

ETHNOBOTANICAL STUDIES OF VASCULAR BIODIVERSITY IN JANDOOL VALLEY DISTRICT DIR (L)

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ABSTRACT

One hundred and thirty two species were collected from the research area. These species were spread into 65 families, among them 61 families were angiosperms, 54 of them were dicot and 7 were monocot, while 3 families were pteridophytes and one was gymnosperm. Poaceae was the leading one with 13 species, followed by Solanaceae with 7 species and Polygonaceae with 6 species. All these species were divided in to two categories viz. medicinally important plants and species of multiple uses. A total of sixty (60) plants belonging to 43 families were medicinally important, among them 40 were angiosperms, in which 37 were dicot and 3 were monocot, while 2 were pteridophytes and one was gymnosperm. One hundred and four (104) species belonging to 55 families were of multiple uses, in which 52 were angiosperms, among them 47 were dicot and 5 were monocot, 2 were pteridophytes and one was gymnosperm (Table no. 1).

Key-words: Ethnobotany, Pteridophytes, Gymnosperms, Angiosperms, medicinally multiple uses plants.

INTRODUCTION

The area is located from 34° 37' to 35° 07' North latitude and from 71° 31' to 72° 14' East longitude. It is bounded in the North by Upper Dir, on the East by Timergara subdivision, on the South by Bajaur agency and on the West by Afghanistan and Bajaur agency. Jandool actually is the distorted form of Chandool, a Hindi word meaning ball or round. The total area of Jandool valley is 421 km² with a population of 1, 89, 357. Annual growth rate is 3.42 % and population density per sq. kilometer is 449.8 person. Literacy ratio is 25.2 %. The present research area is very important from Historical and Phytogeographic point of view. Jandool is actually distorted form of Chandool, a Hindi word meaning ball or round. Alexander the great knocked this area in 326 B.C. in 999 to 1026 A.D. Mountains are dominant in the area, which are part of the South Hindukush range, ranging from 600 m up to 3000 m in height. It is a narrow valley most of the people practice agriculture. Soil of the valley is mostly eolian type, highly interrupted by alluvial activities. Summer is moderate and warm June and July are hot months. In June the mean maximum and mean minimum temperature has been recorded as 32.52 °C and 15.67 °C respectively. Winter is severe and cold, December, January and February are the coldest months. During this period the temperature generally falls below freezing point. The mean maximum and minimum temperature is 11.22 °C and 2.39 °C. Maximum rainfall is recorded in March i.e. 242.22 mm (Anonymous, 1998).

Ethnobotany is a multi-disciplinary science encompassing botany, anthropology, economics, and linguistics, which studies the ways in which a society relates to its environment. These relationships can be social, economic, symbolic, religious, commercial, and artistic. Ethnobotany was originally based largely on qualitative methods such as inventories of plants and their uses, with a major focus on the economic importance of plants. This approach is largely associated with colonial periods in western countries when explorers and scientists had a major interest in finding new plant resources (Thomas and Shengji, 2003).

Plants have been indispensable to human beings from the time of Adam. Many workers have focused on Ethnobotanical studies of various areas i.e. (Croom, 1983); (Maheshwari and Bhandari, 1993); (Hussain, 1995); (Walliam and Ahmad, 1999); (Iqbal, 2000); (Shinwari et al., 2000 a); (Shinwari et al., 2000 b); (Shinwari et al., 2002); (Shinwari et al., 2003); (Thomas and Shengji, 2003) and (Shinwari et al., 2006). However, the local indigenous knowledge of various uses of plants has still to be documented in many areas. Dir being naturally gifted with tremendous biodiversity, altitudinal and topographic variations is exposed to increasing human pressure, social injustice and low literacy rate that destabilizing the Biodiversity status especially species survival, habitat, and ecosystem. It is feared that erosion of plant genetic resources in the prevailing scenario would further be accelerated. The victim of which would ultimately be shattering the ecological balance and consequently suffering the mankind. Therefore, the critical Ethnobotanical studies were planned for documentation of the baseline information, preservation and utilization of the plant natural resources.

