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Ethnomedicinal Plants Used Against Jaundice in Dir Kohistan Valleys (NWFP), Pakistan

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Abstract

The paper enumerates the traditional uses of 42 plant species belonging to 28 families, which are used by the village communities of Dir Kohistan Valleys, (NWFP, Pakistan) for the treatment jaundice. Asteraceae is the leading family with four species. It is followed by Malvaceae, Solanaceae and Rhamnaceae with three species each. Some of useful species are under serious threat due to unsustainable activities. Hence, a proper documentation of useful plants with their present status and local traditional knowledge as well as practices is urgently needed. Effort should also be initiated to implement appropriate conservation measures for preservation and sustainable uses of these useful species.

Introduction

Dir Kohistan Valley NWFP, (Pakistan) covers 1 40,351 acres of the coniferous forests situated between latitude 35^0- 9′ to 35^0-47′ and longitude 71^0-52′ to 72^0-22′ in the northern position of the watershed of Panjkora river. The Hindu Raj range bound the area generally known as Dir Kohistan on the north and northwest, by the Torwal and Gabral range on the east, by Dodbah Sarghar on the south, and by Btarai ghar on the Southwest. Pangkora is a pashtu word meaning five streams; the five tributaries of the rivers are Azgologh, Zandrai, Shandoor, Gwaldai and Dokdara khwars. Territories adjoining the tract are Chitral on the north as well on the West, Swat Kohistan and Upper Swat on the east, and Painda khel and Dir on the South. The total area of Dir Kohistan is 4, 12,570 acres i.e., 645 squares miles. Of this, an area of 1, 40,351 acres covered with coniferous forests. (Source: District Census Report of Kohistan, NWFP Pakistan)

The rural communities of Dir Kohistan Valley (NWFP, Pakistan) are still dependent upon wild plants for their primary healthcare and treatment of diseases. They collect the useful plants from various habitats such as forests, scrub, grassland, cultivated fields and use these plant materials as raw drugs. These communities have acquired good knowledge on the useful and harmful properties of the useful plant resources in course of their constant association with forest and agro-ecosystems. However, at present, this vast store of information is being eroded as a result of human's unsustainable activities. The loss of traditional knowledge within cultures undergoing rapid change is just as irreversible as the loss of species (Joshi and Joshi, 2005). Hence efforts should be made to document the various uses of plants before some of these plants are eliminated from the area, or before these inhabitants shift over to modern remedies. In this context, the rich and diverse forest ecosystems and vast tribal population with traditional knowledge systems due to cultural and environmental diversity in the

country have attracted a number of workers for ethnomedicinal studies in the past (Shinwari and Khan, 1998, Hamayun, 2003, Ahmad *et al.,* (2004, Ahmad, 2005). However, the vast store of ethno-medicinal information of these study areas has not been fully documented.

In the present paper an attempt has been made to present indigenous knowledge and uses of the wild plants which are used by local communities for treatment of Jaundice. The study is carried out in some villages of Dir Kohistan Valley (NWFP, Pakistan). The land forms of the study areas are characterized by moderate to steep sloppy mountainous terrain. The study areas are endowed with rich and varied vegetation types due to their diverse topography and variable climatic conditions. The human pressure on these vegetative resources is very heavy except on very steep, almost vertical and inaccessible rock faces near the river. The villages are inhabited by different ethnic tribes which are rich in folk lore.

Materials and Methods

Several field trips in and around the study areas were undertaken during the years 2006-2008 with a view to collect plant species of ethnomedicinal value and to document the indigenous practices. The information was gathered using various techniques such as open and structured interview, and discussion with local informants, such traditional healers and experienced village elders including midwives and by direct observations. About 100 informants were interviewed in this regard.

On the way different plant materials were being collected and used. The plant specimens were identified with the help of floras. Voucher specimens are deposited in the Department of plant sciences Quaid-I-Azam University. Nomenclature used in this report follows Nasir and Ali (1972).

Result

During the field survey, ethnobotanical information of 42 species of medicinal plants belonging to 28 families was compiled from various habitats of the study areas. The study shows that among the jaundice, pneumonia, asthma, digestive problem, dysentery, dyspepsia, diabetes and eye problems are the major diseases in the village. During the treatment of the diseases, various forms of preparation are used. In the following enumeration, the species are arranged alphabetically. Botanical name followed by family, uses of the plants and their parts as reported by the local inhabitants and habitat along with the information collected areas.

