

INDIGENOUS KNOWLEDGE OF MEDICINAL PLANTS OF CHAGHARZAI VALLEY, DISTRICT BUNER, PAKISTAN

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Abstract

Indigenous knowledge of medicinal plants was recorded during summer 2004, in 22 villages of Chagharzai valley, District Buner. The study revealed 141 plant species belonging to 120 genera and 26 families are being used as medicine. The local people know the prospect and nature of the plant utilization, through personal experiences and ancestral prescriptions. The study also revealed that old aged people particularly women possess strong folk love of medicinal plants in comparison to young people. It was concluded that some plants are used singly while many others are used in combination. Similarly few plant species are used for the treatment of a specific disease, while several others have multiple uses. The plants were mainly used as stomachic, anti-allergic, anti-neuralgia, vermifuge, narcotic, laxative, anti jaundice, emollient, hypnotic, diuretic, digestive, demulcent, carminative, astringent, aphrodisiac, anti-spasmodic, anti-emetic, anti-diabetic, anthelmintic, anodyne and alterative. The present investigation will help in the preservation of indigenous knowledge of the local people, which is depleting day by day.

Introduction

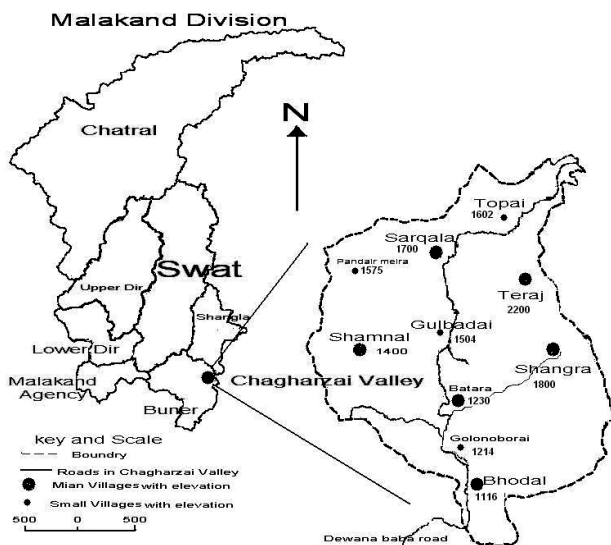
Indigenous knowledge may be defined as knowledge that is unique to a given culture or society which provides a base for agriculture, health care, food preparation, education, environmental conservation and other life processes on a local level (Thomas, 1995). Indigenous communities of different localities of the world have developed their own specific knowledge on plant resources, uses, natural resource management and conservation (Cotton, 1996). Developing countries need 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 and finance (Latif & Shinwari, 2005). In Pakistan the local communities of different regions have centuries old knowledge and traditional practices of most of the plants occurring in their regions. This indigenous knowledge of plants has been transferred from generation to generation through oral communication and personal experience (Shinwari, 2010). They use native medicinal plants for primary health care (Bhardwaj & Gakhar, 2005). In early 1950 up to 84% of Pakistani population were dependent on indigenous medicines for traditional health practices (Hocking 1958), but now this is practiced only in the remote areas (Ibrar *et al.*, 2007), for the reason that indigenous knowledge develops and changes with the passage of time, with change of resources and culture. Ethno botanical investigation is needed to document indigenous knowledge based on cultural traditions and religious interaction of people with plants and environment (Balick & Cox, 1996).

Many studies have been conducted on the indigenous uses of medicinal plants in Pakistan as reviewed by Shinwari (2010). Shinwari & Gilani (2003) and Hamayun *et al.*, (2006) describe indigenous knowledge of medicinal plants from Northern areas of Pakistan. Work carried out in district Swat on important medicinal plants was published by Sher (2002) and Sher *et al.*, (2003) respectively. Ali & Qaisar (2009) reported 83 taxa that were used locally in Chitral district of Hindukush range. Pakistan has a rich history

of research in medicinal plants. An advance center for research on toxicology and herbals exist in Taxila (Hussain *et al.*, 2009). The recent volume of pictorial guide of medicinal plants of Pakistan was published by Shinwari *et al.*, (2006), describing more than 500 species of medicinal plants from Pakistan. Based on the present survey we may recommend that the plant may be biologically tested for authentication of results, for example antimicrobial activities, proximate and micronutrient analysis (Hussain *et al.*, 2009; Shinwari *et al.*, 2009).