MATERIALS AND METHODS

Plants were collected during different study trips from March 2007 to October 2008. Data collection was completed on the spot and plants were tagged, dried, and preserved. Informants were selected from a broad range of people. Stijfhoon (1996-1997) procedure was adopted for the documentation of various data regarding the specimens and questions. Ex-situ and In-situ sampling methods were adopted. Questionnaire was prepared for ethnobotanical survey including different queries viz. Local names, parts used, local, multiple uses and season of collection etc. Cold treatment was given to the specimens to avoid fungal and insects attack. Plants were identified with the help of available literature (Parker, 1956); (Qureshi and Khan, 1965-67); (Stewart, 1972); (Beg and Khan, 1977); (Kitamura, 1977); (Nasir and Ali, 1970-1989); (Polunin and Staintin, 1985); (Nasir and Rafiq, 1995); (Ali and Nasir, 1989-1991); (Ali and Qaiser, 1993-2008). Voucher specimens were deposited in Herbarium of Islamia College Peshawar (ICP).

RESULTS

The plants collected and documented during the survey from the research area were arranged, indicating family names, botanical names, vernacular names, part used, medicinal uses and multiple uses (Table 1). Among the 65 families, 54 were dicot, 7 were monocot, 3 were pteridophytes and one was gymnosperm.

DISCUSSION

Sixty (60) species were medicinally important among them 3 species are used for sexual debility, 5 for fever, 5 for backache, 12 for body coolness, 4 are blood purifier, 8 are expectorant, 11 are anthelmintic, 8 are diuretic, 10 are astringent, 4 are used in flatulence, 4 in female diseases, 3 in cold, 3 in asthma, 2 are refrigerant, 5 in jaundice, 3 in colic, 8 are antispasmodic, 3 are used in dyspepsia, 13 are tonic, 5 are purgative, 6 in cough, 5 in dysentery, 7 are diaphoretics, 2 are antilice, 1 in tumor, 2 are antimycotic, 2 in scorpion and snake bite, 6 are stomachache, 3 are alternative, 9 are laxative, 3 are febrifuge, 7 are used in diarrhea, 2 in piles, 8 are stimulant, 1 is antiscorbutic, 2 are restorative, 2 in chest diseases, 2 are sedative, 3 are aromatic, 2 are used in urine burning, 1 for calculus expulsion of kidney, 5 in constipation, 3 are cathartics, 6 are used in rheumatism and sciatica, 1 in eczema, 4 for bandages, 3 are toothache, 2 in headache, 1 is antipyretic, 2 for sore throat, 6 are carminative, 2 are anti vomiting, 3 are anodyne, 3 are flavoring agent, 2 are used in sea sickness, 1 is emollient, 3 are aphrodisiac, 1 is bitter, 1 in trachoma, 2 are antiseptic, 2 are demulcent, 2 in bladder and lungs diseases, 2 in eye allergy, 2 are blood coagulant, 1 for ulceration, 1 is irritant, 1 is decrease sugar, 1 is anti scabies, 1 is silagogue, 1 is air purifier, 1 in small pox, 1 in cholera, 4 are antiemetic, 2 are hypnotic, 1 is anti toxicant, 1 in nausea and 1 is used in angina.

One hundred and two (102) species are of multiple uses, the local people on various ways use them for different purposes. There are 25 various groups of multiple uses (Table no. 2). Two (2) species each are used for making ladders, condiment and as fish poison. Three (3) species each were used as pesticides and biting. Four (4) species each were used as snuff ash, poison, and maswak, for making sticks and doors. Five (5) species were used as cottage plants. Six (6) species each as saag and brooms. Eleven (11) species each as in basketry and potherb. Twelve (12) species were used in furniture. Thirteen (13) species each as ornamental and hedge. Fourteen (14) species were used as thatching. Fruits of 15 species were edible. Twenty six (26) species were used in making houses. Forty species (40) were reported as honey bee species, forty three (43) species were used as fuel wood and fifty six (56) species were used as fodder. These were the top five groups in term of uses of species.

