

## 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.

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### 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 km<sup>2</sup> 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); (Polunnin 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 anthalmentic, 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 diaphoretic, 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 antiscorbic, 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.

## REFERENCES

- Anonymous (1998). *District Censes Report Population Censes Organization Statistics Division Islamabad Pakistan*, pp. 2-14.
- Ali, S. I. and M. Qaiser (1993-2003). *Flora of Pakistan*. Nos. 194-215. Department of Botany, Karachi University, Karachi.
- Ali, S.I. and Y. J. Nasir (1989-1991). *Flora of Pakistan*. Nos. 191-193. Department of Botany, Karachi University, Karachi.
- Beg, A. R. and A. S. Khan (1977). *Flora of Malakand Division Pt. I (A) Pak. J. For.*, 24: 171-185.
- Croom, E. M. (1983). Documentation and evaluation of herbal remedies. *Economic Botany*, 37: 13-27.
- Hussain, S. W. (1995). *An ethnobotanical survey of Charsadda*. M. Sc. Thesis Department of Botany, University of Peshawar.

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   |                      |   | 4, 23                            |
| 3. Equisetaceae       | <i>Equisetum debile</i> Roxb. ex. V aucher   | Patto samra ICP/1012<br>Bandakay ICP/1013                                | WP<br>WP             | Urine burning, expel calculus from kidney or bladder  |                                  |
| 4. Pinaceae           | <i>Cedrus deodara</i> Roxb ex Lamb.<br><i>Pinus roxburghii</i> Sargent.  | Deeyar ICP/1014<br>Nahitar ICP/1015                                      | WP<br>WP             | Stimulant, diaphoretic, cough, ulcer, scorpion and snake bite, diuretic and irritant  | 2, 4, 22                         |
| Angiosperms (Monocot) |  |  |                      |   |                                  |
| 1. Amaryllidaceae     | <i>Narcissus poeticus</i> L.<br><i>Acorus calamus</i> L.   | Nargas ICP/1016<br>Shawaja ICP/1017                                      | WP<br>Rh.            | Colic, dyspepsia, flatulence, dysentery, tonic and in irregular menstrual cycle   | 4, 23, 25                        |
| 2. Arecaceae          | <i>Arisaema jacquemontii</i> Blume.<br><i>Arisaema heliophotum</i> B.  | Mariarai ICP/1018<br>Mar-bootai ICP/1019                                 | Rh.<br>Rh.           |   | 8<br>8                           |
| 3. Arecaceae          | <i>Sorouatum gutatum</i> Blume<br><i>Phoenix dactylifera</i> L.  | Mar-jarai ICP/1020<br>kaigeora ICP/1021                                  | Rh.<br>WP            |   | 8<br>3, 5, 11, 12, 15, 17        |
| 4. Commelinaceae      | <i>Commelina benghalensis</i> L.   | Jawarai ICP/1022   | WP                   |   | 2                                |
| 5. Cyperaceae         | <i>Cyperus rotundus</i> L.<br><i>Cyperus difformis</i> L.<br><i>Scirpus rostratus</i> L.<br><i>Scirpus holoschoenus</i> L. | Deela ICP/1023<br>Deela ICP/1024<br>Gul-wakha ICP/1025<br>Deela ICP/1026 | WP<br>WP<br>WP<br>WP |   | 2, 12<br>2, 12<br>2, 12<br>2, 12 |
| 6. Filicaceae         | <i>Fimbriyulis dichotoma</i> L.<br><i>Aloe vera</i> Mill.<br><i>Asparagus gracilis</i> Royle                               | Barwarz pitar ICP/1027<br>Zaugoom ICP/1028<br>Shall-goontai ICP/1029     | WP<br>WP<br>Rh.      |   | 2, 11, 12, 15<br>4               |
| 7. Poaceae            | <i>Arstida adscendens</i> L.<br><i>Arundo donax</i> L.   | Vakhra ICP/1030<br>Deoema ICP/1031                                       | WP<br>WP             | See sickness, gonorrhoea, uterine diseases, abnormal menses, increase milk and in oozing urine  | 2<br>5, 7, 11, 12, 16, 17, 19    |
|                       | <i>Dactyloctenium strickii</i> L.<br><i>Avena sativa</i> L.  | Bans ICP/1032<br>Jawdar ICP/1033   | WP<br>WP             |   | 5, 7, 8, 11<br>2                 |
|                       | <i>Cymbopogon</i> spp.<br><i>Cymbopogon dactylon</i> L.  | Cal-wakha ICP/1034<br>Kabal ICP/1035                                     | WP<br>WP             | Blood purifier, bleeding, diuretic, dropsy, anasarca.   | 2<br>2                           |

