranging from coastal tropical to cool temperature in north. Major ecological zones are upland, plain, coastal and desert. The annual rain fall ranges from 100 mm along the

Makran coast to 350 mm in the Northeast of Zhob. Most of rains fall occurs in winter and monsoon rainfall can be significant along the southern (Khuzdar & Lasbela), north east (Sibi, Musakhail, Barkhan, Loralai). Higher altitudes get snow as well. Summer temperature shoots up as high as 47 °C in Turbat, Sibi and winter the temperature falls to -18 °C in Kalat. Humidity is generally less than 10 percent it rises during rainy season. Thus, Balochistan is blessed with diverse climate, flora and fauna (Khan A.M.). The flora of Balochistan is Persian in character and very much less than Afghanistan: but it is northern enough to contain a violet, a primula, the English hawthorn, an anemone, a gentian and plants of many genera familiar in North-Western Europe (Burkill, I.H., 1969).

The structure, behavior and social set up of Baloch society in its essence is influenced by nomadism and tribalism. Nomadism which is one of the basic elements of Baloch socio-political organization retains its presence in Balochistan (Dashti, N., 2008). Baloch pastoralists are basically nomad/semi-nomad and used to travels round the year along with their animals within Balochistan. During travelling and stay at either ends, they have very limited access to health facilities, so their reliance on medicinal herb treatment is natural. Migration of Baloch pastoralists from upland to low land in winter and return back as the summer set up is centuries old tradition (Dashti, N., 2008). Change in life pattern, security and expansion of agriculture on pasture land has dwindled considerably their movement and they settled in upland region. On their way, stay on both ends, they used to collect medicinal plants and carry them as medicine for their own use. Balochistan is naturally prosperous of medicinal plants habitat due to various ecological zones. Their poetry and songs celebration signify that are both nomadic and semi-nomadic pastoralists and very difficult to reconcile with a settled life. The most celebrated of their poems, which are they use as a favorite, begins (Baloch, M.S.K, 2012):

The Baloch forts are their mountains
Their storehouses are in pathless rock faces
Their peaks are better than an army
The lofty heights are their friends
Their refreshment is from flowing springs
The leaf of the dwarf palm their bed
The hard ground their pillow.....

Pahwal (nomads) are the frequent user of medicinal herbs for various diseases. Elderly pahwal women are expert in knowledge of herbal medicines, who examine the patients and recommend treatments for them

(Baloch, M.A., 1988). The elderly women in a Baloch household are often specialist in knowledge and techniques of popular treatments. They have knowledge of home remedies for number of problems. Some settlements have an elderly female of one household act by default as the sole herbalist, masseur and traditional midwife (Baluk) for the whole settlement (Dashti, N., 2008).

OBJECTIVES

Objectives of this study are:

- i) To identify the Indigenous Knowledge that is used in herbal treatment,
- ii) To document the role of folklore plants in health care in the Baloch society and
- iii) To make recommendations/suggestion to save these naturally grown plants for the betterment of human beings.

METHODOLOGY

To carry out the study objectives, the following methods were applied for data collection. The information was collected through Participatory Rural Appraisal (PRA) through using check list in interviewing Baloch nomadic women, pupu and pansars. Two groups of Nomads were interviewed in Dasht valley at the opening of Bolan pass whereas 3 pupu were interviewed in Sabzi mandi and two in Mastung. Five pansars were interviewed in sariab and Thana road, Quetta. The study districts included in this study were Quetta, Bolan and Mastung. A checklist was prepared in the light of literature review and personal information gathered. *Pupu* belong to Baloch tribe which is recognized as plant collector, its user in healthcare and selling to rural and urban populations are the only medicinal herb promoters and health practitioner. Locally pupu are known as herbal hakim. Their profession is the only source of their major livelihood. They are rich in experience for the preparation of traditional medicine and got this profession from their forefathers, were also interviewed. It was difficult for the survey team to cover all pansars located in Quetta city, however, five *Pansaars* located in city were also included in this study to verify the plant source, its usage in human heal. Secondary data from published material as well as on internet was also used where it was necessary.