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Table 1. Diverse information regarding family, botanical names, vernacular names, parts used, medicinal uses and multiple uses of the species growing in Jandool Valley, Dir (L).

No. Family	Botanical Name	Vernacular Name/Voucher Number	Parts Used	Medicinal Uses	Multiple Uses
Pteridophytes					
1. Adiantaceae	<i>Adiantum venustum</i> D. Don	Sumbal	Fr.	Sexual diseases, fever, backache, blood purifier, cooling agent, chest, cold, headache, ophthalmia, hydrophobia, inflammation, antitumor, tonic, resorbent, astringent, emetic, febrifuge, expectorant, diuretic, emmenagogue, bruises, anodyne, bronchitis and in scorpion sting	22
2. Dryopteridaceae	<i>Dryopteris</i> spp.	ICP/1011			
3. Equisetaceae	<i>Equisetum debile</i> Roxb. ex. V. aucher	Patto samra ICP/1012 Bandakay ICP/1013	WP WP	Urine burning, expel calculus from kidney or bladder	4, 23
Gymnosperms					
1. Pinaceae	<i>Cedrus deodara</i> Roxb. ex Lamb. <i>Pinus roxburghii</i> Sargent.	Deeyar ICP/1014 Nalhtar ICP/1015	WP WP	Stimulant, diaphoretic, cough, ulcer, scorpion and snake bite, diuretic and irritant	2, 4, 22
Angiosperms (Monocot)					
1. Amaryllidaceae	<i>Narcissus poeticus</i> L.	Nargas ICP/1016	WP		4, 23, 25
2. Arecaceae	<i>Acorns culanans</i> L.	Shawaja ICP/1017	Rh.	Colic, dyspepsia, flatulence, dysentery, tonic and in irregular menstrual cycle	-
	<i>Arisaema jacquemontii</i> Blume <i>Arisaema heliophyllum</i> B.	Mariarai ICP/1018 Mar-bootal ICP/1019	Rh. Rh.		8 8
3. Arecaceae	<i>Sorolobum gutatum</i> Blume	Mar-jarai ICP/1020	Rh.	-	8
4. Commelinaceae	<i>Phoritis dactylocten</i> L.	Kajgora ICP/1021	WP		3, 5, 11, 12, 15, 17
5. Cyperaceae	<i>Commelina benghalensis</i> L.	Jawarai ICP/1022	WP	-	2
	<i>Cyperus rotundus</i> L.	Deela ICP/1023	WP	-	2, 12
	<i>Cyperus difformis</i> L.	Deela ICP/1024	WP	-	2, 12
	<i>Scirpus rostratus</i> L.	Gul-wakha ICP/1025	WP	-	2, 12
	<i>Scirpus holoschoenus</i> L.	Deela ICP/1026	WP	-	2, 12
	<i>Finchleyia dichotoma</i> L.	Barwaz plar ICP/1027	WP	-	2, 11, 12, 15
6. Juncaceae	<i>Alue vera</i> Mill.	Zugoom ICP/1028	WP		
	<i>Asparagus gracilis</i> Royle	Shall-goonti ICP/1029	Rh.	Sex sickness, gonorrhea, uterine diseases, abnormal menses, increase milk and in oozing urine	4
7. Poaceae	<i>Aristida adscendens</i> L.	Wakha ICP/1030	WP	-	2
	<i>Arundo donax</i> L.	Deorma ICP/1031	WP	-	5, 7, 11, 12, 16, 17, 19
	<i>Dactyloctenium strictus</i> L.	Bans ICP/1032	WP	-	5, 7, 8, 11
	<i>Avena sativa</i> L.	Jawdar ICP/1033	WP	-	2
	<i>Cymbopogon</i> spp.	Gul-wakha ICP/1034	WP	-	2
	<i>Cynodon dactylon</i> L.	Kahal ICP/1035	WP	Blood purifier, bleeding, diuretic, dropsy, anasarca,	2