Botanical Name	*Adiantum incisum* L.
Local Name	Phunka
Family	Adiantaceae
Habit and Habitat	Perennial herb
Part used	Leaves
Local Uses	Leaves are used for the extraction of juice which is recommended for jaundice.

Botanical Name:	*Abutilon indicum* (L.) Sweet
Family:	Malvaceae
Part Used:	Leaf
Local Use:	The leaves are dried, powdered and boil in water. The filtrate is used for jaundice.

Botanical Name:	*Adiantum Capillus veneris* L.
Local Name:	BeBe Ayesha Sanra

Family:	Pteridacea
Parts Used:	Frond
Local Uses:	Syrup is made from its fronds and rhizomes. It is flavored with orange flowers and uses it for gallstones and jaundice.

Botanical Name:	*Ajuga bracteosa* Wallich ex Benth.
Local Names:	Kori booti
Family**:**	Lamiaceae
Parts used:	Leaves
Local Use:	Decoction of the leaves is used in jaundice.

Botanical Name:	*Allium cepa* L.
Local Name:	Pyaz
Family:	Liliaceae
Habit:	Herb
Local Uses:	Bulbs of the plant are very useful in jaundice.

Botanical Name	*Althea rosea* L.
Local Name	Gul e Khaira
Family	Malvaceae
Habit & Habitat	Shrub
Part used	Roots
Flowering Period	July-September
Ethnomedicinal Uses:	Roots are dip in new earthen pot for whole night. In the following morning the water juice is drunk for jaundice.

Botanical Name	*Artemisia absinthium* L.
Local Name:	Jaukay
Family	Asterceae
Habit	Herb
Parts used	Whole plant
Local uses	The powdered herb in small amount mixed in soup, will serve to relieve the yellow hove of jaundice from skin.

Botanical Name	*Asparagus adscendens* L.
Local Name	Musli sufaid.
Family	Liliaceae
Habit and Habitat	Climber
Flowering Period	July-September
Part used	Rhizome.
Local uses	The clean rhizome is boiled in water then filtrate is used for jaundice.

Botanical Name:	*Berberis lycium* Royle
Family:	Berberidaceae
Local Name:	Ziar Largay
Habit:	Shrub
Part Used:	Root bark
Local Use:	Decoction of the root bark is used in jaundice.

Botanical Name:	*Chenopodium murale* L.
Family:	Chenopodiaceae

Part Used:	Leaves
Local Uses:	Leaves are crushed, mixed with water and kept for night dew in a pot. It is used for the treatment of jaundice it is usually taken early in the morning.

Botanical Name:	*Chenopodium album* L.
Local Name:	Sarmay
Family:	Chenopodiaceae
Habit:	An annual wild weed of fields.
Part Used:	Root and Vegetative portion.
Local Uses:	Roots used in jaundice.

Botanical Name:	*Cucurbita maxima* Duch.ex Lam.
Local name:	Wun
Family:	Cucurbitaceae
Parts Used:	Fruit
Local Uses:	Unripe and ripe fruits are used as vegetable and used for jaundice.

Botanical Name:	*Cucurbita pepo* L.
Local Name:	Gharangy Kadoo
Family:	Cucurbitaceae
Habit:	An annual prostrate to climbing cultivated herb.
Part Used:	Fruit
Local Uses:	It is diet for patients suffering from jaundice.

Botanical Name:	*Clematis grata* Wall.
Family:	Ranunculacaeae
Parts Used:	Whole Plant
Local Uses:	The decoction of plant is used for jaundice.

Botanical Name:	*Calotropis procera* L.
Local Name:	Aok
Family:	Asclepiadaceae
Part Used:	Whole Plant
Local Uses:	The whole plant is used for jaundice.

Botanical Name:	*Coriandrum sativum* L.
Local name:	Nasky
Family:	Umbelliferae
Parts Used:	Fruits and leaves
Local Uses:	Fruits and leaves are used in jaundice

Botanical Name	*Cuscuta reflexa* Roxb
Family	Cuscutacea
Local name	Maraz botay
Habit	Herb, which climb the host plants.
Parts used	Shoots
Local uses	Juice extracted from plan is used in jaundice,
Flowering period	Aug.-September

Botanical name	*Cynodon dactylon* L.
Family	Poaceae (Graminae)
Local name	Drab

Habit	Herb Prostate grass
Parts used	Whole plant
Local uses	It is used along with Rose flowers in Jaundice.
Flowering period	April-October

Botanical Name:	*Evolvulus alsinoides* L.
Family:	Convolvulaceae
Habit:	Herb
Part Used:	leaf
Local Use:	The fresh leaves are boiled in water and the decoction is used for jaundice.

