Ethnobotanical inventory and medicinal perspectives of herbal flora of Shiwalik mountainous range of District Bhimber, Azad Jammu and Kashmir, Pakistan

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Abstract

The present study was carried out to document traditional ethnobotanical knowledge (TEK) of herbal flora of District Bhimber, Azad Jammu and Kashmir (AJK), Pakistan to explore medicinal potential of wild indigenous plants (WIPs) for drug discovery. The research data was conducted during years 2015–2017 using questionnaire proforma employing structured and semi-structured interview models. The informants belonged from indigenous communities comprising of both genders with age ranging from 35–105 years. The interviews were conducted using local translator or guide who knew the dialects of all local languages. The study produced ethnobotanical inventory of 173 herbal species belonging to 45 families and out of these Poaceae was dominant family with 27 species. It was explored that maximum herbal species depicted multi-usage especially food, fodder and fuel. Among 173 herbal plant species, 69% species were used as fodder, 72% species as fuel source, 9.8% as ethnoveterinary medicines, 16% for home construction, 12% for cosmetics, 5.2% as honeybee plants and 2.7% were used as fiber source by the local people. Many local plants have been in promulgation for cure of different diseases in traditional cultures such as for cure of stomach problems, cough, cancer, jaundice, kidney diseases, diabetes, snake biting and tooth problems. Different parts of plants such as leaf, root, stem bark, flower, seed and gums are used for the treatment of different diseases by the local people. The major ailments being cured are classified into 12 disease categories by using informant consensus factor (ICF) protocol. According to ICF, the highest numbers of plant species were used against wound healing, snake bite, skin diseases, eye diseases and asthma. Fidelity level (FL) was assessed to check the reliability and use consistency of herbal drugs by the indigenous communities of the study area. The use value index (UVI) of different herb species ranged from 0.29 to 0.57 while the highest value was calculated for Alternanthera pungens L. (UVI: 0.57). Relative frequency of citation (RFC) value was calculated on the bases of the
response of the interviewees recorded during survey in correlation with authenticating of traditional data. The RFC values represented the relative popularity of individual species in study area according to their use values. The highest value was calculated for *Alternanthera pungens* L. (0.90) and followed by *Achyranthes aspera* L. (0.80). The study reveals that many species are known for commonly used in traditional ethnomedicines (TEMs). Due to different biotic and abiotic factors in conjunction with climatic changes many herbal flora of Shiwalik mountain range (SMR) of District Bhimber of AJK is under threat. The factors like habitat loss, overgrazing, construction of communication infrastructure, silviculture practices, shelter construction (houses) and other more domestic use of wild land by clearing wild lands are boosting towards plant biodiversity loss. There is dare need to work on comprehensive exploration of TEMs to discover neo drugs from wild indigenous plants and do work for conservation of wild flora of the area for future generations.

**Introduction**

Plant resources provide all necessary life sustenance materials like food, fodder, feed, forage, shelter, medicines and aesthetic values for people an area [1]. It is worth to state that a little work has been conducted on determination of conservation status of wild flora of many areas of the world. Old people or herbalists (hakims) are connected with medicinal plants and use different herbs for preparing medicines which are promulgated in the society [2, 3]. Indigenous people of rural areas of the world are primarily dependent on wild resources for fulfilling their daily life requirements. Plants play a central role in the chief health care services to the inhabitant of the area. They provide healing agents and significant raw materials to built-up of old and new medicines of homeopathic and allopathic form [3, 4]. About 80% world population depends on plants for health issues and to treat different infirmities. Herbal flora plays pivotal role in provision of nutritive and food subsistence to the dwellers of the mountains and rural areas of the world. The herbaceous plants are also key source of fodder and forage for the domesticated animals and rodents as well as for wild fauna.

Azad Jammu and Kashmir (AJK) area is rich in floral diversity because of the diverse habitats, such as streams, rivers, meadows, lakes, springs, waste lands, slopes, cultivated fields, etc. The present study was designed to study the floristic and ethnobotanical uses of herbal flora by indigenous communities of Shiwalik mountaineous range (SMR) of District Bhimber Azad Jammu and Kashmir, Pakistan (Fig 1). The study area falls in District Bhimber which was declared as an independent District in year 1996 with an area is 1516 Km².

This area is also called as ‘Gateway to Kashmir (Bab-e-Kashmir), as Mughal emperors and warriors entered through this region to Kashmir valley and subcontinent [3, 5]. Geographically Bhimber valley is situated on 32°58'11"N Latitude and 74°4'11"E longitudes with its edaphological conjunction with Gujrat, Jhelum areas of Punjab province and west side with KPK province of Pakistan while on north and east side different areas of Indian occupied Kashmir [3, 6]. The rationale of the study was based on fact that “study comprises of mountains chain known as Shiwalik mountain range (SMR) which has rich phytodiversity and indigenous people of the area primarily depend wild plants and fauna resources for life sustenance. This area is yet to explore and this first time study conducted with a hypothesis that “the ethnobotanical study will assist in documentation and preservation of traditional culture of different ethnic tribes and exploration of novel botanic drug uses from medicinal plants of the area”. The pivotal key objectives of the study were multifarious comprising of (i) document floristic and
ethnobotanical inventory of wild herbal flora of SMR area, (ii) to prepare data of important traditional ethnomedicines (TEMs) and enlist their botanic recipes and (iii) to determine conservation status of different plants and recommend different propagation methods.

Materials and methodologies

Study area

The study area comprises of hilly terrains of Shiwalik mountain range (SMR) of District Bhimber of AJK with a diverse topography (plains and hills) and phytogeography (diverse phytodiversity). The District Bhimber has mostly acidic and sandy-clay soil in nature with arid climate receiving scarce rainfall spells. Higher rainfall is recorded in July and August and lower in winter season. The average maximum and minimum temperature are 28.9˚C and 15.8˚C, respectively. The total average rainfall is about 1233 mm per year [7]. Average rainfall is 102.8mm per month. The area has temperature range between 0˚C to 40˚C with summer is bit hotter while at high altitude and forest zones the ranges preferably remains cool and low [8].

Ethnic groups and languages spoken

The study has rich culture and ethnic groups which include “Jats, Rajpoot, Mirza, Bhatti, Mughals, Awans, Malik, Arayain, Cheema, Naramay, Kahsmiri bhatt, and Gujars”. The lingua franca spoken are “Kashmiri, Punjabi, Saraikee, Gojri, Parhayee, Urdu, Arabic and English [3, 7].

Protocols used for data collection

In this part of research, data was collected using semi-structured and structured interview protocols following standard procedure which will consist of questionnaire and field plant interview technique [3, 9]. Many planned field trips were arranged and the area was visited with assistance of women guide or translator who was very useful to collect data from female communities of villages of SMR area of Bhimber. The interviewees were between age of 35 to 105 years comprises of both genders with diverse professions people but most were peasants and wood cutters. During Interviews using a questionnaire method to document the
ethnobotanical knowledge on the herbal plant quantities, resources and their utilization by the farmers, elder people usually with the age of more than 70 years, drug dealers, hakims, shopkeepers etc. Plants were grouped on the basis of their fodder, honey bee plants, ethnoveterinary medicines, fuel and ornamental etc. The plant specimens collected, pressed, dried, preserved and were arranged alphabetically by family name, flowering period and vernacular name. The collected specimens were identified by comparing with floristic literature [10–13] and online data comparison (www.theplantlist.org and www.eflora.org), following procedure of previous researcher [14].

**Ethical statement**

The permission for field study and collection of wild plants (herbs) from wild forest areas of Shiwalik Mountain Range (SMR) zones of District Bhimber (AJK) was obtained from Departmental ethical committee (DEC) on official letter (Ref No: 31/DEC/BOT/2015; Date: 20/06/2015) and counter signed by Head of Department. For data collection from indigenous informants, a prior verbal permission was obtained from each family head/elder man and village leader. It as acknowledged that personal information of each interviewee will be kept confidential as per advice and rule of DEC.

**Field survey permission letter**

An official field permit (Ref No: DFO/655/2015 Dated: 01/07/2015) was obtained from District Forest Officer (DFO) to make field visits of forest area of SMR, DistrictBhimber of AJK and to collect herbal samples of plants. The right of obedience of forest rules was fully followed as per SOPs provided by the relevant office and guidance of DEC was also fully obeyed.

**Quantitative ethnobotanical tools**

Ethnobotanical (EB) data collected through questionnaire method was tabulated and analyzed using quantitative analytical tools to confirm its reliability and authenticity. Several statistical tools were used for concentrating data regarding EB from study area following procedure of Amjad et al., 2017 and Ishtiaq et al., 2021 [3, 15]. For analysis of indigenous knowledge gathered from study area and its authentication was confirmed by using micro statistical tools like: “informant consensus factor” (ICF), “relative importance of plant” (RIP), “fidelity level” (FL), and “rank order of priority” (ROP) following the procedures of previous researchers like Ishtiaq et al., (2021) [3] and these quantitative ethnobotanical indices were prevalently utilized by previous researchers [16–18].

**Informant Consensus Factor (ICF).** The data collected from the respondents regarding the use of various plant species were legitimated and verified by using a tool named informant consensus factor (ICF). ICF was calculated from gathered questionnaire data by using following equation;

\[
ICF = \frac{Nur - Nt}{Nur - 1}
\]

where, Nur represents number of use citations minus (-) Nt total number of plant species used cited by respondents; divided (/) by the number of use citations in each category minus one as per given formula above. If the result is nearer to (1) or exactly (1) then reported plant species is abundantly used by locals in the area. Whereas, if value is near to (0) or comes out to be zero then reported plant species is casually used by inhabitants of area [19].

**Fidelity Level (FL).** The fidelity level of the data was calculated which depicts the percentage (%) of interviewees claiming any use of a particular plant for the same major purpose.
or field and total number of commonly reported usages or ailments. It was calculated according to formula:

\[
FL = \frac{N_p}{N} \times 100 \%
\]

Whereas, \(N_p\) depicts number of informants, who claimed a particular use of a plant species used for a typical disease and \(N\) means that number of informants/interviewees who used the plants as an ethnomedicine to treat given diseases [3, 20].

**Rank Order Popularity (ROP).** To determine correction between FL and RPL rank order popularity is used. ROP designate the popularity rank to individual in accordance to FL and RPL values [3, 21]. Following formula was used for ROP calculation:

\[
ROP = FL \times RP
\]

ROP value represents highest rank/level for popularity of various MPs used to cure specific disorder RPL and ROP statistical test are significantly important for determining EB importance of commonly used plant in respected area.

**Relative Popularity Level (RPL).** RPL describes the frequency use of a particular species. In some analysis, sporadically FL provides same usage frequency of various species then Relative popularity level index is used to reassure and confirm FL values of various trial species. RPL value generally ranges in-between 0–1, where value 1 or nearer value to 1 represents maximum RPL value while 0 or nearer to 0 represents minimum value frequency for particular disease [3, 22]. Value of RPL increases in accordance with informants as it rises correlation coefficient factor \(r = 0.10\). For example, if a particular species is reported by 25 or more individuals it will have high RPL value and vice versa. RPL is calculated by proportion of \(I_u/number\) of individuals reported the use of particular plant). When 25 of more individuals report for a particular species RPL value becomes \((I_u/12)\) which gives one (1) and species is ranked as Popular (P). Whereas if less than 25 individuals report plants uses then respected plant species is ranked as unpopular (UP) as stated by Ishtiaq et al., [23, 24]. Marginal value in-between, P and UP of particular plant refers point where further increase in number of informants don’t upswing medicinal use per plant species.

**Relative Importance of Plant (RIP).** To determine the pharmacological or pharmaceutical significance of individual plant relative importance of plants (RIP) was used following protocol of Umair and Amjad [25].

\[
RIP = \frac{Rel. \ Ph + Rel. \ B.S.}{2} \times 100
\]

whereas Ph. is pharmacological features of the plants and Rel. Ph: relative pharmacological importance; rel. BS: body system treated. The relative Pharmacological significance can be calculated by the given below formula.

\[
rel. \ Ph. = \frac{Ph. \ of \ given \ Plant}{Ph. \ of \ all \ reported \ plant \ species}
\]

whereas Ph. is pharmacological attributes of the each provided plant and rel. Ph. is the relative number of pharmacological properties referenced for an individual plant.

\[
rel.BS = \frac{BS \ of \ given \ Plant}{BS \ of \ all \ reported \ plant \ species}
\]
where BS is the number of body System healed by single plant species whereas, rel. BS is total relative number of body system treated by the given plant species.

**Use value index.** The use value index (UVI) demarcates relative importance of different uses of the specific species. It was determined by using past cited formula following protocol of Long *et al.*, 2013 and Leto *et al.*, 2013 [26, 27].

\[ UVI = \frac{\sum U_i}{N} \]

Whereas UV indicates “relative use value” of the single species; “U” is the ‘number of uses mentioned by each informant for the species and “N” is the ‘total number of informants who reported that species.

**Relative Frequency of Citation (RFC).** Relative frequency of citation is used an index to explore significance or importance of each species occurring in the local area. RFC was determined by “dividing the number of informants” confirming the frequency.

\[ RFC = \frac{FC}{N} \]

Where, ‘0 < RFC > 1’; and FC is the ‘number of informants’ reporting use of a particular species and N is the ‘total number of informants’ involved in study survey.

**Priority Ranking (PR).** Priority ranking (PR) method was used for indicating the preference of the local people about the potential use of each plant in certain use and it describes the biotic pressure on the plants of the area and it assists to calculate the conservation status of various species in the study area [28, 29].

**Results and discussion**

The research work was carried out in District Bhimber during years 2015–2017 prevalently based on SMR areas of AJK, Pakistan. The plants samples free of disease were collected, pressed, dried in newspapers and mounted as per standard herbarium protocol of Ishtiaq *et al.*, (2021) [3]. These specimens were mounted on herbarium sheets, then identified, preserved and deposited in Herbarium of Mirpur University of Science and Technology Bhimber Campus, AJK. In the investigated area 173 herbaceous plant species belonging to 45 families were found and recorded for EB and TEMs data. Among 45 families Poaceae were the dominant families with 27 species. There were followed by Papilionaceae, Amaranthaceae and Fabaceae with 8 and 7, 7 species, respectively. These were followed by Boraginaceae and Lamiaceae with 06 species, Cyperaceae 05 species each, Chenopodiaceae, Euphorbiaceae, Plantaginaceae, Ranunculaceae and Solanaceae 04 species each and Acanthaceae, Liliaceae, Malvaceae, Brassicaceae, Cucurbitaceae, Portulaceae, Papaveraceae 03 species each (Table 1). Similar results were explored and published by Ajaib *et al.*, 2014 in District Kotli, Azad Jammu and Kashmir [30]. Plant is an unusual organism of infinite kindness and compassion it offers to mankind, the creation of its life activities in different ways. Among them domestic, commercial and industrial uses are well known.