	<i>Cymbopogon citratus</i> L.	Lemon grass IC/P/1036	WP	astringent, adulterants, cough and genito urinary disorder	2, 6
	<i>Digitalis stricta</i> Roth.	Shamolia IC/P/1037	WP	-	2
	<i>Dicranthium amuletum</i> Forsk.	Kanti waha IC/P/1038	WP	-	2, 15
	<i>Impatiens cylindrica</i> L.	Matooch waha IC/P/1039	WP	-	2, 10
	<i>Sorghum halepense</i> L.	Dadham IC/P/1040	WP	-	5, 7, 11, 12, 15
	<i>Seccharum griffithii</i> L.	Khawadala IC/P/1041	WP	-	2, 5, 11, 12, 15
	<i>Seccharum spontaneum</i> L.	Sharphashe IC/P/1042	WP	-	2, 5, 11, 12, 15
		Angiosperms (Dicot)			
1. Acanthaceae	<i>Justicia adnata</i> Nees in Wall.	Balkand IC/P/1043	WP	-	1, 7, 12, 25
2. Amaranthaceae	<i>Achyranthes aspera</i> L.	Geshky IC/P/1044	Lvs./Rt. & Fr.	Expectorant, asthma, bronchitis, antiverms	-
	<i>Amaranthus viridis</i> L.	C halway IC/P/1045	WP	-	2, 22
	<i>Amaranthus spinosus</i> L.	Chalway IC/P/1046	WP	-	2, 23
	<i>Amaranthus gracilis</i> Desf. nom. nud	C halway IC/P/1047	WP	-	2, 23
	<i>Digera muricata</i> (L.) Mart.	Bodagay IC/P/1048	WP	-	2, 23
3. Anacardiaceae	<i>Pistacia integerrima</i> J.	Shanai IC/P/1049	Lvs./Fr. & Ba.	Refrigerant, expectorant and in jaundice	1, 2, 17, 25
4. Apiaceae	<i>Foeniculum vulgare</i> L.	Sparikhal IC/P/1050	Fr.	Alimentary tracts, colic, diuretic, antispasmodic and astringent	-
5. Apocynaceae	<i>Nerium oleander</i> Mill.	Ganderi IC/P/1051	Rt./Rt. Ba. & Lvs.	Leprosy, skin diseases, scorpion sting, snake bite, haemorrhoid, ulceration, toothache and in swelling	-
6. Asclepiadaceae	<i>Calotropis procera</i> (Willd) R. Br.	Sputmai IC/P/1052	Lvs./Lvs. & Rt.	Purgative, cold, cough, asthma, indigestion, dysentery, diarrhoeic, elephantiasis, fever, anti tumor, toothache, antiche, ring worm and antinyctic	10, 25
7. Asteraceae	<i>Artemisia murina</i> L.	Tharkha IC/P/1053	WP	Dysentery, cooling agent, antihelmintic, pain killer, scorpion sting and snake bite	-
	<i>Cichorium intybus</i> L.	Kashai IC/P/1054	Sd. & WP	Sexual diseases, coolness, in bile secretion, indigestion, stomachache, tonic, diuretic, resolvent, narcotics, carminative, ophthalmic, throat inflammation, blood purifier, astringent and in asthma	4, 25
	<i>Conyza acryphaca</i> Ait.	Marighalsai IC/P/1055	WP	-	2, 25
	<i>Tagetes erecta</i> L.	Darober guly IC/P/1056	WP	-	1, 4, 23, 25
8. Berberidaceae	<i>Berberis lycium</i> Royle.	Kowary IC/P/1057	Fr./Rh. & Sim.	Cooling, laxative, diaphoretic, jaundice rheumatism, febrifuge, diarrhoea and piles	16, 7, 15, 17, 25
9. Betulaceae	<i>Alnus nitida</i> Endl.	Getray IC/P/1058	WP	-	1, 17
10. Brassicaceae	<i>Nasturtium officinale</i> L.	Tarmira IC/P/1059	WP	Stomachache, stimulant, diuretic, vermifuge and chest troubles	2, 22, 25
11. C. acutaeae	<i>Opuntia dillovi</i> L.	Jazar ghana IC/P/1060	WP	-	7, 25
12. C. anacaeae	<i>Cinnam indica</i> L.	Jasla bootal IC/P/1061	WP	-	4, 7, 23, 25