Material and Method

Study area: One of the beautiful valley, with its centuries old traditions and culture, Chagharzai is situated in district Buner, north west Pakistan. It lies between 34° - $9'$ and 34° - $43'$ N-latitude and 72° - $10'$, 72° - $47'$ E-longitude. It is named after the Chagharzai tribe, which is a branch of Yousafzai living in the valley. The people of this area with their own culture and traditions are another source of beautifications. Chagharzai is hilly and mountainous terrain. The total population of the valley is 66,475 (Anon., 1999). Chagharzai is separated from Shangla, Mansehra, Batgram and rest of the Buner through chain of mountains ranging in elevation from 1000 m to 2200 m. Slopes are general and 70% surface configuration is rugged and uneven. Climate varies from dry-subtropical to sub-humid temperate. It receives rain in monsoon as well as in winter spring; average rain fall was 656.6 mm (Anon., 2004). In winter snow, though not certain may fall from December to February above 1350m elevation. The weather is dry and hot in May and June maximum temperature reaches to 40°C . Minimum temperature was -2.7°C during the month of December. Mean annual temperature recorded was 19.7°C . Agriculture is the main source of livelihood of the people of Chagharzai valley, but due to hilly terrain, agriculture land holding are small. Total forest cover of the area is 5036 hectare (Anon., 2004). The study area is the place where the world largest mountainous ranges i.e., Hindukush, Karakuram and Himalaya meet.



Work plan: The study was conducted during summer 2004, in various villages of Chagharzai valley, District Buner. About 22 village of the valley were visited and meetings were arranged in which people of different age were interviewed. Due to cultural restrictions, indirect way of interview for women was used with the help of their relatives. A semi structured questionnaire was devised to document the traditional knowledge of local people and their involvement in the collection processing and uses. Information about the local use, local name, part used, time of collection processing and recipe preparation were asked and recorded. Plant specimens were collected dried and presumed then mounted on standard herbarium sheets and were identified with the help of available literature (Nasir & Ali, 1971-1995; Ali & Qaiser, 1995-2010).

Results and discussion

The study revealed that there were a total of 141 plant species of 77 families of ethno medicinal importance claimed by the local inhabitants. There were three species of fungi, 4 species of Pteridophytes, one species was from Gymnosperms. Among the angiosperms 10 members were from monocots and 123 plant species were from Dicotyledonous families (Table 1).

The study revealed that native people have more knowledge about the use of herbaceous plants (Fig. 1), which is used as a whole plant, use of leaves, shoots, stem and bark also show higher percentage (Fig. 2). Among the plant families Limiaceae show higher percentage of plant use (Fig. 3).

■ Number of species

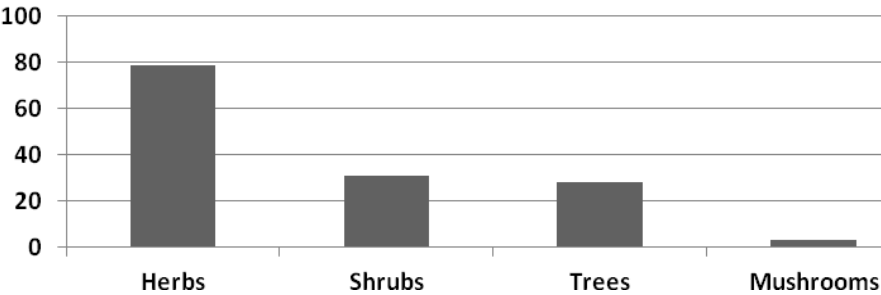


Fig. 1. Indigenous knowledge based on habit of the plant.