|                   |  |                       |                    |   |               |
|-------------------|--|-----------------------|--------------------|---|---------------|
|                   | <i>Cymbopogon citratus</i> L.              | Lemon grass ICP/1036  | WP                 | aststringent, adulterants, cough and genito urinary disorder  | 2, 6          |
|                   | <i>Diglossa stricta</i> Roth.              | Shamolia ICP/1037     | WP                 | -   | 2             |
|                   | <i>Dianthus amabilis</i> Perssk.           | Kanti wahla ICP/1038  | WP                 | -   | 2,15          |
|                   | <i>Impatiens cylindrica</i> L.             | Maloch wahla ICP/1039 | WP                 | -   | 2,10          |
|                   | <i>Sorghum halepense</i> L.                | Dadhani ICP/1040      | WP                 | -   | 5,7,11,12,15  |
|                   | <i>Sescherum pflughii</i> L.               | Khawadala ICP/1041    | WP                 | -   | 2,5,11,12,15  |
|                   | <i>Sescherum spontaneum</i> L.             | Sharplashi ICP/1042   | WP                 | -   | 2,5,11,12,15  |
|                   |  | Angiosperms (Dicot)   |                    |   |               |
| 1. Acanthaceae    | <i>Justicia adhamode</i> Nees in Wall.     | Bahand ICP/1043       | WP                 | -   | 1,7,12,25     |
| 2. Amaranthaceae  | <i>Achyranthes aspera</i> L.               | Geshvi ICP/1044       | Lvs./Rt. & Fr.     | Expectorant, asthma, bronchitis, antihelminths  | -             |
|                   | <i>Amaranthus viridis</i> L.               | C halway ICP/1045     | WP                 | -   | 2,22          |
|                   | <i>Amaranthus spinosus</i> L.              | Chalway ICP/1046      | WP                 | -   | 2,23          |
|                   | <i>Amaranthus gracilis</i> Desf. nom. nud. | C halway ICP/1047     | WP                 | -   | 2,23          |
|                   | <i>Digera muricata</i> (L.) Mart.          | Bodag' ICP/1048       | WP                 | -   | 2,23          |
| 3. Anacardiaceae  | <i>Pistacia integerrima</i> J.             | Shanai ICP/1049       | Lvs./Fr. & Ba.     | Refrigerant, expectorant and in jaundice  | 1,2,7,25      |
| 4. Apiaceae       | <i>Foeniculum vulgare</i> L.               | Sparhali ICP/1050     | Fr.                | Alimentary tracts, colic, diuretic, antispasmodic and astringent  | -             |
| 5. Apocynaceae    | <i>Nerium oleander</i> Mill.               | Ganderi ICP/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.   | Sputnai ICP/1052      | Lvs./Lvs. & Rt.    | Purgative, cold, cough, asthma, indigestion, dysentery, diarrhetic, elephantiasis, fever, anti tumor, toothache, antidie, ring worm and antimycotic   | 10,25         |
| 7. Asteraceae     | <i>Artemisia maritima</i> L.               | Tharkha ICP/1053      | WP                 | Dysentery, cooling agent, antihelminthic, pain killer, scorpion sting and snake bite  | -             |
|                   | <i>Cichorium jing hui</i> L.               | Kashni ICP/1054       | Sd. & WP           | Sexual diseases, coolness, in bile secretion, indigestion, stomache, tonic, diuretic, resolvent, narcotic, carminative, ophthalmic, throat inflammation, blood purifier, astringent and in asthma | 4,25          |
|                   | <i>Conyza oegyphaca</i> Ait.               | Marighskai ICP/1055   | WP                 | -   | 2,25          |
|                   | <i>Tagetes erecta</i> L.                   | Dambet guly ICP/1056  | WP                 | -   | 1,4,23,25     |
| 8. Berberidaceae  | <i>Berberis lycium</i> Royle.              | Kowary ICP/1057       | Fr./Rh. & Str.     | Cooling, laxative, diaphoretic, jaundice, rheumatism, febrifuge, diarrhea and piles   | 16,7,15,17,25 |
| 9. Betulaceae     | <i>Alnus nitida</i> Endl.                  | Getay ICP/1058        | WP                 | -   | 1,17          |
| 10. Brassicaceae  | <i>Nasturtium officinale</i> L.            | Tarmira ICP/1059      | WP                 | Stomachache, stimulant, diuretic, vermifuge and chest troubles  | 2,22,25       |
| 11. Cactaceae     | <i>Opuntia dillovi</i> L.                  | Jazar ghana ICP/1060  | WP                 | -   | 7,25          |
| 12. Cannabaceae   | <i>Canna indica</i> L.                     | Tasla bootai ICP/1061 | WP                 | -   | 4,7,23,25     |