13. Convolvaceae	<i>C. unguis sativa</i> L.	Bang	Lvs. & Sd.	Sard, narcotic, tonic, stimulant, sedative, antispasmodic, malaria, black water fever, blood poisoning, anthrax, dysentery, inflammation, neurotic, diarrhea, stomachache, flatulence, induce sleep, tetanus, pain ache, antidandruff, ear pain, eye diseases, dyspepsia, gonorrhea, bowel complaints, headache, whooping cough, asthma, anodyne, itching of eczema and sexual stimulation	-
14. Chenopodiaceae	<i>Chenopodium album</i> L.	Sartmay IC P/1063	Lvs. & Sd.	Anthelmintic, intestinal parasite, hook worm, asthma, antispasmodic, aromatic and stimulant	-
15. Convolvulaceae	<i>Convolvulus arvensis</i> L.	Pairwahi IC P/1064	WP	-	2, 25
16. Ebenaceae	<i>Diospyros lotus</i> L.	Dardana IC P/1065	WP	-	1, 3, 17, 25
17. Euphorbiaceae	<i>Euphorbia helioscopia</i> L.	Mandana IC P/1066	Rt & M. Jc.	Laxative, constipation, cathartic, anthelmintic and purgative	-
	<i>Euphorbia prostrata</i> Ait.	Warighaki IC P/1067	WP	-	2, 3
	<i>Mallotus philippinensis</i> (Lam.) Muell.	Kambela IC P/1068	Lvs. / Fr. & Sd.	Abdominal pain, anthelmintic, cathartic, skin diseases, ring worm, eczema and abdominal disorder of human	1, 2
	<i>Ricinus communis</i> L.	Arunda IC P/1069	Fr. / Sim. & Brnh.	Headache, purgative, laxative, stomachache, jaundice, healing of wounds, rheumatism and scatica	-
18. Fagaceae	<i>Quercus incana</i> Roeb.	Seray IC P/1070	Ba. & Fr.	Cracked bones, urinary infection, enuresis and tonic	1, 2, 13, 17
	<i>Quercus ilex</i> L.	Zagzaga IC P/1071	WP	-	1, 2, 13, 15
19. Fumariaceae	<i>Fumaria indica</i> Haussk.	Shahara IC P/1072	Br. & Fr.	Anthelmintic, diuretic, diaphoretic, fever, blood purifier, skin diseases, tonic, constipation, useful in dyspepsia and anti vomiting	-
20. Geraniaceae	<i>Geranium wallichianum</i> D. Don ex Sweet	Shazai IC P/1073	Rh.	Tonic, in backache	-
21. Hippocastanaceae	<i>Aleurias indica</i> L.	Jowz IC P/1074	WP	-	1, 2, 17
22. Juglandaceae	<i>Juglans regia</i> L.	Ghoz IC P/1075	Rt, Ba. / Lvs. / Sim. Hsk. & Fr.	Tonic, toothache, headache, pain of teeth, gout, anthelmintic, antiseptic, alternative astringent, vermifuge, antispasmodic, used in pregnancy and in sore throat	-
23. Lamiaceae	<i>Lamium album</i> L.	Karache IC P/1076	WP	-	1, 11, 17, 25
	<i>Mentha longifolia</i> L.	Enalay IC P/1077	WP	Dysentery, stomachache, carminative, anti-vomiting, stimulant, astringent, cough, cold, pain and in fever	-
	<i>Mentha viridis</i> L.	Podina IC P/1078	Lvs.	Headache, cold, dyspepsia, anti vomiting, carminative, antispasmodic and in flatulence	-
	<i>Micromeria biflora</i> (Lam.) Buch.	Shamkali IC P/1079	Lvs. & Sim.	Abdominal pain, aromatic, carminative and stimulant	-
	<i>Sabia macrophylla</i> Walp. ex Benth.	Kharang IC P/1080	Lvs. & Fr.	Pain, anodyne and constipation	-
	<i>Thymus serpyllifolius</i> L.	Sparkali IC P/1081	Lvs. & Fl.	Antispasmodic, cough, carminative, stimulant and increased temperature	-

