Article

Documentation of Commonly Used Ethnoveterinary Medicines from Wild Plants of the High Mountains in Shimla District, Himachal Pradesh, India

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Abstract: The aim of current study is to provide a significant traditional knowledge on wild medicines used for ethnoveterinary purposes in the rural area of Maraog region in district Shimla. The medicinal plants have played a significant role in the treatment of human as well as animal’s dis-
The rural people of the Maraog region were interviewed through a questionnaire and extensive field surveys were conducted from June 2020 to July 2021. The discussion, observations and interviews were conducted in study site and included 96 informants. The information gathered from the residents is presented in a table format and includes scientific and local names, different parts used, diseases treated and mode administration. The most commonly used taxa are calculated with used value. The study revealed 100 plants in which trees (7), shrubs (26), herbs (56), ferns (5), grasses (3) and climbers (3) were identified. The most commonly documented livestock diseases were found to be hoof infections, eyes infections, poisoning and skin infections. In the current study, the Rosaceae family was reported as being the highest number (11), followed by Asteraceae (10) and then Lamiaceae (6). It was found that leaves, roots, flowers and fruits are the commonly used parts for ethnoveterinary medications. The phytochemicals present in the plant, such as alkaloids, sterols, glycosides, flavonoids, lignin, coumarins and terpenoids, etc., may be responsible for their medicinal properties. In this documentation, it was observed that the younger generation does not have good knowledge of medicinal plants as compared to the older ones. Therefore, it is necessary to preserve the traditional knowledge of these medicinal plants before their permanent loss. The documentation and conservation of medicinal plants can be a good start for novel phytopharmacological research in the veterinary field.

**Keywords:** therapeutic uses; ethnoveterinary plants; rural people; livestock

1. Introduction

Ethnoveterinary medicine is a branch of science that explores the values, methods, skills, procedures and practices used for animal health care [1–4]. In rural areas of the northwestern Himalaya, plants are important for ethnic communities’ survival. As the World Health Organization (WHO) reports, approximately 80% of the world’s population is directly dependent on plant resources for their health, especially those living in rural regions [5,6]. India is considered a rich source of biodiversity, with two mega biodiversity hotspots, the Western Ghats and Eastern Himalayas [7]. The state of Himachal Pradesh has about 3256 plant species [8]. There are 3120 species of angiosperms, 124 species of pteridophytes and 12 species of gymnosperms in Himachal Pradesh. The high and low hills are covered with coniferous forests, with oak trees growing in the hollows. Firs and spruce dominate the higher elevations, while pines cover the lower elevations. The Himachal Pradesh is rich source of herbal medicinal plants and people of some areas are completely dependent on these plants for their well-being. In different reports, it was documented that aromatic and medicinal plants are used for various therapeutic purposes [9–11]. It was reported that different plants species have been used in India for medicinal purposes and human nourishment since Vedic times [12]. Medicinal plants possess different types of phytochemicals, such as alkaloids, flavonoid and saponin. [13–15]. The different natural resources from forests such as wild plants are used to fulfil the daily human beings’ requirements, such as fuel, fodder and medicines [16,17]. Some wild plants yielding fruits are major source of nutrients and economy for many communities throughout the world [18,19]. Since ancient times, plants have been used by the majority of tribal communities. Some causes, such as rising drug prices and veterinary practices, have suddenly increased interest in the field of ethnoveterinary research [20]. People acquire ethnoveterinary information through several years of experience and only orally pass it on from generation to generation (oral tradition). With rapid cultural changes and modernization, this traditional information is being lost [21]. Therefore, there is an urgent need to for scientific documentation of traditional information from rural areas of India [22]. Different types of ethnoveterinary research on the use of plants in therapeutic studies have been conducted around the world [23]. Ethnoveterinary traditional knowledge is applied for the health care system of domestic animals [24,25]. In India, since the Vedic era, plants have been
used in veterinary treatment [26–28]. The current study documented a large number of wild plants with medicinal properties and therapeutic applications which are still unknown from Maraog region in Shimla district. In this context, it is important to conduct the extensive field surveys in unexplored regions that document the ethnoveterinary knowledge, because rapid urbanization and the greater use of synthetic drugs or medicines and culture variations may contribute to the loss of traditional knowledge from society. In addition, it can also provide important information for the selection of natural alternatives for treating livestock diseases and finding new drugs. Therefore, an attempt has been performed to document some useful indigenous knowledge of ethnoveterinary uses of plants from the rural region of Maraog in district Shimla of Himachal Pradesh, India. It was observed that due to modernization in the society, new generation of the study area is not interested in traditional knowledge; hence, the compilation of these ethnoveterinary plants is need of time. The usefulness of ethnopharmacology for drug development will be severely limited due to a lack of regional knowledge base concerning medicinal plants that can be exploited in veterinary ethnopharmacology. This study was conducted in the Shimla district of Maraog region in order to preserve the traditional knowledge of medicinal plants. The primary aim of this research was to collect and document the local traditional knowledge of ethnoveterinary plants used by native people of study site.