|                      |   |                     |                              |  |               |
|----------------------|---|---------------------|------------------------------|--|---------------|
| 13. Compositaceae    | <i>Cinnabadi 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, antitumor, ear pain, eye diseases, dyspepsia, gonorrhoea, bowel complaints, headache, whooping cough, asthma, anodyne, itching of eczema and sexual stimulation | -             |
| 14. Chenopodiaceae   | <i>Chenopodium album</i> L.                 | Sarrmay IC P/1063   | Lvs. & Sd.                   | Anthelmintic, intestinal parasite, hook worm, asthma, antispasmodic, aromatic and stimulant  | -             |
| 15. Convolvulaceae   | <i>Convolvulus urvensis</i> L.              | Painwahi 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 hysteroscopia</i> L.           | Mandana IC P/1066   | Rt & M. Jc                   | Laxative, constipation, cathartic, antihelmintic and purgative   | -             |
|                      | <i>Euphorbia prostrata</i> Ait.             | Warighaki IC P/1067 | WP                           | -  | 2, 3          |
|                      | <i>Mallotus philippensis</i> (Lam.) Muell.  | Kambelia IC P/1068  | Lvs./Fr. & Sd.               | Abdominal pain, antihelmintic, cathartic, skin diseases, ring worm, eczema and abdominal disorder of human   | 1, 2          |
|                      | <i>Ricinus communis</i> L.                  | Aruna IC P/1069     | Fr./Stm. & Brnh.             | Headache, purgative, laxative, stomachache, jaundice, healing of wounds, rheumatism and scatica  | -             |
| 18. Fagaceae         | <i>Quercus incana</i> Roxb.                 | Seray IC P/1070     | Ba. & Fr.                    | Cracked bones, urinary infection, enuresis and tonic   | 1, 2, 13, 17  |
|                      | <i>Quercus ilex</i> L.                      | Zageena 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 wolkhianum</i> D. Don. ex Sweet | Srazelal 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./Stm, Hsk. & Fr. | Tonic, toothache, headache, pain of teeth, gout, antihelmintic, antiseptic, alternative astringent, vermifuge, antispasmodic, 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>Miconaria biflora</i> (Lam p.) Benth.    | Shamkali IC P/1079  | Lvs. & Stm.                  | Abdominal pain, aromatic, carminative and stimulant  | -             |
|                      | <i>Sida macrocarpa</i> Walp. ex Benth.      | Kharand IC P/1080   | Lvs. & Fr.                   | Pain, anodyne and constipation   | -             |
|                      | <i>Thymus serpyllifolius</i> L.             | Sparikali IC P/1081 | Lvs. & Fl.                   | Antispasmodic, cough, carminative, stimulant and increased temperature   | -             |