24. Malvaceae	<i>Polygonatum verticillatum</i> All.	Noor-Islam IC/P/1082	Rh.	WP	Adphrodisiac and tonic	4, 22, 25
	<i>Malva neglecta</i> L.	Panditak IC/P/1083	WP			
	<i>Malva sylvestris</i> L.	Warkharai IC/P/1084	Lvs.		Demulcent, emollient, cooling, febrifuge, used in mucous membrane, pulmonary and urinary bladder and inflammation	
25. Meliaceae	<i>Melia azadirachta</i> L.	Bakharra IC/P/1085	Lvs./Fr. Ba. & Fl.		Bitter, tonic, astringent, antiperiodic, eczema, antiseptic, in ulcer, stomachache, wounds, scorpion bite, stimulant, alterative, rheumatism, skin diseases and purgative	1, 2, 17, 25
26. Mimosaceae	<i>Acacia modesta</i> Wall.	Palosa IC/P/1086	Gm. Bk.		Tonic, barkache, fractures, delivery, dysentery, leprosy, toothache, wounds, restorative, sex tonic and stimulant	1, 7, 21, 25
27. Moraceae	<i>Bravaisia papayifera</i> V. Vent	Gul Toor IC/P/1087	WP		Anti prickle, dysentery, demulcent, diet, laxative, constipation, lungs and bladder	1, 2, 17
	<i>Ficus palmata</i> Forsk	Iuzar IC/P/1088	Lal./Fr. & WP			1, 2, 3, 11, 16, 17, 25
	<i>Ficus carica</i> L.	Iuzar IC/P/1089	WP			1, 2, 17
	<i>Morus tinctoria</i> L.	Shah Toor IC/P/1090	WP			1, 2, 3, 11, 16, 17, 25
	<i>Morus nigra</i> L.	Toor Toor IC/P/1091	WP			1, 2, 3, 6, 25
28. Myrtaceae	<i>Eucliptus camaldulensis</i> Schlecht	Lachi IC/P/1092	Lvs. & WP		Carminative, expectorant and antiseptic	1, 2, 17, 21
29. Myrsinaceae	<i>Myrsine africana</i> L.	Mianro IC/P/1093	WP			2, 3, 25
30. Nyctaginaceae	<i>Boerhaavia diffusa</i> L.	Baskapra IC/P/1094	WP			2
31. Oleaceae	<i>Jasminum officinale</i> L.	Yasmin IC/P/1095	WP			23, 25
	<i>Jasminum sambac</i> L.	Molia IC/P/1096	WP			23, 25
	<i>Ligustrum compactum</i> L.	Baghe Khanna IC/P/1097	WP			1, 2, 23, 25
	<i>Olea ferruginea</i> Royle	Khanna IC/P/1098	Lvs./Fr. & WP		Toothache, hoarseness, neck pain, backache, rheumatism, burning, antiseptic, astringent, antiperiodic, diuretic, tonic, rebofacient, nutrient, laxative, emollient and sedative	1, 2, 3, 6, 25
32. Oxalidaceae	<i>Oxalis corniculata</i> L.	Tarook IC/P/1099	WP		Stomachache, cooling, eye allergies and clotting of blood	2, 23
33. Papilionaceae	<i>Dolichos sissoo</i> L.	Shawab IC/P/1100	WP			1, 2, 16, 17, 18, 19
	<i>Glycyrrhiza glabra</i> L.	Khawga shai IC/P/1101	Rh. & Rt.		Demulcent, expectorant, flavoring agent, diuretic and tonic	1, 2, 11, 15, 25
	<i>Indigofera gerardiana</i> Wall.	Chwarcia IC/P/1102	WP		Abdominal pain, bandages are used for cracked bones	12, 16, 17, 21, 23
	<i>Robinia pseudacacia</i> L.	Kikar IC/P/1103	WP			2
34. Polygonaceae	<i>Polygonum alpinum</i> All.	Pary wakha IC/P/1104	WP			8, 14
	<i>Polygonum barbatum</i> L.	Palpook IC/P/1105	WP			
	<i>Polygonum orientale</i> L.	Palpook IC/P/1106	WP			2, 14
	<i>Polygonum amphibium</i> L.	Palpook IC/P/1107	WP			2
	<i>Rumex hastatus</i> D. Don.	Tarukay IC/P/1108	WP			2, 13
	<i>Rumex bulgaricus</i> Mill.	Shahay IC/P/1109	WP			2, 22
35. Plantaginaceae	<i>Plantago lanceolata</i> L.	Ghaw jabai IC/P/1110	Lvs. & Sd.		In bleeding, dysentery and diarrhea	1, 17
36. Plantaginaceae	<i>Plantago orientalis</i> L.	Chinar IC/P/1111	WP			1, 6, 17, 18
37. Portulacaceae	<i>Portulaca oleracea</i> L.	Warkharai IC/P/1112	WP			1, 9, 25
38. Portulacaceae	<i>Portulaca granatensis</i> L.	Anangore IC/P/1113	Rt. Fr./Sd. / Rt. Ba & Stm.		Dysentery, diarrhea, bellows, cough, urinary tract infection, astringent, antihelmintic, tap worm and	1, 3, 25