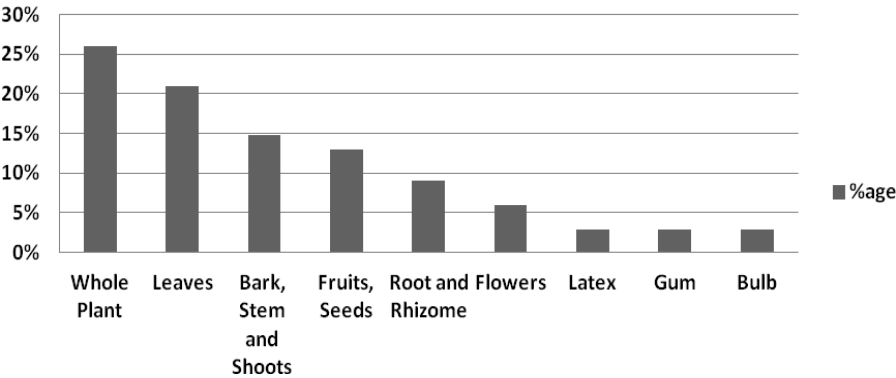


Fig. 2. Indigenous knowledge based on % age of plant part uses.

Table I.

Family	Botanical name	Local name	Part used	Ethno medicinal uses
Fungi				
1. Agaricaceae	<i>Agaricus campestris</i> L.	Khararay	Whole plant	Tonic, Nutritive, Flavoring agent
2. Helvelaceae	<i>Morchella delicosa</i> L.	Guchai	Whole Plant	Body tonic, Aphrodisiac
	<i>Morchella esculenta</i> (L.) Pers.ex.Fr	Guchai	Whole plant	Body tonic, Aphrodisiac
Pteridophytes				
3. Adiantaceae	<i>Adiantum capillus-veneris</i> D.Don	Sumbal	Whole plant	Hair growth, scorpion sting, expectorant, Laxative
	<i>Adiantum venustum</i> D.Don.	Parsohan	Whole plant	Hair growth, scorpion sting, expectorant, Laxative
4. Equisetaceae	<i>Equisetum arvense</i> L.	Bandakay	Whole plant	To remove kidney stones
5. Pteridiaceae	<i>Dryopteris juxtaoposita</i> More.	Kwanjy	young shoots	Digestive, Nutritive
Gymnosperms				
6. Pinaceae	<i>Pinus roxburghii</i> Sargent	Nakhtiar	Gum, leaves	Anti venom, for allergies of skin, anthelmentic
Angiosperms-monocots				
7. Alliaceae	<i>Allium cepa</i> L.	Piaz	Bulb	Anti poison aphrodisiac
	<i>Allium satium</i> L.	Ooga	Bulb	To reduce blood pressure
	<i>Asphodelus tenuifolius</i> Caven.	Oogaky	leaves	Antihypertensive
8. Liliaceae	<i>Aloe barbadensis</i> Mill	Manzari Panra	leaves	Poultice for tumors, healing agent, laxative, cathartic, blood purifier
	<i>Asparagus adsdensens</i> Roxb.	Jangra booty	Whole plant	Skin allergies, for rash of measles
	<i>Asparagus officinalis</i> L.	Tendori	Whole plant	Tonic, demulcent diarrhoea and dysentery
	<i>Polygonatum verticillatum</i> All.	Noor-e-Alam	Rhizome	Anti rheumatic, aphrodisiac
9. Poaceae	<i>Avena sativa</i> L.	Jamder	Grains	Aphrodisiac
	<i>Cynodon dactylon</i> L.	Kabal	Whole plant	Astringent
	<i>Sorghum halepense</i> L.	Dadam	Rhizome	Anti venom

Table 1. (Cont'd.).