DISCUSSION

Herbal medicine is also known a botanical medicine, medical herbalism, herbal medicine, herbology and phytotherapy. The human and even Neanderthals have used the plants to treat their ailments for the least ten

of thousand years; most likely even longer then. The first written accounts of herbal use originate in china, although all other civilization from the ancient world was using plants as natural remedies for their ailments. Western herbal medicine dates back to ancient Greece and its doctors like Hippocrates and Galen (UK-SkepticsC-2004). Hippocrates advocated the use of a few simple herbal drugs along with fresh air, rest, and proper diet. Galen, on the other hand, recommended large doses of drug mixture- including plant, animal and mineral ingredients. The Greek physicians compiled the first European treatise on the properties and uses of medicinal plants, *De Materia Medica* (Herbalism- Wikipedia). The 15th and 17th centuries were the most popular time for herbalism in Europe. Herbal remedies are still relatively popular today, mainly due to the fact that, they are regarded as harmless because they are natural.

Balochistan is native home of some herbal plants. In Balochistan various wild herbs are being collected and sold in the local market by local community on below the market price. During the survey, the pansars have listed 43 medicinal plants out of 156 produced in various parts of Balochistan are purchased through their agents residing near to collection point. They also mentioned that dry year produces low quantity of herbs, so they import from India and Nepal to fulfill the market demand. Local produce is fresh and can be stored for a longer period whereas imported medicinal plants have no record of collection, stated by herbal dealers. Karachi and Lahore are the main market for medicinal herbs, so Balochistani herbal shops are bound to buy from them. Every plant produced in nature definite have expiry period but medicinal herbs have no check and balance about their expiry. There should be some rules and regulations on these medicinal plants as human life matters. The drug Inspectors should be involved to collect samples from pansar shops for analysis. Most of the medicinal herbal products do not have expiry date. However, very limited scientific knowledge is available on the potential herbs, which can be cultivated and utilized for different purposes. The vulnerability of medicinal herbs and species to over- exploitation and extinction needs to be dealt pragmatically (Khan, A.M.,2011). There are 6,000 plants species in Pakistan (Shinwari-1996). Out of which only 1010 species are so far identified as having medicinal value. Of these 456 medicinal plants are traded in the domestic market and their sustainability and availability never cease and form a potential source for the indigenous herbal industry (Usmanghani-2000)

The Ministry of Food, Agriculture and Livestock was initiated a project captioned as “Introduction of Medicinal Herbs and Spices as crop (IMHSC)”. One the objective of the project was documentation of the indigenous knowledge of medicinal plants and spices. Another project captioned

“Production of Medicinal Herbs in the Collaboration with Private Sector” also completed with results the of documentation of 92 plants. However in other project some value added productions of herbal plants like, Chamomile Herbal Tea, Thyme, Rosemary, Oregano and a Mint mouthwash are produced at Arid Zone Research Centre, Pakistan Agricultural Council, Quetta at small scale. Some regional and national companies like, Hamdard Laboratories (Waqf) Limited, Qarshi Industries (Pvt) Limited, Dittu Sons, Merck Marker (Pvt) Limited and other are using medicinal and other useful plants for production of herbal medicines, health products, food supplements, cosmetics, pharmaceutical etc. and earning billions of rupees.

Although Pupus are illiterate but are rich in knowledge using medicinal herbs for human treatment. They have mentioned that some of the medicinal herbs have demolished with the passage of time, overgrazing and occurrence of frequent droughts. Now we purchase these herbs from pansar stores. They further stated that medicinal plants are not only used in treatment but their seed, roots, shoots and flowers are equally important. After collection of these plants, we cleaned, dried up in shade and grind manually. A pupu stated that single plant has multiple usages for dissimilar diseases. When enquired about detail, she refused to explain.

Traditional medical knowledge of medical plants and their use by indigenous cultures are not only useful for conservation of cultural traditions and biodiversity but also for community healthcare and drug development in the present and future (Thirumalai-2010). Elderly women of Baloch society having Indigenous knowledge of use of medicinal plant from centuries and preparation for home remedies (pounding, grinding, mixing, and cooking) from the roots, shoot, bark, leaf, flower, seed, and/or fruit of plants are also carried out by these elderly women. The remedies used frequently at home could include herbs and plants are easily available in area. These family healers transfer their expertise to their offspring or daughter in law. Archeologist in Mehrgarh in Balochistan province in the present day of Pakistan discovered that the people of Indus Valley Civilization from early Harppan periods (c.3300 BC) had knowledge of medicine and dentistry (Pre-Historic medicine: Wikipedia). Another writer narrated that “Plants remains were recovered in all parts of the excavation and the recovery methods used varied to suit the different parts context” (Costatini, L., 1985). This is fact that in old times the hakims (the herbalists) were very much respected by the kings and they were treated as family doctor.