**Ethnobotanical findings**

Ethnobotany includes all aspects of traditional uses of plants including food, poison, fodder, timber, clothing, dyes, fuel, medicines and veterinary medicines. Ethnobotanical survey of SMR region of District Bhimber gave evaluation of relation between man and his surrounding plants. For this purpose, many field surveys were carried out in the certain selected sites of the study area of SMR. Many ethnobotanical plant species were recognized along with data about
Among 173 herbal plant species, 69% species were used as fodder, 72% species were used for fuel purpose, 9.8% were used as ethnoveterinary purposes, 2.7% were used as fiber, 5.2% were used as honeybee plants, 16% were used as domestic and 12% were used as cosmetics (Table 2 and Fig 2). Similar studies were also conducted by Hussain et al., 2012 when they studied the ethnobotany of plants (Angiosperm) flora of Rawalakot. They represented 173 medicinal plants used by native people for different purposes and cure of human and livestock. About 111 species are weeds, 158 used for fodder, 68 species used as fuel, 33 species were fruit yielding 22 were used as timber, 31 as ornamental, 25 as fencing lawns and fields. While 21 species were used as vegetables, 9 for thatching houses and huts; and 13 species were recorded as poisonous. Shaukat et al., (2012), studied ethnobotanical studies of diversity of plants of some selected regions of Rawalakot [31]. They concluded that 26

**Table 1. Family index of herbal flora of District Bhimber of AJK Pakistan.**

| Sr. No. | Families              | No. of species | Sr. No. | Families            | No. of species |
|--------|-----------------------|----------------|--------|---------------------|----------------|
| 01     | Amaranthaceae         | 7              | 24     | Fabaceae            | 7              |
| 02     | Alliaceae             | 1              | 25     | Lamiaceae           | 6              |
| 03     | Aizoaceae             | 1              | 26     | Liliaceae           | 3              |
| 04     | Adiantaceae           | 2              | 27     | Leguminosae         | 1              |
| 05     | Aristolochiaceae      | 1              | 28     | Labiatae            | 2              |
| 06     | Asclepiadaceae        | 1              | 29     | Malvaceae           | 3              |
| 07     | Acanthaceae           | 3              | 30     | Nyctaginaceae       | 1              |
| 08     | Berberidaceae         | 1              | 31     | Oxalidaceae         | 1              |
| 09     | Boraginaceae          | 6              | 32     | Poaceae             | 27             |
| 10     | Brassicaceae          | 3              | 33     | Phyllanthaceae      | 1              |
| 11     | Caryophyllaceae       | 1              | 34     | Portulacaceae       | 3              |
| 12     | Chenopodiaceae        | 4              | 35     | Papaveraceae        | 3              |
| 13     | Cypereae              | 5              | 36     | Papilionaceae       | 8              |
| 14     | Convolvulaceae        | 1              | 37     | Phyllanthaceae      | 1              |
| 15     | Cucurbitaceae         | 3              | 38     | Papilionaceae       | 2              |
| 16     | Crassulaceae          | 1              | 39     | Plantaginaceae      | 4              |
| 17     | Caesalpiniaecae       | 2              | 40     | Primulaceae         | 2              |
| 18     | Celastraceae          | 1              | 41     | Ranunculaceae       | 4              |
| 19     | Cactaceae             | 1              | 42     | Rubiaceae           | 2              |
| 20     | Cuscutaceae           | 1              | 43     | Solanaceae          | 4              |
| 21     | Equisetaceae          | 1              | 44     | Verbenaceae         | 2              |
| 22     | Euphorbiaceae         | 4              | 45     | Zygophyllaceae      | 1              |
| 23     | Fumariaceae           | 1              |        |                     |                |

**Table 2. Ethnobotanical uses of plants (%age) from Shiwalik mountain range of District Bhimber of Azad Jammu and Kashmir, Pakistan.**

| Sr. No. | Ethnobotanical Uses | %age |
|--------|---------------------|------|
| 01     | Fodder              | 69   |
| 02     | Fuel                | 72   |
| 04     | Fiber               | 2.7  |
| 05     | Cosmetics           | 12   |
| 06     | Domestic            | 16   |
| 07     | Ethnoveterinary     | 9.8  |
| 08     | Honey bee plants    | 5.2  |

https://doi.org/10.1371/journal.pone.0265028.t001

https://doi.org/10.1371/journal.pone.0265028.t002
plant species belonging to 19 families were used by local people for different purposes. Sedges and grasses of the study area were grazed as fodder by animals in Summer and Spring seasons and stored for Winter and Autumn when no fodder is accessible for grazing. The relationship between plants and people is extraordinary because plants provide fodder, domestic animals, food, ethno veterinary, fuel and honeybee, flowers for esthetics and happiness [30, 32]. It was studied that due to grazing off domestic animals in the hilly areas of District Bhimber and over harvesting of every available portion of the gainful medicinal plants by indigenous communities as a source of income creates severe plethora of biotic pressure leading towards loss or extinction in future. Generally, women were mostly linked with collection of herbal plants as source of botanic drugs who collect and dry these phyto-drugs at home, on rocks or on mats, then after sprinkling the plants on roof. The dried collected herbal plants were sold directly to the main city markets and provincial drug traders. Similar results were also shown by Khan et al., (2011) during whose work conducted on the ethnomedicinal evaluation of plants of Hindu-Kush area of Pakistan [33].

Ethnomedicinal uses

Among 173 herbaceous plants, belonging to 12 families, 21.4% species used against skin diseases followed by 16.7% used for wound healing and 14.4% used against fever. These were
followed by 17.3% for stomach problems, 12.13% for cough and 22.7% for treatment of cancer.

The study revealed that 17.14% species were used against jaundice, 4.6% were used against asthma and 8.09% for kidney diseases. These were followed by 9.2% of herbal flora which was used for diabetes, 4.62% against snake biting and 1.7% species were used for treatment of tooth problems (Tables 3 and 4; Fig 2). Similar results were also shown by Shinwari, (2000) who carried out his research on Margalla Hills, National Park [34]. Another researcher, Ahmad, 2007 highlighted and demarcated the medicinal plants around motorway Pakistan with their potential for neo-drug discovery. Sheikh, et al. 2002 studied ethno botanical and ethnomedical uses of wild plants of Naltar valley of Karakorum, Pakistan [35]. Similar, studies were also conducted by Shinwari et al., 2010 and Farooq et al., 2012 who demonstrated that local people of village areas depend on wild indigenous plants (WIPs) [36, 37]. These findings confirmed that ‘diabetes, anticancer and skin diseases were the most commonly occurring diseases in the area that is due to extreme use of ghee (solidified oil/butter refined form) and change of life style towards comfortable mode. Similar studies were conducted by Hussain et al., (2012) who depicted that change of life style towards sedentary and luxurious form was cause of many acute and chronic infirmities [38]. They concluded that 59 medicinal plants are frequent used by the local people of Rawalakot for themselves out of 173 medicinal plants for cure of different ailments. The frequently used medicinal plants are Mentha longifolia, Achyranthes aspera, Podophyllum emodi, Valeriana jatamansi, Berberis lycium, Punica granatum, Achillea millefolium, Aesculus indica, Amaranthus viridis, Viola odorata, B.stracheyi, Cichorium intybus, Elaeagnus umbellate, Ficus palmate, Funiculus vulgaris, Zanthoxylum erratum, Plantago major, Bergenia ciliate and Melia azedarach. Our findings are also coincided with the previous cited works of the above stated authors.

Different parts of plants used for the treatment of different disease. Plant leaves are used up to 62.8%, 8.5% whole plant, 28.0% fruit, 11.4% roots of plants and 8.5% flowers, 8.5% seeds, 28.5% resins or gums and 20.0% stem were used to treat different diseases. (Table 5, Fig 3). The similar results have been reported in earlier works that had been directed in Island and Italy which described that the leaves were frequently used in herbal medicines [39, 40]. It has been found that extreme assembly of leaves along with other plant parts like bark and roots because leaves have more efficiency than other parts because leaf has a greater number of chemical ingredients [41].

Informant Consensus Factor (ICF) and Fidelity Level (FL)

The major ailments were classified into 12 disease categories by using ICF. According to ICF values the highest numbers of plant species were used against wound healing, snake bite, skin diseases, eye diseases and asthma (Table 6; Fig 4). Brassica campestris L. with maximum FL (40.0) followed by Aloe vera L. with FL (36.6%) and Adiantum capillus-veneris L. with FL (30.0%) were used as antidiabetic and skin diseases, arthritis, respectively (Table 7). Similar
| Sr. No. | Botanical Name of Plant      | Common Name        | Family            | Part used | Traditional Ethnomedicinal uses                                                                 |
|--------|-------------------------------|--------------------|-------------------|-----------|------------------------------------------------------------------------------------------------|
| 01     | Achyranthes aspera L.         | Phothkanda         | Amaranthaceae     | Fruit     | Fruits are roasted, grinded and used against asthma, fever, cough and constipation.              |
|        | MUH-1681                      |                    |                   |           |                                                                                                 |
| 02     | Astragalus leucocephalus Benth. | Kathi              | Fabaceae          | Leaf      | Powder of leaf is used to cure stomach pain, gastrointestinal pain and kidney diseases.          |
|        | MUH-1678                      |                    |                   |           |                                                                                                 |
| 03     | Amaranthus viridis L.         | Ganar              | Amaranthaceae     | Whole plant | Plant is taken dried, make powder and used with water to cure sore boils, diarrhea and wound healing. |
|        | MUH-1683                      |                    |                   |           |                                                                                                 |
| 04     | Amaranthus tricolor L.         | Bhaji              | Amaranthaceae     | Leaf, root | Extract of leaf is used as effective tonic for cure of snake bite, diuretic and wound healing.   |
|        | MUH-1683                      |                    |                   |           |                                                                                                 |
| 05     | Achyranthes bidentata L.      | Phothkanda         | Amaranthaceae     | Whole plant | Ethanolic extract of leaf is used for healing wounds, diuretic, treat cancer, eye related diseases and anemia. |
|        | MUH-1684                      |                    |                   |           |                                                                                                 |
| 06     | Aerva javanica (Burm.f.) Juss. | Bui                | Amaranthaceae     | Whole plant | Extract of plant used to cure different diseases like diarrhea, microbial infections and kidney diseases. |
|        | MUH-1685                      |                    |                   |           |                                                                                                 |
| 07     | Anagallis arvensis L.         | Bili booti         | Primulaceae       | Leaf      | Leaf extract is used to treat stomach diseases, antifungal and wound healing.                   |
|        | MUH-1686                      |                    |                   |           |                                                                                                 |
| 08     | Abutilon indicum L.           | Sweet kangi        | Malvaceae         | Whole plant | Paste of seeds and leaf is used to cure skin diseases. Aerial parts are used to cure asthma, diarrhea, cancer, inflammatory and diabetic |
|        | MUH-1687                      |                    |                   |           |                                                                                                 |
| 09     | Aerva sanguinolenta (L.) Blume. | Chiti boti        | Amaranthaceae     | Whole plant | Extract of plant used to cure different diseases anti-diarrheal, antimicrobial and cure kidney diseases. |
|        | MUST-1688                     |                    |                   |           |                                                                                                 |
| 10     | Alternanthera purgens L.      | Taahie booti       | Amaranthaceae     | Whole plant | Ethanolic extract of leaf is used for healing wounds, diuretic, treat cancer, eye related diseases and anemia. |
|        | MUH-1689                      |                    |                   |           |                                                                                                 |
| 11     | Argemone mexicana L.          | Dudhli kandyari    | Papaveraceae      | Whole plant | Extract of whole plant is used to treat different diseases like wound healing, -inflammation, bacterial infection, diuretic, cancer and tumors. |
|        | MUH-1690                      |                    |                   |           |                                                                                                 |
| 12     | Artemisia scoparia Waldst. & Kit. | Red stem         | Asteraceae        | Leaf, flowers | Leaves are dried and made paste which is used with water to cure stomach diseases and intestinal worms and relevant diseases. |
|        | MUH-1691                      |                    |                   |           |                                                                                                 |
| 13     | Allium Jacquemontii Knuth.   | Jangli piaz        | Alliaceae         | Blub, leaf | Juice of plant parts is used to treat different disease like snake bite, scorpion bite and microbial infections. |
|        | MUH-1692                      |                    |                   |           |                                                                                                 |
| 14     | Aloe vera L.                  | Kawar gandal       | Liliaceae         | Leaf      | Leaf pulp is applied on wounds for healing and pulp is mixed with sugar used against cardiovascular diseases, cancer, diabetes and neurological infirmities. |
|        | MUH-1693                      |                    |                   |           |                                                                                                 |
| 15     | Avena fatua L.                | Wild oat           | Poaceae           | Seeds     | Seeds are grinded and its powder is used for curing diseases of skin, nails and muscles. It is also very effective in cardiovascular diseases. |
|        | MUH-1695                      |                    |                   |           |                                                                                                 |
| 16     | Acrachne racemosa L.          | Goose grass        | Poaceae           | Whole plant | The plant is used fodder for animals. Its paste of root is used for curing infirmities of skin, wounds, kidney disorder and breathing issues. |
|        | MUH-1696                      |                    |                   |           |                                                                                                 |
| 17     | Aristolochia punjabensis Lace. | Pipevine           | Aristoloichiacea  | Roots     | Powder of root is taken with milk to treat body pain. The root powder is used with water to cure menstrual problems, body pain and vaginal infections. |
|        | MUH-1697                      |                    |                   |           |                                                                                                 |
| 18     | Adiantum capillus-veneris L.   | Median hair fern   | Adiantaceae       | Whole plant | Whole plant is dried, powdered and its small amount is used for lowering blood pressure, curing cough, fever, hypertension and hair caring. |
|        | MUH-1698                      |                    |                   |           |                                                                                                 |
| 19     | Adiantum incisum L.           | Fern               | Adiantaceae       | Leaf      | Infusion of leaves is used for cough and other diseases like fever and body weakness.            |
|        | MUH-1699                      |                    |                   |           |                                                                                                 |
| 20     | Asplenium trichomanes L.      | Bird nest fern     | Caesalpiniacea    | Leaf      | Leaf is smoked for chest pain, colds, headache, cure colds and chest pain.                      |
|        | MUH-1700                      |                    |                   |           |                                                                                                 |
| 21     | Asphodelus tensifolius Caven. | Bhokal             | Liliaceae         | Seeds     | Seed powder is taken in piles and used to cure other skin diseases.                             |
|        | MUH-1701                      |                    |                   |           |                                                                                                 |
| 22     | Ajuga bractosa                | Hari booti         | Lamiaceae         | Whole plant | Whole plant is effective for curing pimple and boils diseases. Root powder is used to cure diarrhea. Leaf powder is used to cure malarial fever, cure stomach diseases, diabetes and dysentery. |
|        | Benth.                        |                    |                   |           |                                                                                                 |
|        | MUH-1702                      |                    |                   |           |                                                                                                 |

(Continued)
Table 4. (Continued)