|                    |   |   |  |   |   |
|--------------------|---|---|--|---|---|
| 24. Malvaceae      | <i>Polygonum verticillatum</i> All.<br><i>Melia nigrata</i> L.<br><i>Melia sylvatica</i> L.   | Noor-Ikhem ICP/1082<br>Palopok ICP/1083<br>Warkharai ICP/1084   | Rh.<br>WP<br>Lvs.  | Approxiative and tonic<br>Demulcent, emollient, cooling, febrifuge, used in mucous membrane, pulmonary and urinary bladder and inflammation                                     | 4, 22, 25<br>-  |
| 25. Meliaceae      | <i>Melia azadirachta</i> L.   | Bakamara ICP/1085   | Lvs./Fr. Ba. & Fl.   | Bitter, tonic, astringent, antiperiodic, ezema, antiseptic, in ulcer, stomatocachic, wounds, scorpion bite, stimulant, alterative, rheumatism, skin diseases and purgative      | 1, 2, 17, 25  |
| 26. Mimosaceae     | <i>Acacia modesta</i> Wall.   | Palosa ICP/1086   | Gm. Bk.  | Tonic, barkache, fractures, delivery, dysentery, leprosy, toothache, wounds, restorative, sex tonic and stimulant   | 1, 7, 21, 25  |
| 27. Moraceae       | <i>Brasavortia papyrifera</i> V. Vent<br><i>Ficus palmata</i> Forsk   | Gul Toei ICP/1087<br>Luzar ICP/1088   | WP<br>Lat./Fr. & WP  | Anti prickle, dysentery, demulcent, diet, laxative, constipation, lungs and bladder   | 1, 2, 17<br>1, 2, 3, 11, 16, 17, 25   |
|                    | <i>Ficus carica</i> L.<br><i>Morus nigra</i> L.   | Luzar ICP/1089<br>Shah toot ICP/1090  | WP<br>WP   | -   | 1, 2, 17<br>1, 2, 3, 11, 16, 17, 25   |
|                    | <i>Morus nigra</i> L.   | Toor toot ICP/1091  | WP   | -   | 1, 2, 3, 6, 25  |
| 28. Myrtaceae      | <i>Eucalyptus camaldulensis</i> Schlecht  | Lachi ICP/1092  | Lvs. & WP  | Carminative, expectorant and antiseptic   | 1, 2, 17, 21  |
| 29. Myrsinaceae    | <i>Myrsine africana</i> L.  | Manno ICP/1093  | WP   | -   | 2, 3, 25  |
| 30. Nyctaginaceae  | <i>Boerhaavia diffusa</i> L.  | Baskapra ICP/1094   | WP   | -   | 2   |
| 31. Oleaceae       | <i>Jasminum officinale</i> L.<br><i>Jasminum sambac</i> L.<br><i>Ligustrum compactum</i> L.<br><i>Olea ferruginea</i> Royle   | Yasmin ICP/1095<br>Molia ICP/1096<br>Baghe Khanna ICP/1097<br>Khanna ICP/1098   | WP<br>WP<br>WP<br>Lvs./Fr. & WP  | Toothache, hoarseness, neck pain, barkache, rheumatism, burning, antiseptic, astringent, antiperiodic, diuretic, tonic, rebrificent, nutrient, laxative, emollient and sedative | 23, 25<br>23, 25<br>1, 2, 23, 25  |
| 32. Oxalidaceae    | <i>Oxalis corniculata</i> L.  | Tarooky ICP/1099  | WP   | Stomachache, cooling, eye allergies and clotting of blood   | 1, 2, 3, 6, 25<br>2, 23   |
| 33. Parietaceae    | <i>Dodecatheon sison</i> L.<br><i>Glycyrrhiza glabra</i> L.<br><i>Indigofera gerardiana</i> Wall.<br><i>Robinia pseudoacacia</i> L.   | Shawah ICP/1100<br>Khwaga sbai ICP/1101<br>Chwarcia ICP/1102<br>Kikar ICP/1103  | WP<br>Rh. & Ri.<br>WP<br>WP  | Demulcent, expectorant, flavoring agent, diuretic and tonic<br>Abdominal pain, bandages are used for cracked bones  | 1, 2, 16, 17, 18, 19<br>1, 2, 11, 15, 25<br>12, 16, 17, 21, 23                |
| 34. Polygonaceae   | <i>Polygonum alpinum</i> All.<br><i>Polygonum barbatum</i> L.   | Pary wakha ICP/1104<br>Palopok ICP/1105   | WP<br>WP   | -   | 2<br>8, 14  |
|                    | <i>Polygonum orientale</i> L.<br><i>Polygonum amphibium</i> L.<br><i>Rumex hastatus</i> D. Don.<br><i>Rumex hederifolius</i> Mill.<br><i>Plantago lanceolata</i> L.<br><i>Plantago orientalis</i> L.<br><i>Portulaca oleracea</i> L.<br><i>Punica granatum</i> L. | Palopok ICP/1106<br>Palopok ICP/1107<br>Tarukay ICP/1108<br>Shahay ICP/1109<br>Ghaw jabai ICP/1110<br>Chinar ICP/1111<br>Machhara ICP/1112<br>Anangore ICP/1113 | WP<br>WP<br>WP<br>WP<br>Lvs. & Sd.<br>WP<br>WP<br>Rt./Fr./Sd./Rt. Ba & Stim. | In breeding, dysentery and diarrhea   | 2, 14<br>2<br>2, 13<br>2, 22<br>1, 17<br>1, 6, 17, 18<br>1, 9, 25<br>1, 3, 25 |
| 35. Plantaginaceae |   |   |  |   |   |
| 36. Plantaginaceae |   |   |  |   |   |
| 37. Portulacaceae  |   |   |  |   |   |
| 38. Portulacaceae  |   |   |  |   |   |