Herbal remedies are the basic pillars in Baloch folk medical practices but due to unavailability of medicinal plants and their lengthy procedure discouraged young generation. Now they prefer to get treatment from doctors as they prescribed medicine have quick response. Family healers, herbalists and

hakims use variety of herbs in their concoctions and mixtures. Hakims and herbalists also use animal products in their medicines but the basic ingredients consist of herbal products. The majority of herbs are collected from jungle and mountains. Farmer also grows some in the fields on a commercial basis. Pup, the Herbalists personally collect herbs but many herbs are also available in town *passer* shops (Dashti, N., 2008).

Almighty Allah has mentioned in Holy Quran that every plant has certain usages and nothing created useless in this world. The folk plants are commonly used in Baloch society for many diseases like jaundice, cold, fever, stomachache, headache, diarrhea, gonorrhea, dysentery, eyes and skin diseases, kidney pain, toothache, typhoid, for hair, abortion purpose, sunstroke, joints pain, swelling of body, purification of blood, constipation, intestinal worms, pimples, chest infection, liver complaints, snake and insect bites, diabetics, high blood pressure, backache and may other ailments.

There are thousands of medicinal and other useful plants available in Balochistan and need to be documented along with indigenous knowledge, however some indigenous knowledge of folklore plants in Baloch society are as under. These plants are used individually as well as various mixtures as and when needed in certain diseases. Pupu or Hakims have the knowledge of medicinal herbs quantity of various combinations. In this regard local nomadic knowledge has proved its authenticity.

Table 1. List of important medicinal herbs, local & botanical names and their customary usage

S#	Local Name	Botanical Name	Uses
1	Girdarwar	<i>Abutilon muticum</i>	Cure in piles
2	Zawal, Bohe-Madran	<i>Achillea welhemsii</i>	Stomach problems, fever, cold, measles, hemorrhoids, jaundice
3	Aalkha	<i>Acroptilon repens</i>	Fever, stomach pain, blood purification, dysentery
4	Seez/Shing	<i>Alhaji maurorum</i>	Eye diseases, stomach pain, liver complaints
5	Sirk/ Tum	<i>Alluim sativam</i>	Earache, blood pressure
6	Mashmonk	<i>Amygdalus</i>	Chest infection
7	Gajar	<i>Artemisia scoporia</i>	Earache
8	Gurdir	<i>Artemisia persica martima</i>	Malaria, Jaundice
9	Jir	<i>Artemisia species</i>	Fever, vomiting, motion in children, cough
10	Zarch	<i>Beberis balochistanica</i>	Heal pain of joints
11	Darien pilpil	<i>Beberis vulgaris</i>	Vomiting, decongestant
12	Asad	<i>Blepharis sindica</i>	Earache
13	Siahen Alenag	<i>Cajanus: leguminosae</i>	Stomachache
14	Aragh/Karg	<i>Calortopis procera</i>	Snake and insect bites