| Sr. No. | Botanical Name of Plant | Common Name | Family | Part used | Traditional Ethnomedicinal uses |
|---------|-------------------------|-------------|--------|-----------|----------------------------------|
| 23.     | Aristida adscensionsis L. MUH-1703 | Saroot | Poaceae | The whole plant is used as fodder for animal and rodents. The root decoction is used for cure of skin allergy. |
| 24.     | Berberis lyceum L. MUH-1708 | Sumblu | Berberidaceae | Bark | Powder of bark is applied on wounds for healing, diabetes, skin allergies, scabies jaundice and piles. |
| 25.     | Boerhavia diffusa L. MUH-1709 | Sanati | Nyctaginaceae | Roots, leaf | Roots re crushed and boiled in milk which is used to remove kidney stones. Root decoction is used for treating pneumonia, abscesses and jaundice. The root are cut into pieces and its garlic is used for relief of hepatitis and jaundice in rural areas. |
| 26.     | Buglossoides arvensis L. MUH-1711 | Kalu | Boraginaceae | Leaf | Infusion of leaves are sedative. The leaf powder is used for stomachache. |
| 27.     | Barleria cristata L. MUH-1712 | - | Acanthaceae | Root, leaf, seeds | Bitter juice used to treat diseases like lung disorders, snake bite, microbial infections, diabetes and toothache. |
| 28.     | Bryophyllum pinnatum L. MUH-1713 | Pather chatt | Crassulaceae | Leaf | Fresh leaves are warmed and rapped on pains of knees and also used for wound healing by local rural people. |
| 29.     | Bromus japonicus L. MUH-1714 | Broom grass | Poaceae | Whole plant | Powder of whole plant is used to treat different disease like chest pain, anti-inflammatory and hepatitis. |
| 30.     | Cannabis sativa L. MUH-1719 | Bhang | Cannabaceae | Leaf | Leaf paste is used for wound healing. Leaves are used as narcotics so used to generate pleasant, cure cough, headache, abdominal pain, used for pleasant and excitement. It is also used for cure of sleep disorders and anxiety. The extract of leaf is used for treatment of epilepsy. |
| 31.     | Capparis sepiaria L. MUH-1720 | Kareer | Cyperaceae | Whole plant | Decoction of whole plant is used to treat disease like antimicrobial, antifungal and skin diseases. |
| 32.     | Calendula arvensis L. MUH-1721 | Field marigold | Asteraceae | Leaf and flowers | Extract of leaves is used to cure antiseptic, cure skin diseases and healing of wounds. |
| 33.     | Carthamus lanatus L. MUH-1722 | Distaff thistle | Asteraceae | Flowers, seeds | The paste of seeds is prepared and applied to cure different skin diseases and fever. The flower decoction is used to fever and chest cold feelings. |
| 34.     | Calendula officinalis L. MUH-1723 | Marigold | Asteraceae | Leaf, flowers | The sap of flowers used to cure skin diseases and treatment of cancer. The external use of plant in form of extract with tincture is effective for wound healing, blood purifier, cure skin disorders, anticancer, anemia and kidney diseases. |
| 35.     | Carthamus oxyacantha L. MUH-1724 | Kandyari | Asteraceae | Flowers, seeds | Flowers are used to cure jaundice while oil extracted from seeds is used to cure skin diseases and cure jaundice. |
| 36.     | Chenopodium ambrosioides L. MUH-1725 | Mexicana tea | Chenopodiaceae | Leaves, flowers, and seeds. | Dried leaves are used to treat cancer. Seed oil is used to cure arthritis and skin diseases. |
| 37.     | Chenopodium botrys L. MUH-1726 | Oak | Chenopodiaceae | Leaves and seeds | Fresh leaves extract is used to cure kidney diseases, arthritis, skin diseases, digestive, cough and pectoral pains. |
| 38.     | Chenopodium album L. MUH-1727 | Bathu | Chenopodiaceae | Leaves | Leaf juice is used to cure kidney problems and cure spleen enlargement problems. |
| 39.     | Colebrookea Oppositifolia Smith. MUH-1728 | Bansa | Labiatae | Leaf, root, bark | Powder of plant parts is used to treat different diseases like cure flu, fever, wound healing and epilepsy. |
| 40.     | Ceropogia bulbosa L. MUH-1729 | Galot | Asclepiadaceae | Tuber, Leaves | Juice of plant parts is used to treat diseases like cancer, microbial infectious diseases, kidney disorders, digestive problem. |
| 41.     | Convolvulus arvensis L. MUH-1730 | Rawari | Convolvulaceae | Whole plant | Dried powder of plant mixed with gurr (dired juice of sugar cane) to treat constipation. Leaf paste is used to cure skin diseases, cure constipation and anti-inflammation. |
| 42.     | Cichorium intybus L. MUH-1731 | Kasni | Asteraceae | Seeds, leaves | Powder of seed is used to treat different diseases like fever, kidney problems, vomiting, toothache and blood purifier |
| Sr. No. | Botanical Name of Plant | Common Name | Family | Part used | Traditional Ethnomedicinal uses |
|--------|-------------------------|-------------|--------|-----------|---------------------------------|
| 43.    | Chenopodium ambrosioides L. | Gandi booti | Chenopodiaceae | Leaf, root | Paste and juice of plant parts is used to treat different diseases like wound healing, constipation, skin burns and stomach pains. |
| 44.    | Cuscuta reflexa Roxb. MUH-1733 | Neel dhari | Cuscutaceae | Whole plant | Whole plant extract is used to treat viral diseases, juice is used to cure jaundice, warm paste is used to treat headache. The decoction is used to treat cough, arthritis, skin disorders and blood purifiers. |
| 45.    | Cynodon dactylon L. MUH-1735 | Khabal | Poaceae | Whole plant | Paste of fresh plant is applied on wound healing, skin diseases and fever. It is also used as diuretic and cure of inflammations. |
| 46.    | Cenchrus dactyloides | Ghass | Poaceae | Whole plant | Plant is crushed and made powder and used for curing different diseases like kidney diseases, tumors and wound healing |
| 47.    | Cynoglossum lanceolatum Forssk. MUH-1736 | Leendra | Boraginaceae | Whole plant | Bark of plant is used to cure teeth diseases. Root paste is used to cure cough and tuberculosis diseases. |
| 48.    | Cordia obliqua L. MUH-1737 | Lasoora | Boraginaceae | Whole plant | Fruit of this herb is used to cure dry cough, fever and chest pain. Bark juice is used to cure tonic diseases. Leaves are also effective for headache and ulcers. |
| 49.    | Cassia obtusifolia L. MUH-1738 | Coffee weed | Fabaceae | Leaves, root, seed, flowers | Leaves are used to make tea to remove headache and migraine. Seed powder is used to cure vomiting, skin diseases, ulcers, asthma and eye diseases. |
| 50.    | Cenchrus biflorus Del MUH-1739 | Gass | Poaceae | Leaves and seed | Leaf extract is used to treat different diseases, diuretic, digestive, anti-inflammatory, fever and cold. |
| 51.    | Cortusa brotheri L. MUH-1741 | | Primulaceae | Seed and stem | Extract of plant used to treat different diseases like stomach pain and constipation. |
| 52.    | Cyperus esculentus L. MUH-1742 | Nut sadge | Cyperaceae | Whole plant | Extract of whole plant is used to treat different diseases. It is used as medicine i.e. anti-malarial, anti-diarrheal, antidiabetic, antioxidant and antibacterial source of medicines. |
| 53.    | Cyperus iria L. MUH-1743 | Flat sadge | Cyperaceae | Root and fruit | Dried parts of plants are used to cure different diseases like cough, chronic, fever, cold, arthritis and cardiac diseases. |
| 54.    | Cyperus rotundus L. MUH-1744 | Purple sadge | Cyperaceae | Root tubers | Roots are grinded, make powder and used with water. Tubers cooked are used to cure digestive and uterus pains. |
| 55.    | Clitoria ternatea L. MUH-1745 | Butterfly pea | Fabaceae | Stem, flower, leaf, fruit | Alcohol extract of plant used to treat different diseases like mental illness, antibacterial, antidiabetic and anti-inflammatory. |
| 56.    | Citrullus lanatus L. MUH-1746 | Cheebar | Cucurbitaceae | Seed, leaves | Dried pulp of leaves and root are used to treat different diseases like constipation, ulcers, cancer. |
| 57.    | Citrullus colocynthis L. MUH-1747 | Tumma | Cucurbitaceae | Root and fruit | Extract of whole plant is used to treat different diseases like tumor, ulcers, remove pain and swelling. |
| 58.    | Coronopus didymus L. MUH-1749 | Janglu halon | Brassicaceae | Whole plant | Powder of plant is used to treat different diseases like relieve pain and inflammatory. |
| 59.    | Carissa opaca L. MUH-1750 | Amaltas | Caesalpinaceae | Root | Powder of dried root is applied on wounds. The latex is used antiseptic for cure of foot and skin diseases. The leaf is used as fodder for rodents. |
| 60.    | Digera muricata L. MUH-1752 | - | Poaceae | Whole plant | Infusion of plant used to treat stomach diseases, digestive disorders and urinary diseases. |
| 61.    | Dicliptera roxburghiana News. MUH-1755 | Kali boti | Acanthaceae | Plant sap, leaves, flower | Dried parts of plants are used to treat different diseases like diuretic, skin diseases, toxic. |
| 62.    | Dicliptera bupleuroides News. MUH-1756 | Marvel grass | Poaceae | Whole plant | Powder of plant is used treat different diseases like antidiabetic and antimicrobial. |
| 63.    | Dichanthium annulatum Forssk. MUH-1757 | Crabgrass | Poaceae | Whole plants | Dried parts of plant are used to treat different diseases like diuretic. The lead is used as laxative knowntonic for stomach issues and detoxifier of toxic materials of intestines. |
| 64.    | Digitaria ciliaris Retz. MUH-1758 | Finger grass | Poaceae | Whole plant | Fodder for animals. |

(Continued)
| Sr. No. | Botanical Name of Plant | Common Name | Family | Part used | Traditional Ethnomedicinal uses |
|---------|-------------------------|-------------|--------|-----------|---------------------------------|
| 65. | Digitaria nodosa L. MUH-1759 | Grass crow foot | Poaceae | whole plant | Fodder for animals. |
| 66. | Equisetum arvensis L. MUH-1764 | Horsetail | Equisetaceae | Whole plant | Plant juice is used for kidney diseases. The stem decoction is used for cure of stomach issues. The renal problem is cured by its infusion. |
| 67. | Euphorbia hirta L. MUH-1765 | Dhodke | Euphorbiaceae | Whole plant | Its seeds are ground into powder and used with milk to cure diarrhea. The leaf decoction is used cure of chest infirmities. |
| 68. | Euphorbias prostrata L. MUH-1766 | Sandke | Euphorbiaceae | Whole plant | Plant is crushed and eats to remove kidney stones. It is used anti-hemorrhoids. |
| 69. | Euphorbia helioscopia L. MUH-1767 | Cathri dodak | Euphorbiaceae | Whole plant | Powder of root is used to cure skin stones. It is also poisonous for cattle if engulfed too much. |
| 70. | Euphorbia prolifera L. MUH-1768 | Dodak | Euphorbiaceae | Whole plant | Whole plant is taken in form of powder and used to cure diseases. |
| 71. | Eclipta prostrata L. MUH-1769 | Flase daisy | Asteraceae | Whole plant | Whole plant is taken dried make powder used to cure different diseases like hepatitis, nervous disorders, anemia, skin diseases. |
| 72. | Evolvulus alsinoides L. Bios. MUH-1770 | Morning glory | Poaceae | Leaves | Extract of leaf is taken for constipation, vomiting and indigestion. |
| 73. | Echinochloa crus-galli L. MUH-1771 | Cockspur grass | Poaceae | Shoots, roots, seed | Seed can be cooked, sieved, bitter flavor used to prevent different diseases like stomach pains, inflammation, wound healing, cancer, sores and hemorrhages. |
| 74. | Eleusine indica L. MUH-1772 | Goose grass | Poaceae | Whole plant | Extract of plant parts used to treat different diseases like kidney, diarrhea, eye diseases and dysentery. |
| 75. | Ehretia laevis Roxb. MUH-1773 | Sakkar | Boraginaceae | Whole plant | Extract of different plant parts is used to treat diseases, skin cancer, anti-inflammatory and wound healing. |
| 76. | Fumaria indica L. MUH-1780 | Papra | Fumariaceae | Whole plant | Herb is dried make powder and used to treat different diseases like diuretic, cure liver and digestive diseases and cure skin diseases. |
| 77. | Galium aparine L. MUH-1784 | Lahndara | Rubiaceae | Whole plant | Plant is crushed make powder and used to treatment of different diseases like fever, diuretic, wound healing and antisepsic. |
| 78. | Galium elegans L. MUH-1785 | Jari | Rubiaceae | Whole plant | Taken whole plant dried, crushed and makes powder used with water to cure different diseases like Jaundice, antiseptic, wound healing and fever. |
| 79. | Gagea elegans Wall. MUH-1786 | Yellow star | Liliaceae | Whole plant | Fodder for animals for rodents and snow cocks. |
| 80. | Heteropogon contortus L. MUH-1788 | Sarala grass | Poaceae | Whole plant | It is used as fodder for cattle and rodents. |
| 81. | Heliotropium strigosum Wild. MUH-1789 | Gorakhd | Boraginaceae | Leaves, stem, root | Gum is used to treat boils. Juice for snake bite, diuretic, sore pain, wound healing and used to treat boils. |
| 82. | Helianthus tuberosus L. MUH-1790 | Artichoke | Asteraceae | Whole plant | Whole pant is used to treat different diseases diuretic, antidiabetics, stomach diseases, tonic effect, antidiabetic, anti-microbial. |
| 83. | Hyoscyamus niger Linn. MUH-1791 | Khoob kalan | Solanaceae | Whole plant | Powder of whole plant is used to treat different diseases like pain killer and kidney stones. |
| 84. | Imperata cylindrica L. MUH-1793 | Grass | Poaceae | Root, flower | A decoction of the root is used to treat digestive diseases, wound healing, anti-jaundice and dysentery. |
| 85. | Ipomoea eriocarpa R.Br. MUH-1794 | Wanweer booti | Convolvulaceae | Whole plant | Crush whole plant, make powder and extract is used to cure skin diseases and cancer. |
| 86. | Kyllinga brevifolia Roth. MUH-1799 | - | Cyperaceae | Rhizome, leaves, tubers | Extract of plant parts used to treat different diseases like digestive, diuretic, tonic, sedative, anti-malarial, snake bite. |
| 87. | Loranthus longiflorus Desr. MUH-1800 | Purakh | Loranthaceae | Flowers, leaves | Decoction of plant is used to treat different diseases like diabetes, skin diseases, wound healing, bone repairing. |