39. Rhamnaceae	<i>Sageretia thecaea</i> (L.) Brongn <i>Zizyphus jujuba</i> Mill.	Moniana IC/P/1114 Markhanay IC/P/1115	Bk. Rt.	stomachic Cooling agent and in jaundice	1, 3, 25
40. Rosaceae	<i>Prunus amygdalus</i> L. <i>Rosa moschata</i> Hook. <i>Rosa webbiana</i> L. <i>Rubus ellipticus</i> Smith	Badam IC/P/1116 Kharach IC/P/1117 Anger gulab IC/P/1118 Koraja IC/P/1119	Lvs. WP Fl. & Lvs. WP	Anti-diabetic, cold, cough & expectorant Anticancer and blood purifier	1, 3, 25 1, 2, 3, 7, 25 1, 2, 7, 25
41. Rubiaceae	<i>Rubia cordifolia</i> L.	Cingawal IC/P/1120	WP	Tonic, carminative, diarrhea, diuretic, astringent, used for drinks and wines	2
42. Rutaceae	<i>Shimada laetevola</i> (DC.) Sieb. Zucc. <i>Zanthoxylum alatum</i> Roxb.	Nazar panra IC/P/1121 Dambara IC/P/1122	Lvs. & Stim. WP	Small pox and as flavoring agent Stimulant, toothache, tonic, diaphoretic, alternative, carminative and stomachic	1, 7, 9, 25
43. Salicaceae	<i>Salix tetragyna</i> Roxb. <i>Populus euphratica</i> Oliver	Shawaba IC/P/1123 Saffedar IC/P/1124	WP WP	-	1, 2, 16, 17 1, 2, 16, 17
44. Sapindaceae	<i>Dodonaea viscosa</i> (L.) Jacq.	Ghwarasky IC/P/1125	Lvs. & Sd.	Pain, bandages for wounds, antihelmintic, febrifuge, in rheumatism, poison for fishes, cardio inhibitory and coronary, spasmolytic activity on smooth muscle and intestine	1, 7, 12, 15, 17, 25
45. Saxifragaceae	<i>Bergenia ciliata</i> (How.) Sternb.	Gul mal IC/P/1126	Rh.	Coolness of the body	
46. Scrophulariaceae	<i>Veronica thapsus</i> L.	Kharagw IC/P/1127	Lvs. / Fl. & Rt.	Coolness, anodyne, narcotic, chest complaints, gout, rheumatism, diarrhea, cough, emollient, demulcent, astringent, pulmonary diseases and bowels complaints	-
47. Simarubaceae	<i>Alantbus altissimus</i> (Mill.) Swingle	Bakunara IC/P/1128	WP	Boils and sores as poultice	1, 7, 12, 17, 25
48. Solanaceae	<i>Datura metel</i> L. <i>Datura stramonium</i> L. <i>Solanum pseudocapsicum</i> L. <i>Solanum nigrum</i> L.	Datura IC/P/1129 Batura IC/P/1130 Marchakay IC/P/1131	Fr and WP Fr, Lvs and Fl WP	Wounds, sores, sedative, intoxicating, carache, antispasmodic, anodyne and narcotic	- 4, 23
	<i>Solanum surratense</i> Brum.	Karmacho IC/P/1132 Marachunai IC/P/1133	WP WP	Small warts, anthelmintic, tonic, febrifuge, diarrhea, fever, cathartic, diuretic, alterative, in liver diseases, piles, dysentery, cooling, rheumatism, in skin diseases, cough and scorpion bites Emmenagogue, purgative, constipation, colic, sores, rheumatism, diuretic, used in dropsy, expectorant, carminative and used in burning of feet	3, 4 -
49. Thymelaeaceae	<i>Mitrania somnifera</i> L. <i>Daphne oleoides</i> Roxb.	Qutail IC/P/1134 Leelghunai IC/P/1135	WP WP	C holera, dysentery, antientic, tonic, aphrodisiac, used in pregnancy, used in wounds, diuretic, fever, rheumatism, by phloic and are used in coagulating milk Swelling, purgative, gonorrhea, applied to abscess and irritant	- 1, 3, 25