|                   |   |  |  |   |  |
|-------------------|---|--|--|---|--|
| 39. Rhamnaceae    | <i>Sageretia theezans</i> (L.) Brongn<br><i>Zizyphus jujuba</i> Mill.<br><i>Prunus amygdalus</i> L.<br><i>Rosa moschata</i> Hook.<br><i>Rosa webbiana</i> L.<br><i>Rubus ellipticus</i> Smith | Momana IC/P/1114<br>Marehanay IC/P/1115<br>Badam IC/P/1116<br>Kharach IC/P/1117<br>Anger gulab IC/P/1118<br>Koraja IC/P/1119 | Bk.<br>Rc<br>Lvs.<br>WP<br>Fl. & Lvs.<br>WP<br>Fl. | stomachache<br>Cooling agent and in jaundice<br>Anti-diabetic, cold, cough & expectorant<br>Antiscabies and blood purifier<br>Tonic, carminative, diarrhea, diuretic, astringent, used for drinks and wines   | 1, 3, 25<br>1, 3, 25<br>1, 3, 25<br>1, 2, 3, 7, 25<br>1, 2, 7, 25<br>3, 7, 25<br>2 |
| 41. Rubiaceae     | <i>Rubia cordifolia</i> L.  | Cingewal IC/P/1120   | WP   | -   | 2  |
| 42. Rutaceae      | <i>Shanthea hircicola</i> (DC.) Sibh. Zucc.<br><i>Zanthoxylum alatum</i> Roxb.  | Nazar panra IC/P/1121<br>Dambara IC/P/1122   | Lvs. & Stim.<br>WP                                 | Small pox and as flavoring agent<br>Stimulant, toothache, tonic, diaphoretic, alternative, carminative and stomachache  | 1, 7, 9, 25  |
| 43. Salicaceae    | <i>Salix tetragynna</i> Roxb.<br><i>Populus euphratica</i> Olivier  | Shawaha IC/P/1123<br>Suffedar IC/P/1124  | WP<br>WP   | -   | 1, 2, 16, 17<br>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.) Sterrh.<br><i>Verbesina thapsus</i> L.   | Gul mal IC/P/1126<br>Kharagwag IC/P/1127   | Rh.<br>Lvs. / Fl. & Rt.                            | Coolness of the body<br>Coolness, anodyne, narcotic, chest complaints, gout, rheumatism, diarrhea, cough, emollient, demulcent, astringent, pulmonary diseases and bowels complaints  | -  |
| 47. Simarubaceae  | <i>Ailanthus altissima</i> (Mill.) Swingle  | Baklanara IC/P/1128  | WP   | Boils and sores as poultice   | 1, 7, 12, 17, 25   |
| 48. Solanaceae    | <i>Datura metel</i> L.<br><i>Datura stramonium</i> L.<br><i>Solanum pseudocapsicum</i> L.<br><i>Solanum nigrum</i> L.<br><i>Solanum surratense</i> Bruen.                                     | Datura IC/P/1129<br>Batura IC/P/1130<br>Marichakay IC/P/1131<br>Karmacho IC/P/1132<br>Marachunai IC/P/1133                   | Fr and WP<br>Fr, Lvs and Fl<br>WP<br>WP<br>WP      | Wounds, sores, sedative, intoxicating, emetic, antispasmodic, anodyne and narcotic<br>Small warts, anthelmintic, tonic, febrifuge, diarrhea, fever, cathartic, diuretic, alterative, in liver diseases, piles, dysentery, cooling, rheumatism, in skin diseases, cough and scorpion bites<br>Emoorthea, purgative, constipation, colic, sores, rheumatism, diuretic, used in dropsy, expectorant, carminative and used in burning of feet | -<br>4, 23<br>3, 4<br>-  |
| 49. Thymelaeaceae | <i>Mitrantha somnifera</i> L.<br><i>Daphne oleoides</i> Roxb.   | Qatilal IC/P/1134<br>Leshunai IC/P/1135  | WP<br>WP   | Cholera, dysentery, antientetic, tonic, aphrodisiac, used in pregnancy, used in wounds, diuretic, fever, rheumatism, byphotic and are used in coagulating milk<br>Swelling, purgative, gonorrhoea, applied to abscess and irritant  | -<br>1, 3, 25  |