(Continued)
| Sr. No. | Botanical Name of Plant | Common Name | Family | Part used | Traditional Ethnomedicinal uses |
|---------|--------------------------|-------------|--------|-----------|---------------------------------|
| 88      | Lantana camara L.        | Panj pholi   | Verbenaceae | Leaves | Ethanolic extract of leaves are reported for wound healing, Skin diseases, anticancer, anti-inflammatory, malarial diseases. |
| 89      | Larotalaria medicaginea Lam. MUH-1, 803 | Rattle pods | Fabaceae | Whole plant leaves | Make powder of whole plant and used to treat different diseases like malaria, constipation, fever |
| 90      | Lathyrus aphae L.        | Jangle matr | Fabaceae | Whole plant | Powder of whole plant is used to treat different diseases like burns, anti-inflammatory, anti-bacterial |
| 91      | Leucas aspera L.         | Thumbai     | Libiateae | Whole plant | Flower are mixed with honey and used for different diseases like fever, cough, cold, ulcer |
| 92      | Launaea procumbens Roxb. | Bathala     | Asteraceae | Whole plant | Powder of whole plant is used to treat different diseases like skin diseases, cough, chest pain, obesity, constipation |
| 93      | Maytenus royleana Wall.  | Patakee     | Celastraceae | Bark, leaves | Paste of Bark and leaves used for bone fractures and other skin diseases. |
| 94      | Malva parviflora L.      | Sonchal     | Malvaceae | Whole plant | Leaves extract with water is used to cure different diseases, anti-inflammatory, antimicrobial |
| 95      | Malva sylvestris L.      | High mallow | Malvaceae | Seeds | Seeds are boiled, add sugar made sharabt used to cure fever and cough |
| 96      | Melilotus alba L.        | Shinji      | Fabaceae | Leaves | Infusion of leaves is used to treat different diseases including dysentery, cough, bronchial disorders, abdominal pain |
| 97      | Micromeria biflora L.    | Marathi     | Leguminosae | Leaves, root | Root extract is to cure different diseases. Leaf oil used as flavoring agent, cure dysentery, colds, cough, abdominal pain |
| 98      | Melilotus indica (L.) All. | Jangle     | Papilionaceae | Leaves | Leaf juice is used against antibacterial disorders. |
| 99      | Medicago polymorpha L.   | Sriri       | Papilionaceae | Whole plant | Seed can be ground into a powder and mixed with water and used to treat different diseases like cure skin diseases, dysentery, wound healing |
| 100     | Mentha royleana Benth. MUH-1818 | Wild mint | Labiatae | Leaves, stem | Leaves are dried and, make powder used to cure different diseases like cough, throat pain, digestion and constipation. |
| 101     | Nasturtium officinale R.Br. MUH-1820 | Chooch | Brassicaceae | Leaves | Leaf juice is taken for stomach diseases, ulcers, intestinal pain |
| 102     | Nicotiana plumbaginifolia Viv. MUH-1821 | Jangli tobacco | Solanaceae | Whole plant | Powder of leaves used to treat different diseases like healing of wounds and cuts toothache, rheumatic |
| 103     | Osteosperma limbatam L.   | Kori booti  | Lamiaceae | Leaves | Leaves are dried, grind and powder are applied on wound |
| 104     | Oxalis corniculata L.    | Khati boti  | Oxalidiaceae | Fruits and seeds | Plant sap is used to cure skin diseases. It is also used as laxative of stomach disorders. |
| 105     | Ocimum basilicum L.       | Naiazbu     | Lamiaceae | Leaves, seeds | Leaf extract is used to cure cough. Seed powder is used in cold drinks. It is also used in headache and cough cure. |
| 106     | Ocimum tenuiflorum L. MUH-1825 | Tulsi | Lamiaceae | Leaves | Leaves are crushed mixed with water make juice used for treatment of different diseases like cure fever, anticancer, skin disorders, heart related diseases. |
| 107     | Opuntia dillenii Haw. MUH-1826 | Thor | Cactaceae | Stem | Decoction of whole plant is used orally to treat different diseases like asthma, Anti-diabetics, ulcer, Anti-inflammatory, antimicrobial |
| 108     | Polygonum plebeium L. MUH-1829 | - | Polygonaceae | Whole plant | Extract of plant is used to treat different diseases like pneumonia, liver diseases, heart related disease |
| 109     | Persicaria barbata L. MUH-1830 | Jor booti | Polygonaceae | Whole plant | Extract of whole plant is used to treat different diseases like kidney stones, ulcers, asthma, sedatives, gastric diseases, insecticides. |
| 110     | Parthenium hysterophorus L. MUH-1835 | - | Asteraceae | Whole plant | Extract of whole plant is used to treat different diseases, anticancer, antidiabetic. It is also used in nervous and malaria. |
| Sr. No. | Botanical Name of Plant | Common Name | Family | Part used | Traditional Ethnomedicinal uses |
|--------|------------------------|-------------|--------|-----------|---------------------------------|
| 111.   | Plantago lanceolata L.  | -           | Plantaginaceae | Leaves    | Take leaves of plant make paste and applied on inflamed places. |
| 112.   | Prosopis farcta L.C. VC. HB. | -     | Plantaginaceae | Bark, flowers | The flowers are mixed with sugar and use to prevent miscarriage. Bark is effective for different diseases like asthma, dysentery, skin diseases, snake bite. |
| 113.   | Papaver dubium L.        | Jungle post | Papaveraceae | Flowers, stem | Infusion of whole plant is used to treat different diseases like cough, fever, antimicrobial. |
| 114.   | Panicum turgidum Forrsk MUH-1839 | -     | Poaceae | Whole plant | Extract of whole plant is used to treat different diseases like wound healing, throat infection, smallpox. |
| 115.   | Pennisetum flaccidum Griseb. MUH-1840 | Fountain grass | Poaceae | Whole plant | Plant parts is used to treat different diseases like fever. |
| 116.   | Phragmites karka (Retz.) MUH-1841 | Babyoon | Poaceae | Whole plant | Roots are cooling and used as antidiabetic. It is used as analgesic. Cure of depressant and hyperglycemic effect. |
| 117.   | Poa annua L.             | Grass       | Poaceae | Leaves    | Whole plant is used as fodder. |
| 118.   | Phalaris minor L.        | Bunch grass | Poaceae | Leaves, fruit, seed | Leaves are dried and made Joshand a (admixture) is used to cure cough, cold and other diseases like dysentery, fever, diarrhoea. |
| 119.   | Portulaca quadrifida L. MUH-1844 | Jungle kulf | Protulacaeae | Whole plant | Extract of whole plant is used to treat different diseases like antibacterial, anti-inflammatory. |
| 120.   | Phyllanthus niruri L.     | Gale of the wind | Phyllanthaceae | Whole plant | Used to cure liver diseases in the form of powder three times daily, anti-inflammatory, antibacterial, antiseptic, liver diseases, diuretic. |
| 121.   | Polygonum plebeium L. MUH-1846 | Knotweed | Polygonaceae | Whole plant | Extract of plant is used to cure different diseases like tonic, treat pneumonia, fever. |
| 122.   | Polygonum aviculare L. MUH-1847 | Weed | Polygonaceae | Rhizome | Rhizome infusion is used for the treatment of diseases like against cough, dysentery, diarrhoea. |
| 123.   | Polygonatum multiflora L. MUH-1848 | Soolmoon seal | Polygonaceae | Rhizome | Make a paste of rhizome of plant and used to cure different diseases like dysentery, fever, antiseptic, antibacterial, diarrhoea. |
| 124.   | Portulaca oleracea L. MUH-1849 | Zangali Warkhray | Portulacaceae | Whole plant | Taken leaves cooked as food and used treatment of different diseases. Leaves also used to cure skin diseases externally. |
| 125.   | Rumex acetosella L. MUH-1850 | Garden sorrel | Polygonaceae | Stem, leaves | Decoction of aerial parts of plant used to cure different diseases like jaundice, urinary, antiseptic, diuretic. |
| 126.   | Rumex dentatus L. MUH-1851 | Toothed sorrel | Polygonaceae | Root and leaves | Root and leaves extract are used to cure skin diseases like wound healing, coetaneous disorder. |
| 127.   | Rumex obtusifolius L. MUH-1852 | Jungle palak | Polygonaceae | Whole plant | Infusions of different plants are used to treat different diseases like kidney diseases, colds, cough, asthma. |
| 128.   | Rumex chalepensis Mill. MUH-1853 | Hula | Polygonaceae | Whole plant | Extract of whole plant is used to treat different diseases like diuretic, antiseptic, asthma, colds. |
| 129.   | Rumex nepalensis L. MUH-1854 | Dock | Polygonaceae | Leaves | Infusion of leaves is used treat different diseases like stomach diseases, tonic, diarrhoea. |
| 130.   | Ranunculus scleratus Linn. MUH-1855 | Gul-eashraf | Ranunculacaeae | Leaves, fruit | Extract of leaves is effective for asthma and cure tumors and boils. |
| 131.   | Ranunculus muricatus L. MUH-1860 | Kar-kandoli | Ranunculacaeae | Whole plant | Plant extract is used to cure different diseases like cough, asthma, snake bite, tumor. |
| 132.   | Ranunculus arvensis L. MUH-1861 | Corn buttercup | Ranunculacaeae | Whole plant | Paste of whole plant is used treat different diseases like wound healing, skin diseases. |
| 133.   | Ranunculus laetus L. MUH-1862 | Chambal booti | Ranunculacaeae | Leaves | Paste of fresh leaves applied on wounds. |
| 134.   | Solanum surattense Burm. MUH-1863 | Maraghonay | Solanaceae | Whole plant | Whole plant extract is effective for stomach diseases, cough and fever, chest pain. |
| Sr. No. | Botanical Name of Plant | Common Name | Family | Part used | Traditional Ethnomedicinal uses |
|--------|-------------------------|-------------|--------|-----------|---------------------------------|
| 135.   | Setaria pallescens C.E. Hubb. | Bihari grass | Poaceae | Seeds | Take seed, grind make flour and used to treat skin diseases. |
|        | **MUH-1868**            |             |        |           |                                 |
| 136.   | Saccharum spontaneum L. | Kaai Poaceae | Leaves | Ach of whole plant mixed with water and used treat different diseases like blood disorders, constipation, liver diseases. |
|        | **MUH-1869**            |             |        |           |                                 |
| 137.   | Setaria glauca L. | Green foxtail | Poaceae | Whole plant | Flour of plant is used to treat skin diseases, such as chicken pox. |
|        | **MUH-1870**            |             |        |           |                                 |
| 138.   | Sporobolus helvolus L. | Smut grass | Poaceae | Whole plant | Whole plant is used as fodder |
|        | **MUH-1871**            |             |        |           |                                 |
| 139.   | Silybum marianum Gaertn. | Kanndara Asteraceae | Whole plant | Whole plant extract is used treat different disease, antidiabetic, treat skin diseases, anticancer, tumor, |
|        | **MUH-1872**            |             |        |           |                                 |
| 140.   | Sonchus arvensis L. | Sowthistle Asteraceae | Leaves, root | The extract of leaves is used to treat cough, asthma and cold. The tea of root is used to treat chest pain and anti-inflammatory |
|        | **MUH-1873**            |             |        |           |                                 |
| 141.   | Sonchus asper (L.) Hell | spiny Sowthistle Asteraceae | Whole plant | For enhancing milk, shoots give to domestic animals |
|        | **MUH-1874**            |             |        |           |                                 |
| 142.   | Saussurea costus L. | Kuth Asteraceae | Root | Root extract is effective for skin disease |
|        | **MUH-1875**            |             |        |           |                                 |
| 143.   | Solanum nigrum L. | Katch match Solanaceae | Leaves | Leaves are crushed in green condition and used to cure warts on skin. |
|        | **MUH-1876**            |             |        |           |                                 |
| 144.   | Sisymbrium irio L. | Weed Brassicaceae | Whole plant | Whole plant dried, crushed, makes powder and used to cure heart diseases. |
|        | **MUH-1877**            |             |        |           |                                 |
| 145.   | Silene conoidea L. | Pataki Caryophyllaceae | Root | Root tract is used as wound healing and juice is used to cure skin diseases, wound healing, malarial fever, stomach diseases, headache |
|        | **MUH-1878**            |             |        |           |                                 |
| 146.   | Sophora mollis L. | Phagan booti Fabaceae | Leaves, seed | Powder obtained from seeds is used to cure different diseases including joint diseases, kidney diseases |
|        | **MUH-1879**            |             |        |           |                                 |
| 147.   | Trianthema portulacastrum L. | Isit Aizoaceae | Whole plant | Powder of whole plant is used to treat different blood related diseases diuretic, night blindness, anticancer. |
|        | **MUH-1880**            |             |        |           |                                 |
| 148.   | Thalictrum minus L. | Meadow-rue Ranunculaceae | Root | Root extract is very effective for different diseases like diuretic, stomach diseases, fever, skin diseases. |
|        | **MUH-1881**            |             |        |           |                                 |
| 149.   | Themeda antheria News. | Red grass Poaceae | Whole plant | Powder of whole plant parts is ground and used to treat wounds. |
|        | **MUH-1882**            |             |        |           |                                 |
| 150.   | Tribulus terrestris L. | Bullhead Zygophyllaceae | Whole plant | Whole plant extraction is used to treat different diseases like kidney diseases, diuretic, tonic, stomach diseases. |
|        | **MUH-1883**            |             |        |           |                                 |
| 151.   | Trichodesma indicum L. | Borage Boraginaceae | Leaves | Leaf paste is applied on wounds for healing |
|        | **MUH-1884**            |             |        |           |                                 |
| 152.   | Tridax procumbens L. | Kuthi Asteraceae | Whole plant | The juice extracted from the leaves is directly applied on wounds, antifungal |
|        | **MUH-1885**            |             |        |           |                                 |
| 153.   | Trifolium repens L. | White clover Papilionaceae | Whole plant | Plant infusion is used to treat fever. Root extract is used to cure fever and cough. |
|        | **MUH-1886**            |             |        |           |                                 |
| 154.   | Trifolium dubium L. | Suckling clover Papilionaceae | Whole plant | Plant extract with water used to cure fever and cold, constipation, antidiabetic, cancer, arthritis |
|        | **MUH-1887**            |             |        |           |                                 |
| 155.   | Trifolium resupinatum Linn. | Loosin Papilionaceae | Whole plant | Fodder for animals |
|        | **MUH-1888**            |             |        |           |                                 |
| 156.   | Trichosanthes anguina L. | Parul Cucurbitaceae | Leaves | Extract of fresh leaves is used to treat skin diseases, diabetes and ulcer, antimicrobial, antidiabetic, diuretic, cure ulcers |
|        | **MUH-1889**            |             |        |           |                                 |
| 157.   | Thymus serpyllum L. | Wild thyme Lamiaceae | Shoot | Take shoot of plant make tea with water and used to cure different diseases like fever, constipation, body pain |
|        | **MUH-1890**            |             |        |           |                                 |

(Continued)
findings were also conducted by Ishtiaq et al., 2021 [3]. ICF results for ethnomedicines were fluke with past investigators available by different experts in respite of the world [42]. The ICF values of the diseases occurring in the area were similar with past studies conducted in different areas of Pakistan [43] and Azad Kashmir [36, 44].

| Sr. No. | Botanical Name of Plant | Common Name | Family | Part used | Traditional Ethnomedicinal uses |
|---------|-------------------------|-------------|--------|-----------|----------------------------------|
| 158.    | *Taraxacum officinale* L. | Hand        | Asteraceae | Leaves     | Leaves boiled, make paste with salt and haldi used to cure bones |
| 159.    | *Typha elephantina* Pers. | Koodar      | Typhaceae | Leaves and rhizome | Extract of fresh leaves are used to treat stomach related diseases, dysentery |
| 160.    | *Vaccaria hispanica* (Mill.) Rauschert | Masna | Caryophyllaceae | seeds, | A decoction is used to treat different diseases, menstrual problem, skin problems, breast tumor |
| 161.    | *Viola canescens* Wall.ex Roxb. | Banafsha    | Violaceae | Flowers | Take flowers mixed with sugar make kahwa to treat cough, fever, sore throat. |
| 162.    | *Vicia sativa* Retz. | -           | Papilionaceae | Whole plant | Plant is dried make powder used with water to cure diseases, cure asthma, cough, skin diseases, tonic, diuretic |
| 163.    | *Vallaris solanacea* (Roth) O. Kuntze. | Dhudi | Apocynaceae | Whole plant | Paste of whole plant is used to treat different diseases like antimicrobial, antidiabetic, skin infection, wound healing. |
| 164.    | *Veronica anagallis* L. MUH-903 | Hazar booti | Scrophulariaceae | Whole plant | Medicines are used to treat throat diseases. |
| 165.    | *Veronica thapsus* L. MUH-1904 | -           | Scrophulariaceae | Leaves | Leaves of plant are used to treat different diseases like tonic other skin diseases |
| 166.    | *Veronica polita* Fr. MUH-1905 | Sriri | Plantaginaceae | Plant juice | Juice or extract of plant is used treat cuts, burns, sore throat infection |
| 167.    | *Vicia sativa* L. MUH-1906 | -           | Papilionaceae | Whole plant | Powder of whole plant is used to treat different diseases like antimicrobial, antioxidiant, antidiabetic, diuretic. |
| 168.    | *Vicia hirsuta* L. MUH-1907 | -           | Papilionaceae | Whole plant | Powder of whole plant is used to treat different diseases like diuretic, antidiabetic, antioxidiant, antimicrobial |
| 169.    | *Vicoa indica* L. MUH-1908 | Golden daisy | Asteraceae | Whole plant | Leaves are boiled with water and used orally to treat different diseases like dysentery and other digestive diseases |
| 170.    | *Valeriana wallichii* L. MUH-1909 | Mushkbalal | Valerianaceae | Whole plant | Powder of whole plant is used to treat different diseases like sedative, stomachic, obesity, snake poisoning, nervous disorders and skin diseases. |
| 171.    | *Withania somnifera* L. MUH-1910 | Dodak | Solanaceae | Root, fruit | Make powder of root or fruit and used with milk or honey to cure nervous disorders, ulcers, anti-inflammatory |
| 172.    | *Woodfordia fruticosa* (L.) Kurz MUH-1911 | Tahvi | Lythraceae | Whole plant | Powder of whole plant is used to treat different diseases like fever, dysentery, toothache |
| 173.    | *Xanthium strumarium* L. MUH-1912 | Bakhra | Asteraceae | Whole plant | Leaves are crushed and used for curing different diseases like small pox, malarial fever, dysentery and poisons. |

| S. No. | Plant parts | %age | S. No. | Plant parts | %age |
|--------|-------------|------|--------|-------------|------|
| 01     | Whole plant | 45.0 | 05     | Seeds       | 10.4 |
| 02     | Leaves      | 28.3 | 06     | Fruits      | 3.4  |
| 03     | Stem        | 16.0 | 07     | Flowers     | 5.2  |
| 04     | Root        | 9.2  |        |             |      |

https://doi.org/10.1371/journal.pone.0265028.t005
Ethnobotanical significance of many herbs was calculated by using relative frequency of citation (RFC) and use value (UV). These quantitative values shown the trend of ethnobotanically used plants in respected area. The UV of different herb species was ranges within 0.29 to 0.57. Highest value was calculated for *Alternanthera pungens* L. (0.57), then for *Achyranthes aspera* L. (0.44), while lowest was recorded for *Adiantum capillus-veneris* L. (0.29). RFC value was calculated on the bases of the response of the interviewers recorded during survey section. Highest relative frequency was measured for *Alternanthera pungens* L. (RFC = 51) and lowest was measured for *Adiantum capillus-veneris* L. (RFC = 20). RFC values represent the relative popularity of individual species in study area according to their use. RFC and UV of common plants are listed in (Table 8). Similar findings were reported by the previous researchers who depicted that quantitative tools are very valuable in analysis of significance of each species. Coinciding results were provided in the past works who stated that these cited species of high medicinal value and can be used for drug discovery through analytical studies [45, 46].

**Table 6. Informant Consensus Factor (ICF) of herbal flora of SMR area of District Bhimber, AJK.**

| S. No. | Categories       | No. of species(nt) | %age of species | No. of Use citation (nur) | ICF = \( \frac{\text{nur}}{\text{nt}} \) |
|--------|------------------|--------------------|-----------------|---------------------------|---------------------------------|
| 01     | Skin diseases    | 04                 | 21.9            | 11                        | 0.7                             |
| 02     | Wound healing    | 08                 | 16.7            | 18                        | 1.1                             |
| 03     | Fever            | 09                 | 14.4            | 24                        | 0.6                             |
| 04     | Stomach diseases | 09                 | 17.3            | 12                        | 0.3                             |
| 05     | Cough curing     | 06                 | 12.13           | 14                        | 0.6                             |
| 06     | Cancer           | 04                 | 22.7            | 17                        | 0.9                             |
| 07     | Jaundice         | 06                 | 17.14           | 13                        | 0.5                             |
| 08     | Asthma           | 03                 | 4.6             | 11                        | 0.8                             |
| 09     | Tooth problems   | 07                 | 1.7             | 10                        | 0.3                             |
| 10     | Kidney diseases  | 06                 | 8.09            | 13                        | 0.6                             |
| 11     | Diabetes         | 04                 | 9.2             | 17                        | 0.8                             |
| 12     | Snake biting     | 03                 | 4.62            | 19                        | 0.9                             |

https://doi.org/10.1371/journal.pone.0265028.t006
Ethnobotanical significance of various plants was calculated by using relative frequency of citation (RFC) and use value index (UVI). These quantitative values depicted the trend of ethnomedicinal used plants in respected area. Highest value was calculated for *Alternanthera pungens* L. (0.90), then for *Achyranthes aspera* L. (0.80), while lowest was recorded for *Adiantum capillus* L. (0.29). RFC value was calculated on the bases of the response of the interviewers recorded during survey section. Highest relative frequency was measured for *Alternanthera pungens* L. (RFC = 51) and lowest was measured for *Adiantum capillus* L. (RFC = 20). RFC values represent the relative popularity of individual species in study area according to their use. RFC and UVI of common plants are listed in (Table 9). Similar findings have been reported in previous research work, where herbal has been predominantly used as source of medicines and other life sustenance materials [47–49].