Botanical Name:	*Gallium aparine* L.
Family:	Rubiaceae
Part used:	Leaves
Local Use:	Leaves are used in jaundice.

Botanical Name	*Jasminum humile* L.
Local Name	Peeli chembaili.
Family	Oleaceae
Habit and Habitat	shrub
Part used	Flowers.
Flowering Period	April-May
Ethnomedicinal Uses	Flowers are sun dried and powdered and boiled in water. The decoction is used for blood purification and jaundice.

Botanical Name	*Melia azedarach* L.
Local Name:	Shandai
Family:	Meliaceae
Part Used:	Leaves
Habit:	Tree
Ethnomedicinal uses	The decoction obtained after crushing and squeezing the leaves is used in jaundice.

Botanical Name:	*Malva sylvestris* L.
Local name:	Sonchal
Family:	Malvaceae
Parts Used:	Whole Plant
Local Uses:	The whole plant is boiled in water and the decoction is used in jaundice.

Botanical Name:	*Oxalis corniculata* L.
Family:	Oxalidaceae
Local Names:	Khutkorla
Parts used:	Whole plant.
Local Use:	Fresh leaves are crushed, extract is mixed with water, and sugar is mixed and syrup "*Sharbat*" is used in jaundice.

Botanical name	*Peuced palustre* L.
Family	Umbelliferae
Habit	Herb
Parts used	Seed
Local uses	The seeds are mild and gentle and given in powder form

in jaundice.
Flowering period July-Sep.

Botanical Name: *Pistacea integrima* J. L. Stewart ex Brandis
Family: Anacardiaceae
Local Name: Shnai
Habit: Tree
Part Used: Fruit
Local Use: Fruits and galls extract is given in jaundice.

Botanical Name: *Phyllanthus amarus* Schum.
Family: Euphorbiaceae
Part Used: Whole plant
Folk Use: The whole plant is used for jaundice.

Botanical Name: *Physalis minima* L.
Family: Solanaceae
Part Used: Leaf
Local Use: Fresh leaves are boiled in water and filter. The filtered water is used for jaundice.

Botanical Name: *Pistacia integrrima* J. L. Stewart ex Brand.
Local Name: Shnai
Family: Anacardiaceae
Part Used: Wood, leaves, fruits
Local Uses: These entire component are crushed together, little water is added and then exposed to night dew in a vessel. Then filtered through a cloth and used early in the morning as a useful remedy for jaundice.

Botanical Name: *Podophyllum emodi* Wall. ex Royle
Local Names: Bankakri
Family: Podophyllaceae
Parts used: Roots and rhizomes.
Local Uses: The dried fruits or seeds crushed and mixed with root bark of *Berberis lycium* is taken with water in jaundice.

Botanical Name: *Rumex acetosa* L.
Local name: Churkuy
Family: Polygonaceae
Parts Used: Whole plant
Local Uses: Decoction of the whole plant is used for jaundice.

Botanical name *Solanum nigrum* L.
Family Solanaceae
Local name Tore danie
Habit Perennial rhizomatous weed/herb.
Parts used Vegetative Parts.
Local uses Vegetative parts is used in jaundice.
Flowering period Throughout the year

Botanical Name: *Raphanus sativus* L.
Local Name: Mooley.

Family:	Cruciferae
Habit:	Cultivated herb.
Part Uses:	Root.
Local Uses:	It is also used as salad in jaundice.

Botanical Name:	*Sonchus asper* L.
Family:	Asteraceae
Habit:	Herb
Parts Used:	Whole Plant
Local Uses:	Juice of the plant is reported its use in jaundice.

Botanical Name:	*Swertia spaciosa* (D.Don)
Local Name:	Kori Jari
Family:	Genitaceae
Habit:	Herb
Parts Used:	Whole plant
Local Uses:	Aqueous extract of whole plant is useful in jaundice.
Other Uses:	Also used in typhoid.