|                    |   |  |          |   |                 |
|--------------------|---|--|----------|---|-----------------|
| 50. Ericaceae      | <i>Dubautia subulifolia</i> D. Don<br><i>Erica dinteri</i> L. | Kharwala (C/P)1136<br>Seezonia (C/P)1137 | WP<br>WP |   | 1, 2, 12, 25    |
| 51. Umbellaeae     | <i>Celtis tetrandia</i> L.                                    | Thaplia (C/P)1138                        | WP       |   | 24              |
| 52. Verberaceae    | <i>Veronica officinalis</i> L.                                | Shamkali (C/P)1139                       | Rt       | Antimicrobial, fever, diarrhea, cooling agent, blood purifier, nerve, corroborant, coughs, emetic, antispasmodic, febrifuge, tonic, aphrodisiac, antiscorbutic, galactagogue and diuretic and | 1, 2, 3, 17, 25 |
|                    | <i>Hexaneurum</i> L.  | Marandi (C/P)1140                        | Rt & Lvs | Chest and back pain, vermifuge, tonic, aromatic, used in ulcers, sinuses, sores, aromatic, febrifuge, diuretic and antihelmic   |                 |
| 53. Vitaceae       | <i>Vitis verperis</i> Wall. ex Roxb.                          | Banusha (C/P)1141                        | Rt & Lvs | Diaphoretic, antispasmodic, antipyretic, emetic, purgative, emollient, demulcent, astringent, diuretic, laxative, cough, harshness, sore throat, kidney trouble and cold                      |                 |
| 54. Zygophyllaceae | <i>Tribulus terrestris</i> L.                                 | Markanda (C/P)1142                       | Fr.      | Rheumatism, cooling, diuretic, demulcent, tonic, aphrodisiac, women's diseases, gonorrhoea, bleeding, haemorrhage, tonic and used in bladder  |                 |