**Priority Ranking (PR)**

According to the information gathered it is predicted that use of plant for various house cores is common in study area. Extensive use of plant and its products causes reduction in respected abundance of plant species. The priority ranking (PR) analysis determines the abundance status of each ethnomedicinally reported plants species. Data was organized into tubular form and destructive order was determined and arranged in six Destructive order is; $4 < 3 < 2 < 1 = 4$ number represents the most destructive value, as shown in Table 10. The results depicted that silviculture and clearing of land for agriculture purpose was the key issue of pressure on the herbal flora because due to this phenomenon herbs were cut off or made died due to chemical spray. The fire due to random or deliberate use by farmers to clear unwanted flora from the wild areas was the second important factor affecting the herbaceous flora of the study area.
Table 7. Fidelity Level (FL), RPL and ROP of some dominant herb species used to treat some diseases in study area (total number of informants = 35).

| Botanical name of plants | Major ailment                  | Np | FL = Np /N×100 | RPL | ROP = FL×RPL |
|--------------------------|--------------------------------|----|----------------|-----|--------------|
| Achyranthes aspera L.    | Constipation                   | 04 | 13.3%          | 0.4 | 5.32         |
| Amaranthus viridis L.    | Wound healing                  | 02 | 6.66%          | 0.2 | 1.33         |
| Alternanthera pungens L. | Anticancer                     | 05 | 16.6%          | 0.8 | 1.32         |
| Anagallis arvensis L.    | Stomach diseases               | 03 | 10.0%          | 1.0 | 10.0         |
| Artemisia maritime L.    | Constipation                   | 01 | 3.33%          | 0.6 | 1.99         |
| Achillea millefolium L.  | Wound healing                  | 03 | 10.0%          | 0.3 | 3.00         |
| Aloe vera L.             | Skin diseases, arthritis       | 11 | 36.6%          | 0.9 | 3.29         |
| Adiantum capillus-veneris L. | Hypertension               | 09 | 30.0%          | 0.3 | 0.90         |
| Boerhavia diffusa L.    | Kidney diseases                | 04 | 13.3%          | 0.5 | 6.65         |
| Brassica campestris L.   | Antidiabetic                   | 12 | 40.0%          | 0.1 | 4.00         |
| Bryophyllum pinnatum L.  | Wound healing                  | 01 | 3.33%          | 1.0 | 3.33         |
| Carthamus oxyantha L.    | Skin diseases                  | 04 | 13.3%          | 0.4 | 0.54         |
| Chenopodium album L.     | Kidney disorders               | 08 | 26.6%          | 0.8 | 2.12         |
| Convolvulus arvensis L.  | Constipation                   | 01 | 3.33%          | 0.4 | 0.13         |
| Cuscuta reflexa Roxb.    | Skin diseases                  | 01 | 3.33%          | 0.9 | 0.29         |
| Cynodon dactylon L.      | Wound healing                  | 03 | 10.0%          | 0.1 | 1.00         |
| Cordia obliqua L.        | Ulcers                         | 04 | 13.3%          | 0.5 | 0.66         |
| Cyperus esculentus L.    | Antidiabetic                   | 02 | 6.66%          | 0.4 | 0.26         |
| Cyperus rotundus L.      | Digestive diseases             | 05 | 16.6%          | 0.7 | 11.6         |
| Citrullus lanatus L.     | Anticancer                     | 03 | 10.0%          | 0.3 | 3.00         |
| Citrullus colocynthis L. | Ulcers                         | 02 | 6.66%          | 1.0 | 6.66         |
| Coronopus didymus L.     | Inflammatory                   | 01 | 3.33%          | 0.5 | 1.66         |
| Carsia opaca L.          | Wound healing                  | 01 | 3.33%          | 0.9 | 0.29         |
| Dicliptera roxburghiana Nees. | Skin diseases              | 05 | 16.6%          | 0.6 | 9.96         |
| Dichanthium annulatum Forssk. | Dysentery                | 02 | 6.66%          | 0.9 | 5.99         |
| Euphorbia hirta L.       | Diarrhea                       | 04 | 13.3%          | 0.3 | 3.99         |
| Euphorbia helioscopia L. | Skin diseases                  | 02 | 6.66%          | 0.5 | 3.33         |
| Eclipta prostrata L.     | Kidney diseases                | 02 | 6.66%          | 0.6 | 3.99         |
| Ficus auriculata L.      | Diarrhea                       | 01 | 3.33%          | 0.7 | 2.33         |
| Fumaria indica L.        | Digestive diseases             | 03 | 10.0%          | 0.2 | 2.00         |
| Ficus variegata L.       | Constipation                   | 01 | 3.33%          | 1.0 | 3.33         |
| Gallium elegans L.       | Constipation                   | 03 | 10.0%          | 0.7 | 7.00         |
| Heteropogon contortus L. | Wound healing                  | 01 | 3.33%          | 0.9 | 2.99         |
| Hordeum vulgare L.       | Cure jaundice                  | 07 | 23.3%          | 0.4 | 9.32         |
| Imperata cylindrica L.   | Dysentery                      | 03 | 10.0%          | 0.3 | 3.00         |
| Lycopersicum esculentum L. | Anti-inflammatory            | 01 | 3.33%          | 0.7 | 2.33         |
| Leucas aspera L.         | Cough curing                   | 02 | 6.66%          | 0.4 | 2.66         |
| Malva parviflora L.      | Ulcers                         | 05 | 16.6%          | 0.8 | 13.3         |
| Melilotus alba L.        | Dysentery                      | 01 | 3.33%          | 0.9 | 2.99         |
| Mentha royleana Benth.   | Throat pain                    | 01 | 3.33%          | 0.4 | 1.32         |
| Osmoxycantha L.          | Skin diseases                  | 01 | 3.33%          | 0.1 | 0.33         |
| Ocimum basilicum L.      | Cure cough                     | 01 | 3.33%          | 1.0 | 3.33         |
| Ocimum sanctum L.        | Heart diseases                 | 04 | 13.3%          | 1.0 | 13.3         |
| Opuntia dilleni Haw.     | Ulcer                          | 01 | 3.33%          | 0.2 | 0.66         |
| Parthenium hysterophorus L. | Antidiabetic                 | 02 | 6.66%          | 0.7 | 4.66         |
| Papaver dubium L.        | Cough curing                   | 01 | 3.33%          | 0.9 | 2.99         |
| Phalaris minor L.        | Dysentery                      | 04 | 13.3%          | 0.5 | 6.65         |

(Continued)
Similar results have been cited by the previous researchers that herbal flora is very sensitive and fragile being easily diminished due to natural or anthropogenic activity [50–52].

**Conservation status determination**

The current study was primarily focused on documentation of Ethnomedico profiling of herbal flora of Shiwalik Mountaineous Range (SMR) of District Bhimber of AJK. The herbal plants are being small and minute biomass very sensitive for life. These plants are used for different forms by local people like these are as source of ethnobotanical applications. The continuous and incessant cutting or usage by the indigenous communities causes loss of the many of these herbaceous taxa from the study area. In line with the collected data numbers of native plant species from the study are actively used by indigenous people of the area for various uses. Inhabitants of the area relay on natural sources firstly due to lack of resources and secondly due to high cost of mark product. Alongside native inhabitant also believes that herbal medicines are safer for use as compare to pharmaceutical medicines. Extensive use of natural sources is causes serious risk to their abundance percentage. Calculated values represent classification of plants according to risk factors decreasing their abundances. Values determine how respondents of area categorize different threatening parameters for flora of study area. Highest rank of priority ranking (PR) is recorded for consumption of trees for fuel, followed by wood cutting of plants, while lowest is recorded for hedging and thatching. This shows that villagers of study area highly depend upon wood for furniture making, for fuel, in construction and tools making. Whereas fresh parts of trees are used for fodder. This represents key factor that will cause natural flora degradation in study area. Many species like *Aerva sanguinolenta*, *Ajuga bracteosa*, *Boerhavia diffusa*, *Citrullus colocynthis*, *Hyoscyamus niger*, *Solanum surattense*, *Trichodesma indicum* and *Viola canescens* are declared as threatened species and some of these are endangered. It species is near to extinct from the study area which demands urgent need to conserve these valuable plants. Similar efforts and findings have been cited and recommended for conservation of wild flora of in different areas of Pakistan and world [3, 9, 53–57]. These plants are of high medicinal potential and conservation of these will provide commercial and drug development opportunity for the future generation.
| Sr. No. | Names of plants                    | Common name | Family               | Ethnobotanical Use | RFC | UV  |
|-------|------------------------------------|-------------|----------------------|--------------------|-----|-----|
| 01.   | Achyranthes aspera L. MUH-1681     | Phothkanda  | Amaranthaceae        | Fruit              | 41  | 0.44|
| 02.   | Astragalus leucocephalus Benth. MUH-1678 | Kathi     | Fabaceae             | Leaves             | 38  | 0.42|
| 03.   | Amaranthus viridis L. MUH-1682     | Ganar      | Amaranthaceae        | Whole plant        | 33  | 0.33|
| 04.   | Amaranthus tricolor L. MUH-1683    | Bhaji      | Amaranthaceae        | Leaves, root       | 28  | 0.31|
| 05.   | Achyranthes bidentata L. MUH-1684 | Phothkanda  | Amaranthaceae        | Whole plant        | 43  | 0.43|
| 06.   | Aerva javanica (Burm.f.) Juss. MUH-1685 | Bui       | Amaranthaceae        | Whole plant        | 27  | 0.36|
| 07.   | Anagallis arvensis L. MUH-1686     | Bili booti  | Primulaceae          | Leaves             | 33  | 0.38|
| 08.   | Abutilon indicum L. MUH-1687       | Sweet kangi| Malvaceae            | Whole plant        | 38  | 0.33|
| 09.   | Aerva sanguinolenta (L.)Blume. MUST-1688 | Chiti boti| Amaranthaceae        | Whole plant        | 49  | 0.43|
| 10.   | Alternanthera pungens L. MUH-1689  | Tahee booti | Amaranthaceae       | Whole plant        | 51  | 0.57|
| 11.   | Argemone mexicana L. MUH-1690      | Dudhli kandari| Papaveraceae       | Whole plant        | 31  | 0.41|
| 12.   | Artemisia scoparia Waldst. & Kit. MUH-1691 | Red stem | Asteraceae          | Leaves, flowers    | 27  | 0.43|
| 13.   | Allium Jacquemontii Knuth. MUH-1692 | Jangli piaz| Alliaceae            | Blub, leaves       | 38  | 0.36|
| 14.   | Aloe vera L. MUH-1693              | Kawan gandal| Liliaceae           | Leaves             | 31  | 0.32|
| 15.   | Avena fatua L. MUH-1695            | Wild oat   | Poaceae              | Seeds              | 33  | 0.30|
| 16.   | Acrachne racemosa L. MUH-1696      | Goose grass| Poaceae             | Whole plant        | 38  | 0.42|
| 17.   | Aristolochia purpurea Lace. MUH-1697 | Pipevine  | Aristolochiaceae    | Roots              | 25  | 0.41|
| 18.   | Adiantum capillus L. MUH-1698      | Median hair fern | Adiantaceae | Whole plant        | 20  | 0.29|
| 19.   | Adiantum incisum L. MUH-1699       | Fern       | Adiantaceae          | Leaves             | 38  | 0.38|
| 20.   | Asplenium trichomanes L. MUH-1700  | Bird nest fern | Caesalpinaceae | Leaves             | 27  | 0.43|
| 21.   | Asphodelus tenuifolius Caven. MUH-1701 | Bhokal    | Liliaceae            | Seeds              | 29  | 0.41|
| 22.   | Ajuga bracteosa Benth. MUH-1702    | Hari booti  | Lamiaceae            | Whole plant        | 38  | 0.38|
| 23.   | Aristida adsensionis L. MUH-1703   | Saroot     | Poaceae              | Whole plant        | 28  | 0.42|
| 24.   | Berberis lyceum L. MUH-1708        | Sumblu     | Berberidaceae        | Bark               | 27  | 0.33|
| 25.   | Boerhavia diffusa L. MUH-1709      | Sanati     | Nyctaginaceae        | Roots, leaves      | 40  | 0.31|
| 26.   | Buglossoides arvensis L. MUH-1711  | Kalu       | Boraginaceae         | Leaves             | 33  | 0.41|
| 27.   | Barleria cristata L. MUH-1712      | -          | Acanthaceae          | Root, leaves, seeds| 36  | 0.36|
| 28.   | Bryophyllum pinnatum L. MUH-1713   | Pather chatt| Crassulaceae       | Leaves             | 39  | 0.38|
| 29.   | Bromus japonicus L. MUH-1714       | Broom grass| Poaceae             | Whole plant        | 43  | 0.33|
| 30.   | Cannabis sativa L. MUH-1719        | Bhang      | Cannabaceae          | Leaves             | 49  | 0.43|
| 31.   | Capparis sepriaria L. MUH-1720     | Kareer     | Cyperaceae           | Whole plant        | 33  | 0.36|
| 32.   | Calendula arvensis L. MUH-1721     | Field marigold| Asteraceae | Leaves and flowers| 44  | 0.41|
| 33.   | Carthamus lanatus L. MUH-1722      | Distaff thistle| Asteraceae | Flowers, seeds    | 33  | 0.43|
| 34.   | Calendula officinalis L. MUH-1723  | Marigold   | Asteraceae           | Leaves, flowers    | 49  | 0.36|
| 35.   | Carthamus oxyacantha L.MUH-1724    | Kandyari   | Asteraceae           | Flowers, seeds     | 28  | 0.32|
| 36.   | Chenopodium ambrosioides L. MUH-1725 | Mexicana tea| Chenopodiaceae      | Leaves, flowers, and seeds. | 21  | 0.30|
| 37.   | Chenopodium botrys L. MUH-1726     | Oak        | Chenopodiaceae       | Leaves and seeds   | 29  | 0.42|
| 38.   | Chenopodium album L. MUH-1727      | Bathu      | Chenopodiaceae       | Leaves             | 25  | 0.41|
| 39.   | Colebrookea Oppositifolia Smith. MUH-1728 | Bansa    | Labiatae            | Leaf, root, bark   | 21  | 0.33|
| 40.   | Ceropogia bulbosa L. MUH-1729      | Galot      | Asclepiadaceae      | Tuber, leaves      | 28  | 0.38|
| 41.   | Convolvulus arvensis L. MUH-1730   | Rawari     | Convolvulaceae       | Whole plant        | 24  | 0.43|
| 42.   | Cichorium intybus L. MUH-1731      | Kasni      | Asteraceae           | Seeds, leaves      | 43  | 0.41|
| 43.   | Chenopodium ambrosioides L. MUH-1732 | Gandi booti| Chenopodiaceae       | Leaf, root         | 42  | 0.37|
| 44.   | Cuscuta reflexa Roxb. MUH-1733     | Neel dhari | Cuscutaceae         | Whole plant        | 47  | 0.42|
| 45.   | Cymodon dactyylon L. MUH-1734      | Khabal     | Poaceae              | Whole plant        | 38  | 0.33|
| 46.   | Cenchrus ciliaris L. MUH-1735      | Ghass      | Poaceae              | Whole plant        | 27  | 0.31|
| 47.   | Cyoglossum lanceolatum Forrsk. MUH-1736 | Leendra  | Boraginaceae        | Whole plant        | 21  | 0.37|