15	<i>Shipanko</i>	<i>Cleome brachycarda</i>	Ameliorate heat conditions
16	<i>Kallair/Kaled</i>	<i>Capparis deciduas</i>	Cough, chest problems
17	<i>Naguncha/ Ghunza</i>	<i>Crataegus oxycantha</i>	Blood pressure, heart diseases
18	<i>Alkidar</i>	<i>Curcuma longa:</i> <i>Zinziberaceae</i>	Antiseptic
19	<i>Chimkani/Chuntur</i>	<i>Cassia fistula</i>	Purgative
20	<i>Kirrav pith</i>	<i>Capparis spinosa</i>	Injuries of the body
21	<i>Marmootk/Marmoot</i>	<i>Caralluma tuberculata</i>	Jaundice, dysentery, diabetes, high blood pressure
22	<i>Garbust</i>	<i>Cardaria chalepensis</i>	Skin diseases
23	<i>Kaspind/ Nilthak</i>	<i>Cassia obovata</i>	Sore eyes
24	<i>Kharengirhi</i>	<i>Citrullus colocynthis</i>	Constipation and diabetes
25	<i>Zamur</i>	<i>Cocculus pendulus</i>	Eyes irritation, motion, dysentery
26	<i>Bundairy/Mundairy</i>	<i>Corchorus depressus</i>	Diarrhea, dysentery, swelling of urinary bladder
27	<i>Naryan Band</i>	<i>Cousinia stocksii</i>	Vomiting, diarrhea, dysentery, asthma, liver complaints
28	<i>Pil-e-gosh</i>	<i>Crambe cordifolia</i>	Itching
29	<i>Chadd</i>	<i>Cynodon dactylon</i>	Stomach ulcer, motion
30	<i>Kashi/ khubkalan</i>	<i>Descurainea Sophia</i>	Fever, bronchitis, dysentery, small pox, chicken pox
31	<i>Anartik/Hanartirk</i>	<i>Dodonaea viscosa</i>	Chest infection, pimples,
32	<i>Datora</i>	<i>Datura metel</i>	Diarrhea, skindiseases, rheumatism, lumbago, earache, toothache, tumor
33	<i>Sinjid/ Sinjit</i>	<i>Elaegnus angustifolia</i>	Catarrhal, bronchial infection
34	<i>Naromb</i>	<i>Ephedra intermedia</i>	Asthma, chest infection
35	<i>Shir-Gonah/ Khirwal</i>	<i>Ephedra Granulate</i>	Purification of blood
36	<i>Jamun/ Hinidan</i>	<i>Eugenia jambolana</i>	Burns
37	<i>Shurdo/Karhkawa</i>	<i>Fagonia Arabica</i>	Hepatitis, fever, pimples, purification of blood
38	<i>Chahart Mahak</i>	<i>Forskohlea tenacissima</i>	Cough, headache
39	<i>Hing</i>	<i>Ferula oopoda</i>	Toothache, cough, intestinal worms
40	<i>Raz</i>	<i>Foeniculum vulgare</i>	Stomachache
41	<i>Bhanghera/Bangera</i>	<i>Gentianodes olivieri</i>	Jaundice, cough, chest problems
42	<i>Madav/Khawzhdar</i>	<i>Glycyrrhiza glabra</i>	Cough, chest problems
43	<i>Gwangi</i>	<i>Grewia populifolia</i>	Pneumonia
44	<i>Bundi</i>	<i>Haloxylon griffithii</i>	Stomach pain, skin diseases, measles
45	<i>Sagdaroo</i>	<i>Heliotropium dasycarpum</i>	Eye diseases
46	<i>Saring</i>	<i>Heliotropium strgosum</i>	Pain in the extremities
47	<i>Manguli</i>	<i>Hertia intermedia</i>	Fever, headache, stomach pain

48	Koheebhang	<i>Hyoscyamus insanus</i>	Easing muscles , irritation of urinary bladder
49	Kolmur/ Naro	<i>Inula grantioides</i>	Asthma
50	Tusso	<i>Jaubertia aucheri</i>	Body itching, effected gums, fever indigestion,
51	Gwanjak	<i>Junifer excels: coniferae</i>	Antihistamine and thrown on fire to frighten evil spirits
52	Apurs /Haprus	<i>Juniperus excels</i>	Eye disease, itching body
53	Mahari Alko/ Shatirag	<i>Launaea nudicaulis</i>	Fever, headache
54	Pochko	<i>Malva neglecta</i>	Skin diseases, diarrhea, dysentery
55	Pehunphulli	<i>Microcephala lamellate</i>	Jaundice, fever, colic pain, dysentery
56	Josbwak	<i>Myristica fragans</i>	Stomachache, bone pain
57	Katok	<i>Mullogo hirta</i>	Anti-septic, pain killer
58	Piesh	<i>Nabborrhops ritchieana</i>	Tonic, dysentery
59	Simsok	<i>Nepeta praetervisa</i>	Cold, chest infection, fever
60	Shootk	<i>Oligomeris linifolia</i>	Back pain, motion
61	Kato/ Khot	<i>Olea cuspidata</i>	Gonorrhea, eyes infection
62	Khardanichk	<i>Plantago ovate</i>	Dysentery
63	Khas khas/ Doda	<i>Papaver somniferum</i>	Cough, pain killer
64	Ispandan/ Gandako Kisankoor	<i>Peganum harmala</i>	Legs pain, stomach pain, earache, smoke for measles patients
65	Dresha	<i>Perovskia abrotanoides</i>	Typhoid, headache, vomiting
66	Gowariarna	<i>Perovskia atriplicifolia</i>	Diabetic, dysentery
67	Gowan	<i>Pistacia atlantica</i>	Dysentery, cough
68	Bana/ Khinjal	<i>Pistacia mutica</i>	Toothache and bleeding
69	Bar-e-Thang	<i>Plantago lanceolata</i>	Cough, cold, fever, constipation
70	Phidahri/Ispaghol	<i>Plantago major</i>	Constipation, motion, dysentery
71	Majsar/ Zika	<i>Plucea pinnatifida</i>	Anti-inflammatory, anti-septic
72	Izbotk	<i>Psammogeton biternatum</i>	Fever, cough, typhoid, chest problems
73	Zordar	<i>Pavonia odorata</i>	Rheumatism
74	Babbur	<i>Prosopis cineraria</i>	Backache
75	Karwan Kush	<i>Pteropyrum olivieri</i>	Itching
76	Anardanag	<i>Punica granatum</i>	Stomach upsets like nausea and vomiting
77	Aeshark/Aizwarg		Intestinal worms, teeth infection, dysentery, jaundice
78	Kashum	<i>Saccharum bengalense</i>	Stomach ache
79	Murpad	<i>Ricinus copmmunis</i>	Anti-septic ointment for sore and boils
80	Akar	<i>Sesbanai aculeate</i>	Cure in wound, emetic in snakebite
81	Kabbarsh/Kokar	<i>Salvarora persica</i>	Constipation, cough, stomach pain
82	Gul-e-kakar, Sursanda	<i>Salvia bucharica</i>	Colic pain, kidney pain, jaundice, malaria fever, high blood