Botanical Name:	*Solanum miniatum* Benth. Ex Wild
Local Name:	Kachmachu
Family:	Solanaceae
Habit:	A wild herb
Parts Used:	Lleaves.
Local Uses:	Leaves are used in jaundice.

Botanical Name	*Taraxaium officinale* webber.
Family	Asteraceae
Local name	Ziar Gulae
Habit	Herb
Parts used	Flower, root and leaves
Local uses	Its decoction is used in jaundice.
Flowering period	Feb.-April

Botanical Name:	*Taraxacum stenolepium* Hand.-Mazz.
Local name:	Dado
Family:	Asteracese
Parts Used:	Roots and leaves
Local Uses:	Powdered roots are used for jaundice.

Botanical Name:	*Viola canescens* Wall ex Roxb.
Local Name:	Binawsha
Family:	Violaceae
Habit:	Herb
Part Used:	Whole plant
Local Uses:	Decoction of Root is thought useful in jaundice.

Botanical Name	*Viola serpens* Wall.ex.Roxb
Local Name	Binafsha
Family	Violaceae
Habit and Habitat	It is common small size herb
Part used	Flowers
Flowering Period	November-December

Local Uses: Flowers are dried under shade and ground to make powder. The decoction of the flower is used against jaundice.

Other Uses

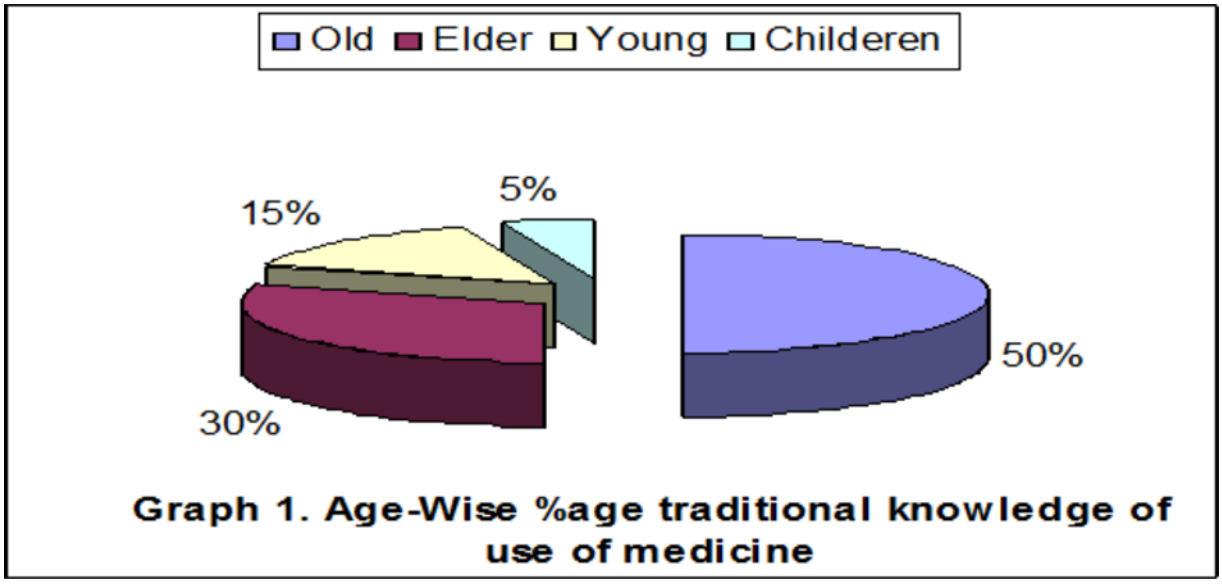
Botanical Name: *Ziziphus oxyphylla* Edgew.
Family: Rhamnaceae
Local Name: Sezen
Habit: Shurb
Part Used: Fruits and root
Local Uses: Roots are used in curing jaundice.

Botanical Name: *Zizyphus mauritiana* L.
Local name: Ashar
Family: Rhamnaceae
Habit: Shrub
Parts Used: Leaves
Local Uses: The juice of fresh leaves is given in Jaundice.