(Continued)
| Sr. No. | Names of plants                  | Common name          | Family             | Ethnobotanical Use         | RFC | UV  |
|--------|----------------------------------|----------------------|--------------------|----------------------------|-----|-----|
| 48.    | Cordia obliqua L. MUH-1737       | Lasoora              | Boraginaceae       | Whole plant                | 28  | 0.43|
| 49.    | Cassia obtusifolia L. MUH-1738   | Coffee weed          | Fabaceae           | Leaves, root, seed, flowers | 21  | 0.38|
| 50.    | Conchorus biflorus Del MUH-1739  | Gass                 | Poaceae            | Leaves and seed            | 39  | 0.33|
| 51.    | Cortusa brotheri L. MUH-1741     | -                    | Primulaceae        | Seed and stem              | 43  | 0.42|
| 52.    | Cyperus esculentus L. MUH-1742   | Nut sedge            | Cyperaceae         | Whole plant                | 49  | 0.33|
| 53.    | Cyperus iria L. MUH-1743         | Flat sedge           | Cyperaceae         | Root and fruit             | 47  | 0.41|
| 54.    | Cyperus rotundus L. MUH-1744     | Purple sedge         | Cyperaceae         | Root tubers                | 42  | 0.43|
| 55.    | Clitoria ternatea L. MUH-1745    | Butterfly pea        | Fabaceae           | Stem, flower, leaf, fruit  | 38  | 0.36|
| 56.    | Citrullus lanatus L. MUH-1746    | Cheebar              | Cyperaceae         | Plant sap, leaves, flower  | 32  | 0.36|
| 57.    | Citrullus colocynthis L. MUH-1747| Tumma                | Poaceae            | Whole plant                | 28  | 0.30|
| 58.    | Coronopus didymus L. MUH-1749    | Jangliu halon        | Brassicaceae       | Whole plant                | 23  | 0.32|
| 59.    | Carissa opaca L.MUH-1750         | Amaltas              | Caesalpinaceae     | Root                       | 43  | 0.41|
| 60.    | Digera muricata L. MUH-1752      | -                    | Poaceae            | Whole plant                | 39  | 0.33|
| 61.    | Dicliptera roxburghiana News. MUH-1755| Kali boti            | Poaceae            | Plant sap, leaves, flower  | 42  | 0.38|
| 62.    | Dicliptera bupleuroides News. MUH-1756| Marvel grass        | Poaceae            | Whole plant                | 38  | 0.43|
| 63.    | Dianthus annulatus Forssk. MUH-1757| Crabgrass            | Poaceae            | Whole plants               | 33  | 0.41|
| 64.    | Digitaria ciliaris Retz. MUH-1758| Finger grass         | Poaceae            | Whole plant                | 25  | 0.34|
| 65.    | Digitaria nodosa L. MUH-1759     | Grass crown foot     | Poaceae            | Whole plant                | 26  | 0.42|
| 66.    | Equisetum arvensis L. MUH-1764   | Horsetail            | Equisetaceae       | Whole plant                | 29  | 0.33|
| 67.    | Euphorbia hirta L. MUH-1765      | Dhodke               | Euphorbiaceae      | Seeds                      | 31  | 0.31|
| 68.    | Euphorbias prostrate L. MUH-1766 | Sand mat             | Euphorbiaceae      | Whole plant                | 28  | 0.33|
| 69.    | Euphorbia helioscopia L. MUH-1767| Cathri dodak         | Euphorbiaceae      | Whole plant                | 31  | 0.36|
| 70.    | Euphorbia prolifera L. MUH-1768  | Dodak                | Euphorbiaceae      | Whole plant                | 49  | 0.38|
| 71.    | Eclipta prostrata L. MUH-1769    | Flase daisy          | Asteraceae         | Whole plant                | 42  | 0.33|
| 72.    | Evolulus alsinoides L. Bioss. MUH-1770| Morning glory        | Poaceae            | Leaves                     | 43  | 0.31|
| 73.    | Echinochloa crus-galli L. MUH-1771| Cockspur grass       | Poaceae            | Shoots, roots, seed        | 44  | 0.35|
| 74.    | Eleusine indica L. MUH-1772      | Goose grass          | Poaceae            | Whole plant                | 47  | 0.41|
| 75.    | Ekretia laevis Roxb. MUH-1773    | Sakkar               | Boraginaceae       | Whole plant                | 41  | 0.43|
| 76.    | Fumaria indica L. MUH-1780       | Pabra                | Fumariaceae        | Whole plant                | 43  | 0.36|
| 77.    | Galium aparine L. MUH-1784       | Lahndara             | Rubiaceae          | Whole plant                | 39  | 0.32|
| 78.    | Galium elegans L. MUH-1785       | Jari                 | Rubiaceae          | Whole plant                | 29  | 0.30|
| 79.    | Gagea elegans Wall. MUH-1786     | Yellow star          | Liliaceae          | Whole plant                | 31  | 0.43|
| 80.    | Heteropogon contortus L.MUH-1788 | Sarala grass         | Poaceae            | Whole plant                | 29  | 0.39|
| 81.    | Heliotropium strigosum Willd. MUH-1789| Gorakh pan          | Boraginaceae       | Leaves, stem, root         | 30  | 0.33|
| 82.    | Helianthus tuberosus L. MUH-1790 | Artichoke            | Asteraceae         | Whole plant                | 28  | 0.38|
| 83.    | Hyoscyamus niger L. MUH-1791     | Khoob kalan          | Solanaceae         | Whole plant                | 32  | 0.43|
| 84.    | Imperata cylindrica L. MUH-1793  | Grass                | Poaceae            | Root, flower               | 30  | 0.41|
| 85.    | Ipomea eriocarpa R.Br. MUH-1794  | Wanweer booti        | Convolvulaceae     | Whole plant                | 28  | 0.37|
| 86.    | Kyllinga brevifolia Rothb. MUH-1799| -                   | Cyperaceae         | Rhizome, leaves, tubers    | 34  | 0.42|
| 87.    | Loranthus longiflorus Desr. MUH-1800| Purakh              | Loranthaceae       | Flowers, leaves            | 40  | 0.33|
| 88.    | Lantana camara L. MUH-1801       | Panj pholi           | Verbenaceae        | Leaves                     | 38  | 0.31|
| 89.    | Larotalaria medicaginea Lam. MUH-1, 803| Rattle pods         | Fabaceae           | Whole plant, leaves        | 31  | 0.33|
| 90.    | Lathyrus aphaca L. MUH-1804      | jangle matr         | Fabaceae           | Whole plant                | 43  | 0.36|
| 91.    | Leucas aspera L. MUH-1805        | Thumbai              | Labiatae           | Whole plant                | 28  | 0.38|
| 92.    | Laoeae procumbens Roxb.MUH-1806  | Bathala              | Asteraceae         | Whole plant                | 30  | 0.33|
| 93.    | Maytenus royleana Wall.MUH-1811  | Patakee              | Celastraceae       | Bark, leaves               | 43  | 0.41|
| 94.    | Malva parviflora L. MUH-1812     | Sonchal              | Malvaceae          | Whole plant                | 39  | 0.42|

(Continued)
Table 8. (Continued)

| Sr. No. | Names of plants                  | Common name   | Family        | Ethnobotanical Use | RFC | UV  |
|---------|----------------------------------|---------------|---------------|--------------------|-----|-----|
| 95.     | Malva sylvestris L. MUH-1813      | High mallow   | Malvaceae     | Seeds              | 48  | 0.41|
| 96.     | Melilotus alba L. MUH-1814        | Shinji        | Fabaceae      | Leaves             | 41  | 0.33|
| 97.     | Micromeria bislora L. MUH-1815    | Marathi       | Leguminosae   | Leaves, root       | 35  | 0.36|
| 98.     | Melilotus indica (L.) All.MUH-1816| jangle methi  | Papilionaceae  | Leaves             | 27  | 0.32|
| 99.     | Medicago polymorpha L. MUH-1817   | Sriri         | Papilionaceae  | Whole plant        | 29  | 0.30|
| 100.    | Mentha royleana Benth. MUH-1818   | Wild mint     | Labiatae      | Leaves, stem       | 31  | 0.42|
| 101.    | Nasturtium officinale R.Br. MUH-1820 | Chooch     | Brassicaceae  | Leaves             | 39  | 0.41|
| 102.    | Nicotiana plumbaginifolia Viv. MUH-1821 | Jangli tobacco | Solanaceae    | Whole plant        | 41  | 0.33|
| 103.    | Ocimum baccatum L. MUH-1822       | Naiazbu       | Labiatae      | Leaves, seeds      | 28  | 0.41|
| 104.    | Ocimum tenuiflorum L. MUH-1825    | Tulsi         | Labiatae      | Leaves             | 30  | 0.33|
| 105.    | Opuntia dillenii Haw. MUH-1826    | Thor          | Cactaceae     | Stem               | 27  | 0.42|
| 106.    | Papaver dubium L. MUH-1827        | -             | Papilionaceae  | Whole plant        | 43  | 0.33|
| 107.    | Peganum plebeium L. MUH-1830      | Jor booti     | Labiatae      | Whole plant        | 38  | 0.31|
| 108.    | Parthenium hysterophorus L. MUH-1835 | -             | Asteraceae    | Whole plant        | 49  | 0.41|
| 109.    | Plantago lanceolata L. MUH-1836   | -             | Plantaginaceae | Leaves             | 41  | 0.36|
| 110.    | Prospis farcta L.C. VC. HB. MUH-1837 | -             | Plantaginaceae | Bark, flowers      | 31  | 0.38|
| 111.    | Papaver dubium L. MUH-1838        | Jungle post   | Papaveraceae  | Flowers, stem      | 27  | 0.33|
| 112.    | Polygonum plebeium L. MUH-1839    | -             | Poaceae       | Whole plant        | 38  | 0.41|
| 113.    | Persicaria barbata L. MUH-1840    | Jor booti     | Poaceae       | Whole plant        | 31  | 0.34|
| 114.    | Phragmites karka (Rez.) MUH-1841  | Babyoon       | Poaceae       | Whole plant        | 44  | 0.41|
| 115.    | Poa annua L. MUH-1842             | Grass         | Poaceae       | Leaves             | 38  | 0.43|
| 116.    | Phalaris minor L. MUH-1843        | Bunch grass   | Poaceae       | Leaves, fruit, seed| 25  | 0.36|
| 117.    | Portulaca quadrifida L. MUH-1844  | Jungle kulfa  | Portulacaceae | Whole plant        | 32  | 0.32|
| 118.    | Phyllanthus niruri L. MUH-1845    | Gale of the wind | Phyllanthaceae | Whole plant        | 38  | 0.30|
| 119.    | Polygonum plebeium L. MUH-1846    | Knotweed      | Polygonaceae  | Whole plant        | 27  | 0.41|
| 120.    | Polygonum aviculare L. MUH-1847   | Weed          | Polygonaceae  | Rhizome            | 29  | 0.33|
| 121.    | Polygonatum multiflorum L. MUH-1848 | Soolmoon seal | Polygonaceae  | Rhizome            | 38  | 0.38|
| 122.    | Portulaca oleracea L. MUH-1849    | Zangali Warkhrhay | Portulacaceae | Whole plant        | 28  | 0.37|
| 123.    | Rumex acetosella L. MUH-1854      | Garden sorrel | Polygonaceae  | Stem, leaves       | 31  | 0.43|
| 124.    | Rumex dentatus L. MUH-1855        | Toothed duck  | Polygonaceae  | Root and leaves    | 40  | 0.41|
| 125.    | Rumex obtusifolius L. MUH-1856    | Jungle palak  | Polygonaceae  | Whole plant        | 33  | 0.42|
| 126.    | Rumex chalepensis Mill. MUH-1857  | Hula          | Polygonaceae  | Whole plant        | 36  | 0.35|
| 127.    | Rumex nepalensis L. MUH-1858      | Dock          | Polygonaceae  | Leaves             | 39  | 0.33|
| 128.    | Ranunculus scleratus Linn. MUH-1859 | Gul-eashrafi | Ranunculaceae  | Leaves, fruit      | 43  | 0.31|
| 129.    | Ranunculus acris L. MUH-1860      | Kar-kandoli   | Ranunculaceae  | Whole plant        | 49  | 0.41|
| 130.    | Ranunculus arvensis L. MUH-1861   | Corn buttercup | Ranunculaceae | Whole plant        | 31  | 0.36|
| 131.    | Ranunculus laetus L. MUH-1862     | Chambal booti | Ranunculaceae  | Leaves             | 44  | 0.38|
| 132.    | Solanum surattense Burm.MUH-1867  | Marhaghnay    | Solanaceae    | Whole plant        | 37  | 0.33|
| 133.    | Setaria palisata C.E. Hubb.MUH-1868 | Bihari grass | Poaceae       | Seeds              | 49  | 0.48|
| 134.    | Saccharum spontaneum L. MUH-1869  | Kaai          | Poaceae       | Leaves             | 28  | 0.41|
| 135.    | Setaria glauca L. MUH-1870        | Green foxtail | Poaceae       | Whole plant        | 21  | 0.43|
| 136.    | Sporobolus heterolus L. MUH-1871  | Smut grass    | Poaceae       | Whole plant        | 29  | 0.33|
| 137.    | Silphium marianum Gaertn. MUH-1872 | Kanndyara    | Asteraeae     | Whole plant        | 25  | 0.36|
| 138.    | Sonchus arvensis L. MUH-1873      | Sowthistle    | Asteraeae     | Leaves, root       | 21  | 0.32|
| 139.    | Sonchus asper (L.) Hell MUH-1874  | spiny Sowthistle | Asteraeae   | Whole plant        | 28  | 0.30|

(Continued)
It is concluded that locals of developing countries are still highly dependent on plants and their sources for various life cores while, urban community is indirectly dependent on plants and their resources. Plants have gained their importance in every core of life. Through recurrent field surveys and interviews from the study area, it is concluded that almost every individual plant species is somehow used by inhabitants of the area. Further quantitative analysis categorized and authenticated the collected data according to their use patterns. Concentrated results were analyzed using various statistical tools to describe the use value and relative importance of cited plant species.

### Recommendations and future threats management

There is a dire need to tree flora of the area because it provides lot of ethnobotanical and folklore herbal therapeutics to cure different ailments in SRM area of District Bhimber, AJK. At a
Table 9. The Use Value Index (UVI) and Relative Frequency of Citation (RFC) of the most commonly used medicinal plants by the local people of different areas of SMR of District Bhimber (AJK), Pakistan.

| S No | Names of plants | Common name | Family | Ethnomedicinal uses | RFC | ∑Ui | UV  | UVI |
|------|-----------------|-------------|--------|---------------------|-----|-----|-----|-----|
| 1.   | Achyranthes aspera L. MUH-1681 | Phothkanda | Amaranthaceae | Fruits are roasted and grounded and used against asthma, fever, cough, constipation | 33  | 28  | 0.35 | 0.80 |
| 2.   | Astragalus leuccephalus Benth. MUH-1678 | Kathi | Fabaceae | Powder of leaves is used to cure stomach pain, gastrointestinal pain, kidney diseases. | 28  | 21  | 0.48 | 0.60 |
| 3.   | Amaranthus viridis L. MUH-1682 | Ganar | Amaranthaceae | Plant is taken dried, made powder and used with water to cure control bleeding, diarrhea, wound healing. | 27  | 22  | 0.41 | 0.62 |
| 4.   | Amaranthus tricolor L. MUH-1683 | Bhaji | Amaranthaceae | Extract of leaves are effective for snake bite, diuretic and wound healing. | 23  | 27  | 0.36 | 0.74 |
| 5.   | Achyranthes bidentata L. MUH-1664 | Phothkanda | Amaranthaceae | Ethanol extract of leaves used for healing wounds, diuretic, treat cancer, eye related diseases and anemia. | 21  | 18  | 0.26 | 0.51 |
| 6.   | Aerva javonica (Burm.f.) Juss. MUH-1685 | Bui | Amaranthaceae | Extract of plant used to cure different diseases like anti-diarrheal, antimicrobial, cure kidney diseases. | 30  | 29  | 0.45 | 0.78 |
| 7.   | Anagallis arvensis L. MUH-1686 | Bili booti | Primulaceae | Leaf extract is used to treat stomach diseases, antifungal and wound healing | 25  | 31  | 0.41 | 0.70 |
| 8.   | Abutilon indicum L. MUH-1687 | Sweet kangi | Malvaceae | Paste of seeds and leaves to cure skin diseases. Aerial parts are used to cure asthma, anti-diarrheal, anticancer, anti-inflammatory and antidiabetic. | 29  | 30  | 0.36 | 0.73 |
| 9.   | Aerva sanguinolenta (L.) Blame. MUST-1688 | Chiti boti | Amaranthaceae | Extract of plant used to cure different diseases anti-diarrheal, antimicrobial and cure kidney diseases. | 30  | 23  | 0.32 | 0.65 |
| 10.  | Alleranthera pangens L. MUH-1689 | Taeehe booti | Amaranthaceae | Ethanol extract of leaves used for healing wounds, diuretic, treat cancer, eye related diseases and anemia. | 51  | 21  | 0.27 | 0.90 |
| 11.  | Argemone mexicana L. MUH-1690 | Dudhli kandyari | Papaveraceae | Extract of whole plant used to treat different diseases like wound healing, anti-inflammatory, antibacterial, diuretic, anticancer | 22  | 24  | 0.42 | 0.68 |
| 12.  | Artemisia scoparia Waldst. & Kit. MUH-1691 | Red stem | Asteraceae | Leaves are dried and made paste used with water to cure stomach diseases, intestinal diseases | 29  | 26  | 0.48 | 0.74 |
| 13.  | Allium Jacquemontii Knuth. MUH-1692 | Jangli piaz | Alliaceae | Juice of plant parts used to treat different disease like snake bite, scorpion bite and antimicrobial | 28  | 29  | 0.35 | 0.72 |
| 14.  | Aloe vera L. MUH-1693 | Kawar gandal | Liliaceae | Leaf pulp is applied on wounds for healing and pulp is mixed with sugar used against cardiovascular diseases anticancer, anti-diabetes, cardiovascular diseases. | 28  | 21  | 0.31 | 0.62 |
| 15.  | Avena fatua L. MUH-1695 | Wild oat | Poaceae | Seed’s grind and powder is used for curing diseases to cure skin diseases and cardiovascular diseases | 22  | 27  | 0.43 | 0.77 |
| 16.  | Acrachne racemosa L. MUH-1696 | Goose grass | Poaceae | Powder for animals | 25  | 29  | 0.28 | 0.73 |
| 17.  | Aristolochia punjabensis Lace. MUH-1697 | Pipevine | Aristolochiaceae | Powder of root taken with milk to treat body pain and taken with water to cure menstrual problems treat body pain and menstrual problems | 31  | 26  | 0.36 | 0.74 |
| 18.  | Adiantum capillus L. MUH-1698 | Median hair fern | Adiantaceae | Whole plant is dried, make powder. Small amount of powder is used for lowering blood pressure level, curing cough, fever, hypertension and hair caring. | 20  | 28  | 0.41 | 0.50 |
| 19.  | Adiantum incisum L. MUH-1699 | Fern | Adiantaceae | Infusion of leaves used for cough and other diseases like fever, body weakness | 22  | 31  | 0.37 | 0.73 |
| 20.  | Asplenium trichomanes L. MUH-1700 | Bird nest fern | Caesalpiniaceae | Leaf is smoked for chest pain, colds, headache, cure colds and asthma strength | 28  | 21  | 0.31 | 0.60 |
| 21.  | Asphodelus tenuifolius Caven. MUH-1701 | Bhokal | Liliaceae | Seed powder is taken in piles and used to cure other skin diseases. | 26  | 28  | 0.25 | 0.70 |
| 22.  | Ajuga bracteosa Benth. MUH-1702 | Hari booti | Lamiaceae | Whole plant is effective for diseases. Root powder is used to cure diarrhea. Leaf powder is used to cure malarial fever, cure stomach diseases and dysentery. | 22  | 31  | 0.37 | 0.65 |
| 23.  | Aristida adscensionis L. MUH-1703 | Saroot | Poaceae | Fodder for animals | 33  | 28  | 0.35 | 0.73 |
| 24.  | Berberis lyceum L. MUH-1708 | Sumblu | Berberidaceae | Powder of bark is applied on wounds for healing, Jaundice and tonic. | 28  | 21  | 0.48 | 0.60 |