			Pressure
83	Matetav	<i>Salvia cabulica</i>	Stomach ache, fever, liver disorder
84	Maur	<i>Salvia aegytiaca</i>	Eye infection
85	Shamahur/Shamah urk	<i>Scorzonera tortuosissima</i>	Cough, chest problems
86	Tol angur	<i>Solanum nigrum</i>	Cold, cough, chest problems, throat swelling
87	Bahera	<i>Solanum surattense</i>	Colic pain
88	Shampshter	<i>Sophora mollis</i>	Kill lice, headache
89	Mashnawaro	<i>Statice cabulica</i>	Stomachache
90	Righat	<i>Suaeda monoica</i>	Anti-septic
91	Rush	<i>Symbrum sophia</i>	Fever
92	Gaz/Kirri	<i>Tararix stricata</i>	Jaundice, skin infection, cough, chest problems
93	Amlī	<i>Tamarindus indica</i>	Beverage as cooling agent
94	Purpak	<i>Tecomella undulate</i>	Constipation, stomach pain, headache
95	Kalpora	<i>Teucrium stocksianum</i>	Fever, typhoid, jaundice
96	Tormori	<i>Thymus linearis</i>	Typhoid, cough
97	Lular/ Wahu	<i>Trianthema pentandra</i>	Bladder pain, snakebite
98	Gurgunduk/Gurgun doo	<i>Tribulus terrestris</i>	Stomach pain, removal of kidney stone
99	Charmahing	<i>Trichodesma africanum</i>	Cough, chest problems
100	Gokzoba	<i>Trichodesma Indicum</i>	Fever
101	Mak	<i>Vigna catiang</i>	Kill worm in stomach
102	Gowanik	<i>Vitex agnus-castus</i>	Stomach pain, kidney stone
103	Panerbad/ Kapoi	<i>Withania coagulans</i>	Purification of blood, gastric trouble, face pimples
104	Izghand	<i>Withnia somnifera</i>	Cough, gastric problems
105	Mashana Poorchink/Tilmoori/ Yak Talia Porching	<i>Ziziphora clinopodides</i>	Vomiting, gastric problems
106	Zanjabil	<i>Zingiber officinale</i>	Anti-acid
107	Gowatk	<i>Zozimia absinthifolia</i>	Throat problem

There is more than one medicinal plant which are under use for fever. The nature of fever needs to be identified first, and then prescribed medicinal plants accordingly. The fever can be due to infection, malaria, exertion, cold, etc. Diagnostic must be followed by right prescription.

Fig-1. Pictures of some important medicinal flora produced naturally in Balochistan.