Family	Botanical name	Local name	Part used	Ethno medicinal uses
Angiosperms-dicots				
10. Acanthaceae	<i>Justicia adhatoda</i> L.	Baikar	Leaves	Healing wounds, antispasmodic, expectorant, anti scabies ophthalmic
11. Amaranthaceae	<i>Amaranthus viridis</i> L.	Gunhar	Whole plant	Tonic, emollient
	<i>Achyranthus aspera</i> L.	Jishkay	Whole plant	To remove kidney stones
12. Amaryllidaceae	<i>Narcissus poeticus</i> L.	Gule Nargus	Bulb	Tumor treatment and skin allergies
13. Anacardiaceae	<i>Pistaceae integrima</i> L.	Shani	Bark, leaves	Jaundice, antiseptic
14. Apiaceae	<i>Ammi visnaga</i> (L.) lam.	Gangahi	Fruits	For cough and asthma
	<i>Coriandrum sativum</i> L.	Dahanyal	Leaves, seed	Diuretic, digestive, stimulant, colic, carminative, gastric
	<i>Heracleum candicans</i> L.	Asory	Leaves	Tonic, cooling agent
	<i>Foeniculum vulgare</i> Mill.	Kaga	Leaves, seeds	Diuretic, digestive, aromatic, stimulant and condiment
	<i>Pimpinella diversifolia</i> L.	Tarpaky	Whole plant	For cough and cold anti pyretic digestive, gastric
15. Apocynaceae	<i>Caralluma edulis</i> Benth ex.Hkf	Pamanky	Whole plant	Earache, anti rheumatism body tonic
	<i>Nerium indicum</i> Mill.	Gandery	Root	Teeth cleaner, antiseptic, for toothache
16. Araceae	<i>Acorus calamus</i> L.	Skhawaja	Rhizome	Emetic, carminative, for colic, flatulence, diarrhea
17. Araliaceae	<i>Hedera nepalensis</i> K.Koch.	Zallai	Leaves	Urinary troubles and anti diabetic
	<i>Hedera helix</i> L.	Payo Zelai	Leaves	Used as blood purifier, for diabetic and tonic
18. Asclepiaceae	<i>Calotropis procera</i> (willd) R.brown.	Spulmay	Latex	For removal of nevus and warts dog bite
	<i>Cynandrium arnotianum</i> L.	Sra Makha	Whole plant	Used for allergies of skin
	<i>Tylophora hirsuta</i> L.	Gilo	Leaves	For jaundice, blood purifier for Asthma
19. Asteraceae	<i>Artemisia scoparia</i> Wald st & kitam.	Jaukey	Leaves	Laxative, earache, antihelminthic respiratory stimulant
	<i>Artemisia maritima</i> L.	Tharkha	Leaves, flowers	Earache, antihelminthic respiratory stimulant
	<i>Cichorium intybus</i> L.	Han	Whole plant	Digestive, tonic, asthmatic jaundice
	<i>Taraxacum officinale</i> L.	Zair Gully	Whole plant	Tonic, diuretic, kidney and liver problems

Table 1. (Cont'd.).

Family	Botanical name	Local name	Part used	Ethno medicinal uses
20. Berberidaceae	<i>Berberis lyceum</i> Royle.	Kwary	Bark	Astringent, for wounds healing, jaundice, Rheumatism, Colic expectorant, stomachic
21. Betulaceae	<i>Alnus nitida</i> (Spach) Endl.	Geiray	Catkins	Cosmetic and emollient
22. Boraginaceae	<i>Wulfenia amherstiana</i> L.	Narbooty	Leaves	Nutritive, antihypertensive
23. Brassicaceae	<i>Brassica campestris</i> L.	Sharsham	Seeds, leaves	Massage for body and hairs
	<i>Nasturtium officinale</i> R.Br.	Talmara	Whole plant	Aphrodisiac, warmth body
24. Buxaceae	<i>Buxus walliciana</i> Ballion.	Shamshad	leaves	Anti Rheumatism, diaphoretic, purgative, febrifuge
25. Cactaceae	<i>Opuntia dillenii</i> Haw.	Zuqum	Whole plant	For guinea worms, demulcent, expectorant, abortion
26. Canabidiaceae	<i>Cannabis sativa</i> L.	Bung	Leaves, flowers	Anodyne, refrigerant, narcotic, excitation
27. Celustraceae	<i>Gymnosporia royleana</i> (Wall.) lawson.	Soor Azghey	Whole plant	Toothache
28. Cuscutaceae	<i>Cuscuta reflexa</i> Roxb.	Zaily	Whole plant	Blood purifier, joint pain anti lice
29. Ebenaceae	<i>Diospyrus lotus</i> L.	Tor amlook	Fruits	Carminative purgative
	<i>Andrachne cordifolia</i> L.	Chagzi Panra	Leaves	To cure diabetes
30. Euphorbiaceae	<i>Euphorbia helioscopia</i> L.	Mandano	Latex	Laxative
	<i>Euphorbia prostrata</i> L.	Warmaga	Whole plant	For dermatophytose and other skin diseases
	<i>Euphorbia wallichii</i> Hook .f	Arghamala	Leaves	Anthelmintic, to remove round worm and hook worm
	<i>Mallotus philippensis</i> (Lam) Muell. Arg.	Kambela	Fruits	Tooth cleaner, digestive, for growth of hairs
	<i>Ricinus communis</i> L.	Haranda	Seed, oil	Constipation, flatulence, sedative
31. Ericaceae	<i>Rhododendron arboreum</i> Smith.	Gul Namare	Flowers	Refrigerant, flavoring agent
32. Fabaceae	<i>Desmodium elegans</i> L.	Lada sparkay	Leaves	Rheumatism
33. Fagaceae	<i>Quercus dilatata</i> Lindley ex Royle.	Tor Banj	Fruits	Astringent, diuretic