(Continued)
### Table 9. (Continued)

| S.No | Names of plants                                                                 | Common name                  | Family                  | Ethnobotanical uses                                                                 | RFC  | ΣUVi | UV  | UVi |
|------|--------------------------------------------------------------------------------|------------------------------|-------------------------|-------------------------------------------------------------------------------------|------|------|-----|-----|
| 25   | Boerhavia diffusa L. MUH-1709                                                  | Sanati                       | Nyctaginaceae           | Roots are crushed boiled in milk used to remove kidney stones. Make leaves powder and used with water to cure different diseases like pneumonia, abscesses. | 27   | 22   | 0.41 | 0.62 |
| 26   | Buglossoides arvensis L. MUH-1711                                               | Kulu                         | Boraginaceae            | Infusion of leaves are sedatives                                                     | 23   | 27   | 0.36 | 0.74 |
| 27   | Barleria cristata L. MUH-1712                                                   | -                            | Acanthaceae             | Bitter juice used to treat diseases like lung disorders, snake bite, antimicrobial, diabetes and toothache | 21   | 18   | 0.26 | 0.51 |
| 28   | Bryophyllum pinnatum L. MUH-1713                                                | Pathar chatt                 | Crassulaceae            | Fresh leaves are warmed and rapped on wound healing                                 | 33   | 28   | 0.35 | 0.73 |
| 29   | Bromus japonicus L. MUH-1714                                                    | Broom grass                  | Poaceae                 | Powder of whole plant used to treat different disease like chest pain, anti-inflammatory and hepatitis | 28   | 21   | 0.48 | 0.60 |
| 30   | Cannabis sativa L. MUH-1719                                                     | Bhang                        | Cannabaceae             | Make leaves paste used for wound healing. Leaves are narcotics so used to generate pleasant, cure cough, headache, abdominal pain, used for pleasant and excitement. | 27   | 22   | 0.41 | 0.62 |
| 31   | Caparris sepia L. MUH-1720                                                       | Kareer                       | Cyperaceae              | Decocction of whole plant used to treat disease like antimicrobial, antifungal and skin diseases | 23   | 27   | 0.36 | 0.74 |
| 32   | Calendula arvensis L. MUH-1721                                                  | Field marigold               | Asteraceae              | Extract of leaves are used to cure antiseptic, cure skin diseases and healing of wounds | 21   | 18   | 0.26 | 0.61 |
| 33   | Carthamus lanatus L. MUH-1722                                                    | Distaff thistle              | Asteraceae              | Make paste of seeds and flowers and applied to cure to different skin diseases and fever | 33   | 28   | 0.35 | 0.70 |
| 34   | Calendula officinalis L. MUH-1723                                               | Marigold                     | Asteraceae              | The sap of flowers used to cure skin diseases and treatment of cancer. The external use of plant extract with tincture is effective for wound healing, blood purifier, cure skin disorders, anticancer, anemia and kidney diseases | 28   | 21   | 0.48 | 0.60 |
| 35   | Carthamus oxyacantha L. MUH-1724                                                | Kandyari                     | Asteraceae              | Flowers are used to cure jaundice while oil extract from seeds use to cure skin diseases and cure jaundice | 27   | 22   | 0.41 | 0.62 |
| 36   | Chenopodium ambrosioides L. MUH-1725                                             | Mexicana tea                 | Chenopodiaceae          | Dried leaves are used to treat cancer. Seed oil is used to cure arthritis, skin diseases, | 23   | 27   | 0.36 | 0.74 |
| 37   | Chenopodium botrys L. MUH-1726                                                  | Oak                          | Chenopodiaceae          | Fresh leaves extract is used to cure kidney diseases, arthritis, skin diseases, digestive | 21   | 18   | 0.26 | 0.64 |
| 38   | Chenopodium album L. MUH-1727                                                   | Bathu                        | Chenopodiaceae          | Leaf juice is used to cure kidney problems and cure spleen                           | 28   | 21   | 0.48 | 0.60 |
| 39   | Colebrookea Oppositifolia Smith. MUH-1728                                         | Bansa                        | Labiatae                | Powder of plant parts used to treat different diseases like cure flu, fever, wound healing, epilepsy | 27   | 22   | 0.41 | 0.62 |
| 40   | Ceropagit bulboosa L. MUH-1729                                                   | Galot                        | Asclepiadaceae          | Juice of plant parts used to treat diseases like anticancer, antimicrobial, kidney disorders, digestive problems | 23   | 27   | 0.36 | 0.74 |
| 41   | Convolvulus arvensis L. MUH-1730                                                 | Rawari                       | Convolvulaceae          | Dried powder of plant mixed with gurr to treat constipation. Leaf paste is used to cure skin diseases, cure constipation, anti-inflammation | 21   | 18   | 0.26 | 0.61 |
| 42   | Cichorium intybus L. MUH-1731                                                   | Kasni                        | Asteraceae              | Powder of seed used to treat different diseases like fever, kidney problems, vomiting, toothache, blood purifier | 33   | 28   | 0.35 | 0.70 |
| 43   | Chenopodium ambrosioides L. MUH-1732                                             | Gandi booti                  | Chenopodiaceae          | Paste and juice of plant parts used to treat different diseases like wound healing, constipation, skin burns, stomach pains | 28   | 21   | 0.48 | 0.60 |
| 44   | Cuscuta reflexa Roxb. MUH-1733                                                   | Neel dhari                   | Cuscutaceae             | Whole plant extract is used to treat viral diseases, juice is used to cure jaundice, warm paste is used to treat headache. Antiviral, treat cough, arthritis, skin disorders and blood purifiers. | 28   | 21   | 0.48 | 0.60 |
| 45   | Cynodon dactylon L. MUH-1734                                                     | Khabal                       | Poaceae                 | Paste of fresh plant is applied on wound healing, skin diseases and fever             | 27   | 22   | 0.41 | 0.62 |
| 46   | Cenchrus ciliaris L. MUH-1735                                                    | Ghass                        | Poaceae                 | Plant is crushed and made powder and used for curing different diseases like kidney diseases, tumors, wound healing | 23   | 27   | 0.36 | 0.74 |
| 47   | Cynoglossum lanceolatum Forsk. MUH-1736                                          | Leendra                      | Boraginaceae            | Bark of plant is used to cure teeth diseases. Root paste is used to cure cough and tuberculosis diseases | 21   | 18   | 0.26 | 0.61 |

(Continued)
| S No | Names of plants                  | Common name | Family             | Ethnomedicinal uses                                                                 | RFC | ΣU1 | UV | UVI |
|------|---------------------------------|-------------|--------------------|--------------------------------------------------------------------------------------|-----|-----|----|-----|
| 48   | Cordia obliqua L. MUH-1737       | Lasoora     | Boraginaceae       | Fruit of this herb is used to cure dry cough, fever and chest pain. Bark juice is used to cure tonic diseases. Leaves are also effective for headache and ulcers. | 33  | 28  | 0.35 | 0.70 |
| 49   | Cassia obtusifolia L. MUH-1738   | Coffee weed | Fabaceae           | Leaves are used to make tea to remove headache. Used to cure vomiting, skin diseases, ulcers, asthma and eye diseases | 28  | 21  | 0.48 | 0.60 |
| 50   | Cenchrus biflorus Del MUH-1739   | Gass        | Poaceae            | Leaf extract is used to treat different diseases, diuretic, digestive, anti-inflammatory, fever, cold | 33  | 28  | 0.35 | 0.73 |
| 51   | Cortusa brotheri L. MUH-1741     | -           | Primulaceae        | Extract of plant used to treat different diseases like stomach pain and constipation | 28  | 21  | 0.48 | 0.60 |
| 52   | Cyperus esculentus L. MUH-1742   | Nut sedge   | Cyperaceae         | Extract of whole plant is used to treat different diseases. Antimalarial, anti-diarrheal, antidiabetic, antioxidant, antibacterial | 27  | 22  | 0.41 | 0.62 |
| 53   | Cyperus iria L. MUH-1743         | Flat sedge  | Cyperaceae         | Dried parts of plants are used to cure different diseases like cough, chronic, fever, cold, arthritis and cardiac diseases | 23  | 27  | 0.36 | 0.74 |
| 54   | Cyperus rotundus L. MUH-1744     | Purple sedge| Cyperaceae         | Roots are grinded, make powder and used with water. Cure digestive and uterus pains. | 21  | 18  | 0.26 | 0.62 |
| 55   | Clitoria ternatea L. MUH-1745    | Butterfly    | Fabaceae           | Alcohol extract of plant used to treat different diseases like mental illness, antibacterial, antidiabetic, anti-inflammatory. | 33  | 28  | 0.35 | 0.71 |
| 56   | Citrullus lanatus L. MUH-1746    | Cheebar     | Cucurbitaceae      | Dried pulp of leaves and root are used to treat different diseases like constipation, ulcers, cancer | 28  | 21  | 0.48 | 0.60 |
| 57   | Citrullus colocynthis L. MUH-1747| Tumma       | Cucurbitaceae      | Extract of whole plant is used to treat different diseases like tumor, ulcers, remove pain, swelling | 27  | 22  | 0.41 | 0.62 |
| 58   | Coronopus didymus L. MUH-1749    | Jangli halon| Brassicaceae       | Powder of plant is used to treat different diseases like relive pain, inflammatory | 23  | 27  | 0.36 | 0.74 |
| 59   | Carissa opaca L. MUH-1750        | Amaltas     | Caesalpinaceae     | Powder of dried root is applied on wounds. | 21  | 18  | 0.26 | 0.62 |
| 60   | Digera muricata L. MUH-1752      | -           | Poaceae            | Infusion of plant used to treat stomach diseases, digestive disorders and urinary diseases | 23  | 27  | 0.36 | 0.74 |
| 61   | Dicliptera raocheriana News. MUH-1755| Kali boti                           | Acanthaceae        | Dried parts of plants are used to treat different diseases like diuretic, skin diseases, toxic | 21  | 18  | 0.26 | 0.51 |
| 62   | Dicliptera bupleuroides News. MUH-1756| Marvel grass                      | Poaceae            | Powder of plant is used treat different diseases like antidiabetic and antimicrobial | 21  | 18  | 0.26 | 0.62 |
| 63   | Dichanthium annulatum Forsk. MUH-1757| Crabgrass                        | Poaceae            | Dried parts of plant are used to treat different diseases like diuretic, tonic, toxic | 33  | 28  | 0.35 | 0.73 |
| 64   | Digitaria ciliaris Retz. MUH-1758 | Finger grass| Poaceae            | Powder for animals | 28  | 21  | 0.48 | 0.60 |
| 65   | Digitaria noda L. MUH-1759       | Grass crow foot | Poaceae            | Powder for animal. | 27  | 22  | 0.41 | 0.62 |
| 66   | Equisetum arvensis L. MUH-1764   | Horsetail  | Equisetaceae       | Plant juice is used for kidney diseases. | 23  | 27  | 0.36 | 0.74 |
| 67   | Euphorbia hirta L. MUH-1765      | Dhodke     | Euphorbiaceae      | Taken seeds make powder seeds are used to cure diarrhea. | 21  | 18  | 0.26 | 0.71 |
| 68   | Euphorbia prostate L. MUH-1766   | Sand mat   | Euphorbiaceae      | Plant is crushed and eats to remove kidney stones. | 33  | 28  | 0.35 | 0.74 |
| 69   | Euphorbia helioscopia L. MUH-1767| Cathri dodak| Euphorbiaceae      | Powder of root is used to cure skin diseases. | 28  | 21  | 0.48 | 0.60 |
| 70   | Euphorbia prolifera L. MUH-1768  | Dodak      | Euphorbiaceae      | Whole plant is taken make powder and used to cure diseases. | 27  | 22  | 0.41 | 0.62 |
| 71   | Eclipta prostrata L. MUH-1769    | Flase daisy| Asteraceae         | Whole plant is taken dried make powder used to cure different diseases like hepatitis, nervous disorders, anemia, skin diseases. | 23  | 27  | 0.36 | 0.74 |
| 72   | Evolvulus alsinoides L. Bios. MUH-1770| Morning glory | Poaceae            | Extract of leaf is taken for constipation, vomiting, indigestion | 21  | 18  | 0.26 | 0.71 |
| 73   | Echinocloa crus-galli L. MUH-1771| Cockspur grass | Poaceae            | Seed can be cooked, sieved, bitter flavor used to prevent different diseases like tonic, cure, wound healing, antioxidant, antioxidant | 33  | 28  | 0.35 | 0.73 |