## Key to the species of medicinal uses

Ba= Bark, Br= Branches, Br. Fr.= Bark of fruit, Fr.= Fruit, Frn= Fronds, Fl.= Flowers, Gm.Bk= Gum of bark, Lvs= Leaves, M.Ju= Milk juice, Ri= Rhizome, Rt= Root, Rt.Ba= Root bark, Sd= Seed, Sm= Stem, Sm.Hsk= Stem husk, Sm.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= Snuff, 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= Saree, 23= Ornamental, 24= Biting, 25= Honey bee species



- Iqbal, I. (2000). *Ethnobotanical studies of Malam Jabba, District Swat*. M. Phil thesis, Deptt. Biol. Sci., QAU, Islamabad.
- Kitamura, S. (1977). *Plants of West Pakistan and Afghanistan*. Indus Publications 23, Farid Chambers, Abdullah Haroon Road, Karachi.
- Maheshwari, J. K. and M. M. Bhandari (1993). *Ethnobotany in India*. Scientific Publishers, Jodhpur, 342001, India.
- Nasir, E. and S. I. Ali (1970-1989). *Flora of Pakistan*. Nos. 1-190. Department of Botany, Karachi University, Karachi. Pakistan Agricultural Research Council, Islamabad.
- Nasir, Y. J. and R. A. Rafiq (1995). *Wild Flowers of Pakistan*. Oxford University Press, pp. 1-262.
- Parker, R. N. (1956). *A Forest Flora of Punjab with Hazara and Delhi*. Printed by the Superintendent, Government Punjab Lahore, West Pakistan.
- Polunin, O. and A. Stainton (1990). *Flowers of the Himalaya*. Oxford University press, Bombay, Calcutta and Madras, India, pp. 1-445.
- Qureshi, M. A. and S.A. Khan (1965-67). Flora of Peshawar District and Khyber Agency. *Pak. J. For.*, 15: 364-393 and 17: 203-244.
- Stewart, R. R. (1972). *An annotated catalogue of the Vascular Plants of West Pakistan and Kashmir*. Fakhri Printing Press, Karachi, pp. 1-108.
- Stijhoorn, E. (1997). New timber forest products and Ethnobotany, concepts for management and research Department of Environment and Plant Biology. Ohio University, author, Ohio/ LATIE, Turrialba, 32.
- Shinwari, Z. K., S. S. Gilani., M. Kohjoma and T. Nakaike (2000 a). Status of Medicinal Plants in Pakistani Hindu-Kush Himalayas. Nepal-Japan joint Symposium on Conservation of Natural Medicinal Resources and their Utilization, Kathmandu -Nepal, pp. 235-242.
- Shinwari, Z. K., T. Watanabe and Z. Yousaf (2000 b). Medicinal Plants of Pakistan; An Overview. Nepal-Japan joint Symposium on Conservation of Natural Medicinal Resources and their Utilization, Kathmandu-Nepal, pp. 279-285.
- Shinwari, Z. K., S. S. Gilani., and M. Akhlas (2002). *Sustainable Harvest of Medicinal Plants At bar and Shinaki valleys, Gilgit (Northern Pakistan)*. Consultancy Report: WWF-P, Gilgit.
- Shinwari, Z. K., and S. S. Gilani (2003). Sustainable Harvest of Medicinal Plants Bulashber Nullah, Astore, (Northern Pakistan). *J. Ethno Pharmacology*, 84: 289-290.
- Shinwari, Z. K., M. Rehman, T. Watanabe and T. Yoshikawa (2006). *A Pictorial Guide to Medicinal Plants of Pakistan*. Al-Aziz Communication, Peshawar, Pakistan, pp. 1-466.
- Thomas, Y. A. and P. Shengji (2003). *Applied Ethnobotany, case study from the Himalayan region*. People and Plants working paper 12. WWF, Godalming, UK., pp. 3-5.
- Williams, J. T. and Z. Ahmad. 1999. Priorities for Medicinal Plants Research and Development in Pakistan, pp. 3.

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