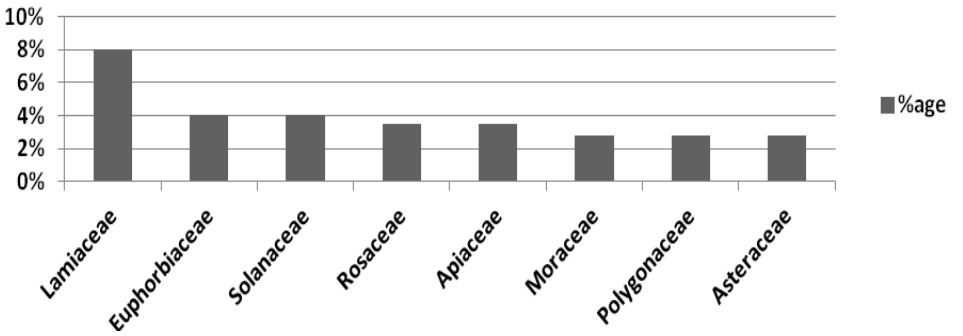


Fig. 3. Indigenous knowledge based on % age of used of plant families.

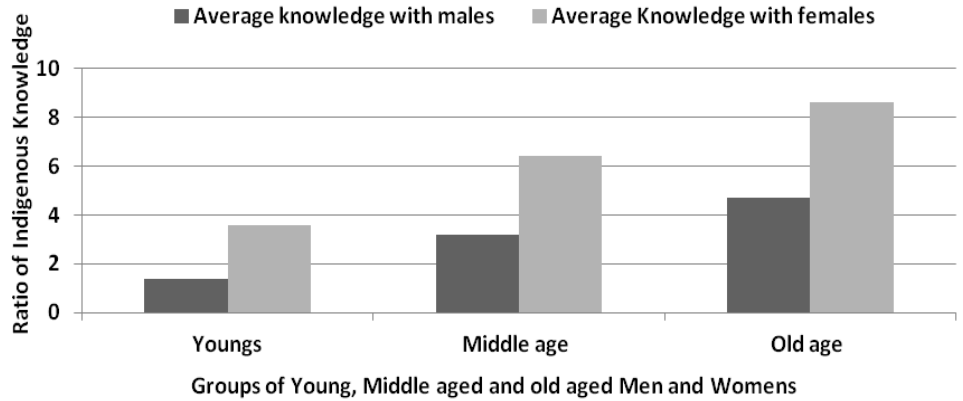


Fig. 4. Average knowledge among different aged males and families

A total of 875 general information regarding the collection and local uses of plants and traditional practices was gathered from 200 respondents of 22 villages. According to the data analysis, old aged people have more knowledge than middle and young aged people. On the average of total information collected, old aged people have knowledge 6.01, the middle people have 4.08 average knowledge and young have 1.9 average knowledge about the traditional uses of medicinal plants. According to the data analysis the women have more indigenous than men. Total women have the average knowledge of 6.72 while men have 3.28. Old men have average knowledge of 4.7 while women have 8.6. Similarly middle age men have 3.2 and women have 6.43 average knowledge. Young have 1.37 average knowledge in male while 3.6 in females (Table 2, Fig. 4).

Table 2. Average indigenous knowledge of the respondents.

S. No.	Age group	Male	Plant information	Average	Female	Plant information	Average	Total male + female	Total information	Total average
1.	Youngs 25and below	33	45	1.37	12	44	3.6	45	89	1.9
2.	Middle age 26-50	62	199	3.20	23	148	6.43	85	347	4.08
3.	Old age 51 and above	47	223	4.7	23	198	8.6	70	421	6.01
	Total	142	467	3.28	58	390	6.72	200	857	4.28

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