(Continued)
Table 9. (Continued)

| S No | Names of plants | Common name | Family | Ethnobotanical inventory and medicinal perspectives of herbal flora of Shivalik mountainous range from Bhimber |
|------|-----------------|-------------|--------|-----------------------------------------------------------------------------------------------------------------|
| 74.  | Eclisinica indica L. MUH-1772 | Goose grass | Poaceae | Extract of plant parts used to treat different diseases like kidney, diarrhea, eye diseases, dysentery       |
| 75.  | Ehretia laevis Roxb. MUH-1773 | Sakkara | Boraginaceae | Extract of different plant parts used to treat diseases, skin cancer, anti-inflammatory, wound healing       |
| 76.  | Fumaria indica L. MUH-1780 | Papra | Fumariaceae | Herb is dried make powder and used to treat different diseases like diuretic, cure liver and digestive diseases, cure skin diseases.      |
| 77.  | Galium aparine L. MUH-1785 | Lahndara | Rubiaceae | Plant is crushed make powder and used to treatment of different diseases like cure fever, diuretic, wound healing and antiseptic. |
| 78.  | Galium elegans L. MUH-1786 | Jari | Rubiaceae | Taken whole plant dried, crushed and makes powder used with water to cure different diseases like Jaundice, antiseptic, wound healing, fever |
Table 9. (Continued)

| S No | Names of plants                  | Common name | Family          | Ethnomedicinal uses                                                                                                                                                                                                 |
|------|---------------------------------|-------------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 99.  | Medicago polymorpha L. MUH-1817 | Sriti       | Papilionaceae    | Seed can be ground into a powder and mixed with water and used to treat different diseases like cure skin diseases, dysentery, wound healing                                                                               |
| 100. | Mentha royleana Benth. MUH-1818 | Wild mint   | Labiatae        | Leaves are dried and, make powder used to cure different diseases like cough, throat pain, digestion and constipation.                                                                                                 |
| 101. | Nasturtium officinale R.Br. MUH-1820 | Chooch    | Brassicaceae    | Leaf juice is taken for stomach diseases, ulcers, intestinal pain                                                                                                                                                     |
| 102. | Nicotiana plumbaginifolia Viv. MUH-1821 | Jangli tobacco | Solanaceae | Powder of leaves used to treat different diseases like healing of wounds and cuts toothache, rheumatic                                                                                                           |
| 103. | Ocotillo limbatum L. MUH-1822 | Kori booti  | Lamiaceae       | Leaves are dried, grind and powder are applied on wound                                                                                                                                                    |
| 104. | Oxalis corniculata L. MUH-1823 | Khati boti   | Oxalidaceae     | Plant sap is used to cure skin diseases                                                                                                                                                                               |
| 105. | Ocmum bacilicum L. MUH-1824 | Naiazbu     | Lamiaceae       | Leaf extract is used to cure cough. Seed powder is used in cold drinks.                                                                                                                                               |
| 106. | Ocimum tenuiflorum L. MUH-1825 | Tulsi        | Lamiaceae       | Leaves are crushed mixed with water make juice used for treatment of different diseases like cure fever, anticancer, skin disorders, heart related diseases.                                                                 |
| 107. | Opuntia dillenii Haw. MUH-1826 | Thor        | Cactaceae        | Decoction of whole plant is used orally to treat different diseases like asthma. Anti-diabetics, ulcer, Anti-inflammatory, antimicrobial                                                                              |
| 108. | Polygonum plebeium L. MUH-1829 | -           | Polygonaceae     | Extract of plant is used to treat different diseases like pneumonia, liver diseases, heart related disease                                                                                                          |
| 109. | Persicaria barbata L. MUH-1830 | Jor booti   | Polygonaceae     | Extract of whole plant is used to treat different diseases like kidney stones, ulcers, asthma, sedatives, gastric diseases, insecticides.                                                                            |
| 110. | Parthenium hysterophorus L. MUH-1835 | -         | Asteraceae       | Extract of whole plant is used to treat different diseases, anticancer, antidiabetic                                                                                                                                   |
| 111. | Plantago lanceolata L. MUH-1836 | -           | Plantaginaceae   | Take leaves of plant make paste and applied on inflamed places.                                                                                                                                                     |
| 112. | Prosopis farcta L.C. VC. HB. MUH-1837 | -           | Plantaginaceae   | The flowers are mixed with sugar and use to prevent miscarriage. Bark is effective for different diseases like asthma, dysentery, skin diseases, snake bite.                                                       |
| 113. | Papaver dubium L. MUH-1838 | Jungle post | Papaveraceae     | Infusion of whole plant is used to treat different diseases like cough, fever, antimicrobial                                                                                                                             |
| 114. | Panicum turgidum Forsk MUH-1839 | -           | Poaceae          | Extract of whole plant is used to treat different diseases like wound healing, throat infection, smallpox                                                                                                           |
| 115. | Pennisetum flaccidum Griseb. MUH-1840 | Fountain grass | Poaceae | Plant parts is used to treat different diseases like fever                                                                                                                                                    |
| 116. | Phragmitis karka (Retz.) Bl. MUH-1841 | Baboon     | Poaceae          | Roots are cooling and used as antidiabetic                                                                                                                                                                           |
| 117. | Poa annua L. MUH-1842 | Grass       | Poaceae          | Whole plant is used as fodder                                                                                                                                         |
| 118. | Phalaris minor L. MUH-1843 | Bunch grass | Poaceae          | Leaves are dried and made Joshanda used to cure cough, cold and other diseases like dysentery, fever, diarrhea.                                                                                                          |
| 119. | Portulaca quadrifida L. MUH-1844 | Jungle kufa | Protulacaceae    | Extract of whole plant is used to treat different diseases like antibacterial, anti-inflammatory                                                                                                                           |
| 120. | Phyllanthus niruri L. MUH-1845 | Gale of the wind | Phyllanthaceae | Used to cure liver diseases in the form of powder three times daily, anti-inflammatory, antibacterial, anti-septic, liver diseases, diuretic.                                                                            |
| 121. | Polygonum plebeium L. MUH-1846 | Knotweed    | Polygonaceae     | Extract of plant is used to cure different diseases like tonic, treat pneumonia, fever                                                                                                                              |
| 122. | Polygonum aviculare L. MUH-1847 | Weed        | Polygonaceae     | Rhizome infusion is used for the treatment of diseases like against cough, dysentery, diarrhea.                                                                                                                        |
| 123. | Polygonatum multiflora L. MUH-1848 | Soolmoon seal | Polygonaceae     | Make a paste of rhizome of plant and used to cure different diseases like dysentery, fever, anti-septic, antibacterial, diarrhea.                                                                                      |

(Continued)
# Table 9. (Continued)

| S No | Names of plants                        | Common name         | Family        | Ethnomedicinal uses                                                                 | RFC | UV | UVi |
|------|----------------------------------------|---------------------|---------------|------------------------------------------------------------------------------------|-----|----|-----|
| 124. | *Portulaca oleracea* L. MUH-1849        | Zangali Warkhrhay   | Portulacaceae | Taken leaves cooked as food and used treatment of different diseases. Leaves also used to cure skin diseases externally. | 21  | 0.26 | 0.64 |
| 125. | *Rumex acetosella* L. MUH-1854          | Garden sorrel       | Polygonaceae  | Decoction of aerial parts of plant used to cure different diseases like jaundice, urinary, antiseptic, diuretic. | 28  | 0.31 | 0.60 |
| 126. | *Rumex dentatus* L. MUH-1855            | Toothed duck        | Polygonaceae  | Root and leaves extract are used to cure skin diseases like wound healing, coetaneous disorder. | 26  | 0.25 | 0.71 |
| 127. | *Rumex obtusifolius* L. MUH-1856        | Jungle palak        | Polygonaceae  | Infusions of different plants are used to treat different diseases like kidney diseases, colds, cough, asthma. | 33  | 0.35 | 0.63 |
| 128. | *Rumex chalepensis* Mill. MUH-1857     | Hula                | Polygonaceae  | Extract of whole plant is used to treat different diseases like diuretic, anti-septic, asthma, colds. | 28  | 0.48 | 0.60 |
| 129. | *Rumex nepalensis* L. MUH-1858          | Dock                | Polygonaceae  | Infusion of leaves is used treat different diseases like stomach diseases, tonic, diarrhea. | 27  | 0.41 | 0.62 |
| 130. | *Ranunculus scleratus* Linn. MUH-1859   | Gul-eashrafi        | Ranunculaceae | Extract of leaves is effective for asthma and cure tumor. | 23  | 0.36 | 0.74 |
| 131. | *Ranunculus muscicatus* L. MUH-1860     | Kar-kandoli         | Ranunculaceae | Plant extract is used to cure different diseases like cough, asthma, snake bite, tumor. | 21  | 0.26 | 0.62 |
| 132. | *Ranunculus arvensis* L. MUH-1861       | Corn buttercup      | Ranunculaceae | Paste of whole plant is used treat different diseases like wound healing, skin diseases. | 33  | 0.35 | 0.64 |
| 133. | *Ranunculus laetus* L. MUH-1862         | Chambal booti       | Ranunculaceae | Paste of fresh leaves applied on wounds. | 28  | 0.48 | 0.60 |
| 134. | *Solanum surattense* Burm. MUH-1867    | Marhaghanay         | Solanaceae    | Whole plant extract is effective for stomach diseases, cough and fever, chest pain. | 27  | 0.41 | 0.62 |
| 135. | *Setaria palidifusca* C.E. Hubb. MUH-1868 | Bihari grass   | Poaceae       | Take seed, grind make flour and used to treat skin diseases. | 23  | 0.36 | 0.74 |
| 136. | *Saccharum spontaneum* L. MUH-1869     | Kail                | Poaceae       | Ach of whole plant mixed with water and used treat different diseases like blood disorders, constipation, liver diseases. | 21  | 0.26 | 0.71 |
| 137. | *Setaria glauca* L. MUH-1870            | Green foxtail       | Poaceae       | Flour of plant is used to treat skin diseases, such as chicken pox. | 33  | 0.35 | 0.64 |
| 138. | *Sporobolus helvolus* L. MUH-1871       | Smut grass          | Poaceae       | Whole plant is used as fodder. | 28  | 0.48 | 0.60 |
| 139. | *Silybum marianum* Gaertn. MUH-1872    | Kanndyara           | Asteraceae    | Whole plant extract is used treat different disease, antidiabetic, treat skin diseases, anticancer, tumor, | 27  | 0.41 | 0.62 |
| 140. | *Sonchus arvensis* L. MUH-1873         | Sowthistle          | Asteraceae    | The extract of leaves is used to treat cough, asthma and cold. The tea of root is used to treat chest pain and anti-inflammatory. | 23  | 0.36 | 0.74 |
| 141. | *Sonchus asper* (L.) Hell MUH-1874     | spiny Sowthistle    | Asteraceae    | For enhancing milk, shoots give to domestic animals. | 21  | 0.26 | 0.62 |
| 142. | *Saussurea costus* L. MUH-1875          | Kuth                | Asteraceae    | Root extract is effective for skin disease. | 33  | 0.35 | 0.71 |
| 143. | *Solanum nigrum* L. MUH-1876            | Katch match         | Solanaceae    | Leaves are crushed in green condition and used to cure warts on skin. | 28  | 0.48 | 0.60 |
| 144. | *Sisymbrium irio* L. MUH-1877           | Weed                | Brassicaceae  | Whole plant dried, crushed, makes powder and used to cure heart diseases. | 27  | 0.41 | 0.62 |
| 145. | *Silene conoidea* L. MUH-1878           | Pataki              | Caryophyllaceae | Root tract is used as wound healing and juice is used to cure skin diseases, wound healing, malarial fever, stomach diseases, headache | 23  | 0.36 | 0.74 |
| 146. | *Sophora mollis* L. MUH-1879            | Phagan booti        | Fabaceae      | Powder obtained from seeds is used to cure different diseases including joint diseases, kidney diseases. | 21  | 0.26 | 0.73 |
| 147. | *Triandema portulacastrum* L. MUH-1880  | Itsit               | Aizoaceae     | Powder of whole plant is used to treat different blood related diseases diuretic, night blindness, anticancerogenic. | 28  | 0.31 | 0.60 |
| 148. | *Thalictrum minus* L. MUH-1881          | Meadow-rue          | Ranunculaceae | Root extract is very effective for different diseases like diuretic, stomach diseases, fever, skin diseases. | 26  | 0.25 | 0.64 |
| 149. | *Themeda antheria* News. MUH-1882       | Red grass           | Poaceae       | Powder of whole plant parts is ground and used to treat wounds. | 33  | 0.35 | 0.71 |

(Continued)
Table 9. (Continued)

| S No | Names of plants | Common name | Family | Ethnomedicinal uses | RFC | ΣUi | UV | UVi |
|------|----------------|-------------|--------|---------------------|-----|-----|----|-----|
| 150. | Tribulus terrestris L. MUH-1883 | Bullhead | Zygophyllaceae | Whole plant extraction is used to treat different diseases like kidney diseases, diuretic, tonic, stomach diseases. | 28 | 21 | 0.48 | 0.60 |
| 151. | Trichodesma indicum L. MUH-1884 | Borage | Boraginaceae | Leaf paste is applied on wounds for healing | 27 | 22 | 0.41 | 0.62 |
| 152. | Tridax procumbens L. MUH-1885 | Kuthi | Asteraceae | The juice extracted from the leaves is directly applied on wounds, antifungal | 23 | 27 | 0.36 | 0.74 |
| 153. | Trifolium repens L. MUH-1886 | White clover | Papilionaceae | Plant infusion is used to treat fever. Root extract is used to cure fever and cough. | 21 | 18 | 0.26 | 0.73 |
| 154. | Trifolium dubium L. MUH-1887 | Suckling clover | Papilionaceae | Plant extract with water used to cure fever and cold, constipation, anti diabetic, cancer, arthritis | 33 | 28 | 0.35 | 0.75 |
| 155. | Trifolium resupinatum Linn. MUH-1888 | Loosin | Papilionaceae | Fodder for animals | 28 | 21 | 0.48 | 0.60 |
| 156. | Trichosanthes anguina L. MUH-1889 | Parul | Cucurbitaceae | Extract of fresh leaves is used to treat skin diseases, diabetes and ulcer, antimicrobial, anti diabetic, diuretic, cure ulcers | 27 | 22 | 0.41 | 0.62 |
| 157. | Thymus serpyllum L. MUH-1890 | Wild thyme | Lamiaceae | Take shoot of plant make tea with water and used to cure different diseases like fever, constipation, body pain | 23 | 27 | 0.36 | 0.74 |
| 158. | Taraxacum officinale L. MUH-1891 | Hand | Asteraceae | Leaves boiled, make paste with salt and haldi used to cure bones | 21 | 18 | 0.26 | 0.71 |
| 159. | Typha elephantina Pers. MUH-1894 | Koon达尔 | Typhaceae | Extract of fresh leaves are used to treat stomach related diseases, dysentery | 33 | 28 | 0.35 | 0.74 |
| 160. | Vaccaria hispanica (Mill.) Rauschert MUH-1899 | Masna | Caryophyllaceae | A decoction is used to treat different diseases, menstrual problem, skin problems, breast tumor | 28 | 21 | 0.48 | 0.60 |
| 161. | Viola canescens Wall.ex Roxb. MUH-1900 | Banafsha | Violaceae | Take flowers mixed with sugar make kahwa to treat cough, fever, sore throat. | 27 | 22 | 0.41 | 0.62 |
| 162. | Vicia sativa Retz. MUH-1901 | - | Papilionaceae | Plant is dried make powder used with water to cure diseases, cure asthma, cough, skin diseases, tonic, diuretic | 23 | 27 | 0.36 | 0.74 |
| 163. | Valleris solanacea (Roth) O. Kuntze. MUH-1902 | Dhudi | Apocynaceae | Paste of whole plant is used to treat different diseases like antimicrobial, anti diabetic, skin infection, wound healing | 21 | 18 | 0.26 | 0.63 |
| 164. | Veronica anagallis L. MUH-903 | Hazar booti | Scrophulariaceae | Medicines are used to treat throat diseases. | 33 | 28 | 0.35 | 0.72 |
| 165. | Veronica thapsus L. MUH-1904 | - | Scrophulariaceae | Leaves of plant are used to treat different diseases like tonic other skin diseases | 28 | 21 | 0.48 | 0.60 |
| 166. | Veronica polita Fr. MUH-1905 | Sriri | Plantaginaceae | Juice or extract of plant is used treat cuts, burns, sore throat infection | 27 | 22 | 0.41 | 0.62 |
| 167. | Vicia sativa L. MUH-1906 | - | Papilionaceae | Powder of whole plant is used to treat different diseases like antimicrobial, antioxidant, anti diabetic, diuretic. | 23 | 27 | 0.36 | 0.74 |
| 168. | Vicia hirsuta L. MUH-1907 | - | Papilionaceae | Powder of whole plant is used to treat different diseases like diuretic, anti diabetic, antioxidant, antimicrobial | 21 | 18 | 0.26 | 0.71 |
| 169. | Vicoa indica L. MUH-1908 | Golden daisy | Asteraceae | Leaves are boiled with water and used orally to treat different diseases like dysentery and other digestive diseases | 26 | 28 | 0.25 | 0.64 |
| 170. | Valeriana wallischii L. MUH-1909 | Mushkbala | Valerianaceae | Powder of whole plant is used to treat different diseases like sedative, stomachic, obesity, snake poisoning, nervous disorders and skin diseases. | 33 | 28 | 0.35 | 0.71 |
| 171. | Withania somnifera L. MUH-1910 | Dodak | Solanaceae | Make powder of root or fruit and used with milk or honey to cure nervous disorders, ulcers, anti-inflammatory | 28 | 21 | 0.48 | 0.60 |
| 172. | Woodfordia fruticosa (L.) Kurz MUH-1911 | Talvi | Lythraceae | Powder of whole plant is used to treat different diseases like fever, dysentery, toothache | 33 | 28 | 0.35 | 0.67 |

same time where plants and their sources are vital for humans’ plants are also environmental buffers they maintain balances air composition, provides oxygen and some plants (bioengineers) absorbs harmful compounds from soil, maintaining soil pH. Study highly recommends
strict rules at governmental level to conserve of most common EB plant species from degradation. There is need to expand the Prime ministers ‘billion’s tree tsunami’ project by involvement of youth in its propagation, cultivation and protection. This will lead towards ‘green revolution’ and make the environment eco-friendly with least pollution impacts as well as timely raining for good agriculture products and crops.

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