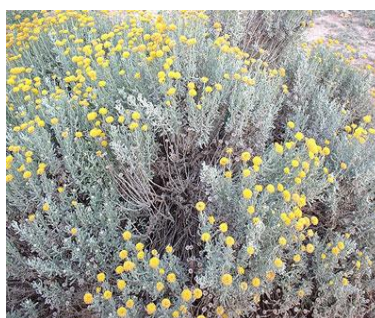
Charmahing



Tola Angur



Shampeshter



Boemadran



Kalpura



Panirbad

CONCLUSION

Herbal remedies are the basic pillars in Baloch folk medical practices. Family healers, herbalists and hakims use variety of herbs in their concoctions and mixtures. Hakims and herbalists also merge animal products in their medicines but the basic ingredients are herbal products. Rangelands are the only source of medicinal herbs collected from the various parts of Balochistan. Farmer also grows some in the fields on a commercial basis. Herbalists personally collect herbs but many herbs are also available in town *passer* shops. The indigenous knowledge about conventional medicinal

plants needs to be documented for the welfare of future generation. Research on useful plants, their ingredients, development, and conservation efforts should be focused on those plants. It is a dire need to establish a comprehensive research project to boost produce of medicinal herbs and other useful plants in Balochistan for sustainable and long term consideration of natural resources of area with actively involvement of the local community. Participatory research and resource mapping of flora will be useful with acquiesce of local people in evaluation, planning, implementation and monitoring process as they have indigenous knowledge of the area.

Elderly women of Baloch society having Indigenous Knowledge (IK) of use of medicinal plant from centuries and preparation for home remedies (pounding, grinding, mixing, and cooking) from the roots, shoot, bark, leaf, flower, seed, and/or fruit of plants are also carried out by these elderly women. The remedies used frequently at home could include herbs and/or plants or their combinations are easily available in area. These family healers transfer their expertise to their offspring or daughter-in-laws. The transmission of knowledge from folk had been tremendously decreasing, however due to involvement ethno botanical research, awareness of local community and overall global trend towards resurgence of the transmission of knowledge from herbalist to local community should be initiated. As we learn from history of traditional herbalist don't tell the specific prescription to local people as is identified from the present research and may other parallel studies in the field that most of the prescription possessed by the folk are related to the desires.

The vast and varied agro-ecological conditions of Balochistan make it possible for almost all kinds of medicinal plants in particular and other useful plants in general to grow. It is highly recommended that medicinal plant mapping through community involvement is pre-requisite for the development of medicinal herbs/plants. Commercial plantation of useful plants can play an important role for earning of valuable foreign exchange and fulfilling our domestic requirements. Because every years a considerable amount of foreign exchange is involved in the import of drugs and herbal products of foreign origin. The utilization of indigenous drug resources (medicinal plants) will increase the importance of local industry on the other hand.

There is a growing demand for plant-based medicines, health products, pharmaceuticals, food supplements, cosmetics etc. in the international market. The international market of medicinal plants is over 60 billion US dollar per year, which is growing at the rate of 7 per annum. Local health traditions are a valuable reference point and participation of local community, conservers, students, educators, and other stakeholders regarding the very

important subject under study. A clear understanding of both the supply-side issues and the factors driving the demand and size of medicinal plant market is a vital step towards planning in this regard. Medicinal plants are hidden treasures of Balochistan province and rural economy but due attention has been given at any stage. More than 30 herbal products manufacturers are involved in value addition and marketing of herbal products in all over the country. It is suggested that they may extend some long term trainings to the students on the analysis of ingredients composition of each plant. The grant should be competitive based on some health problem. This would help to grow herbal products on modern lines and bring at par with other unconventional treatment methods.

RECOMMENDATIONS

The following have been derived from conclusion of this study. Since the Indigenous Knowledge is important in socio-economic life of the Baloch society in particular and human beings in general:

- Recommended for the documentation of Indigenous Knowledge used in health care in Baloch society. However, when recorded, it is important to find who knows what in order to tap the right source. Otherwise data will not truly reflect Indigenous Knowledge in the community.
- Check and balance system on medicinal plants should be introduced separately or included as one of the medicinal product under the Health Ministry to stop the sale of expired plants to the Pupu/Hakims/individuals.
- Recommended to do research in improving Indigenous Knowledge used in health care in Baloch society and integrating with latest technology.
- Recommended to preserve, protect and use Indigenous Knowledge to promote sustainable (ecologically, socially and economically) herbal development.
- Suggested that the major herbal products companies should involve university students for sponsoring long term trainings in conducting research on medicinal herbs treatment.

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