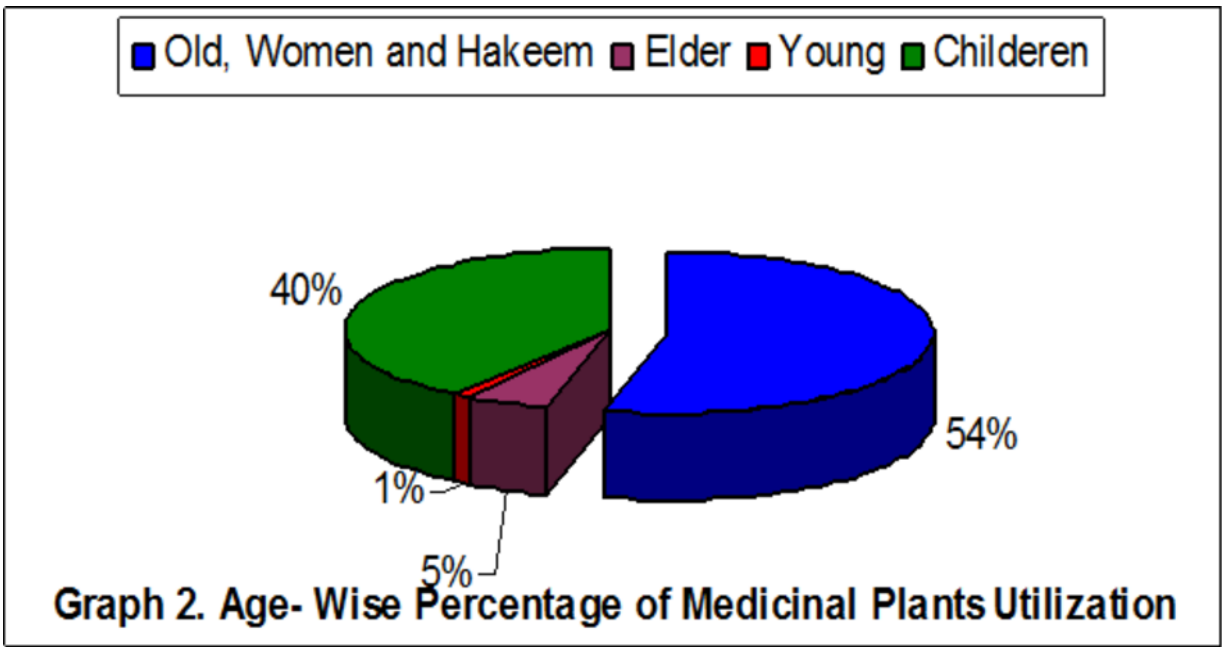
Botanical Name: *Zizyphus oxyphyla* Edgew.
Family: Rhamnaceae
Local Name: Elanai
Habit: Shurb
Part Used: Roots, fruits
Local Uses: Roots are sun dried and boil in water and filter. The filtered water is used in curing jaundice.

Discussion

The use of plants for the existence of human being is as old a practice as the human race itself. The accumulation of knowledge of plant use however co-evolved with human civilization through the experiential use of plants, generation after generation. People would have remained exposed to epidemic, endemic and chronic diseases, besides acute ailments (Hamayun, 2003).



Graph 1. Age-Wise %age traditional knowledge of use of medicine



Graph 2. Age- Wise Percentage of Medicinal Plants Utilization

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In Dir Kohistan valley the percentage of traditional knowledge about the use of medicinal plants is clear from Graphs 1 and 2. Old aged people, women and hakims add 50% of it and use that much (about 50%) to cure their ailments. Elder have 30% knowledge and use 5% of the local drugs. Young people know about 15% of it but they use little (about 1%) or none at all of the local medicinal plants in case of illness. Children know about 5% of the uses but they were forced to take 40% of the folk medicinal recipes for the treatment of diseases (Graphs 1 and 2).

The results of the present study revealed that wild plants and their parts are widely used for jaundice in the Dir Kohistan Valleys (NWFP, Pakistan). Local people have remarkable detailed knowledge of species identity and characteristics. As more than 60 percent of plant species useful for jaundice appear to be restricted to shaded forest habitats in the forests, the anthropogenic unsustainable activities such as deforestation, habitat destruction, urbanization etc. may pose a serious threat to the species. Hence, priority should be given to the following three measures:

1) Investigation related to taxonomy, chemical screening and documentation of the useful species and their habitats;

2) Initiation of conservation action works with appropriate measures involving local participation;

3) Implementation of awareness activities with integrated approach for sustainable development.

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