50. Euphorbia	<i>Dubongia subsp. B. Don</i> <i>Euphorbia</i> L.	Kharwala IC P 1136 Sezonka IC P 1137	MP MP		1, 2, 12, 25
51. Umbelliferae	<i>Celastrum</i> L.	Thapla IC P 1138	MP		24
52. Verberaceae	<i>Veronica officinale</i> L.	Shamkai IC P 1139	Rt		1, 2, 3, 1*, 25
	<i>Hex nergonda</i> L.	Maranda IC P 1140	Rt & Lvs		
53. Vitaceae	<i>Vitis vinifera</i> Wall. ex Roxb.	Banashia IC P 1141	Rt & Lvs		
54. Zygophyllaceae	<i>Tribulus terrestris</i> L.	Markunda IC P 1142	Fr.		

Key to the species of medicinal uses

Bar= Bark, Br= Branches, Br. Fr= Bark of fruit, Fr= Fruit, Frs= Fruits, Fl= Flowers, Gm Bk= Gum of bark, Lvs= Leaves, M.Je= Milky juice, Rt= Rhizome, Rt= Root, Rt.Ba= Root bark, Sd= Seed, Stm= Stem, Stm.Bk= Stem bark, W.P= Whole plant

Key to the species of multiple uses

1= Fuel wood, 2= Fodder, 3= Fruit tree (apple), 4= Pot herb, 5= Cottage plant, 6= Beverages, 7= Hedge plant, 8= Poisonous, 9= Condiment, 10= Green pesticides, 11= Basketry, 12= Dyeing plant, 13= Spices, 14= Fish poison, 15= Brooms, 16= Furniture, 17= Seed in houses, 18= Making doors, 19= Making sticks, 20= Making ladder, 21= Masak/ tooth cleaner, 22= Soap, 23= Ornamental, 24= Biting, 25= Honey bee species

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