2. Materials and Methods
2.1. Description of the Study Area

The survey was carried out in Maraog region in tehsil Chopal of Shimla district. Maraog region is a rural area in Shimla district of Himachal Pradesh with a diverse ecological, archaeological, religious, mythological and spiritual community Figure 1. Chopal forest division is divided into 7 forest ranges and has 73 forest beats and 22 forest blocks [29]. Agriculture and farming are the primary occupations of the residents of the district. Apple, maize, green vegetables and potato are the chief cultivation crops grown in the study region. The animals such as sheep, goats, cows and buffalos are popular at the study site and provide meat, milk and milk products for rural people in Shimla district.
2.2. Sampling Informants

During a survey, a total of 96 informants (57 male and 39 female) were selected for interview. The age and educational background of informants were documented during interview. The informants were divided into 5 groups on the basis of their age (Table 1). In this study, it is discovered that aged people have immense traditional knowledge of ethnoveterinary plants as compared to younger generation.

Table 1. Demography and literacy among informants.

| Sr. No. | Age Groups | No. of Informants |
|---------|------------|------------------|
| 1       | 25–36      | 18 (10, Male and 8 Female) |
| 2       | 37–46      | 25 (15 Male and 10 Female) |
| 3       | 47–56      | 37 (21 Male and 16 Female) |
| 4       | 57–66      | 10 (7 Male and 3 Male) |
| 5       | 67–80      | 6 (4 Male and 2 Female) |

| Sr. No. | Literacy Among Informants | Age Groups |
|---------|---------------------------|------------|
| 1       | Never attended school     | 25–36      |
|         |                           | 37–46      |
|         |                           | 47–56      |
|         |                           | 57–66      |
|         |                           | 67–80      |

|      |   25–36 |   37–46 |   47–56 |   57–66 |   67–80 |
|------|---------|---------|---------|---------|---------|
| 1    | 0       | 0       | 3 (2 Male, 1 Female) | 5 (3 Male, 2 Female) | 5 (4 Male, 1 Female) |

Figure 1. Scale map of study site.
2. Attended school up to primary level (1–5 class)  

|                | Male  | Female |
|----------------|-------|--------|
| 5 (2 Male, 3 Female) |       |        |
| 2 (1 Male, 1 Female) |       |        |
| 1 (1 Male)         |       |        |

3. Attended school up to middle level (6–8)  

|                | Male  | Female |
|----------------|-------|--------|
| 0 (3 Male, 2 Female) |       |        |
| 6 (4 Male, 2 Female) |       |        |
| 3 (2 Male, 1 Female) |       |        |
| 0               |       |        |

4. Attended school up to metric level (9–10 class)  

|                | Male  | Female |
|----------------|-------|--------|
| 18 (10 Male, 9 Female) |       |        |
| 15 (9 Male, 6 Female) |       |        |
| 26 (15 Male, 11 Female) |       |        |
| 1 (1 Male) |       |        |
| 0               |       |        |

2.3. Ethnoveterinary Data Collection and Ethical Considerations

The ethnoveterinary data were collected from Maroog region in district Shimla, Himachal Pradesh India. A total of 96 male and female informants were selected by snowball methods for interviews. The ethnoveterinary data were collected through pretested questionnaire, observation, interviews and participatory observations [30,31]. The extensive field visits were used to collect ethnoveterinary data from unexplored rural area of Maroog in tehsil Chopal of Shimla district, Himachal Pradesh, India. For ethnoveterinary survey questionnaire was divided into 3 sections: demographic data, ethnoveterinary plant uses and informant’s declaration. The ethnoveterinary plants species collected from Maroog region in between 2020 to 2021 and they were identified from Botanical Survey of India, Dehradun Uttarakhand, India. The identified plant specimens with voucher numbers were submitted to the herbarium of Shoolini University, Solan, Himachal Pradesh, India.

Questionnaire for Conducting the Ethnoveterinary Study

The authors followed a specific questionnaire for conducting this study, as given in Supplementary Information S1.

2.4. Data Analysis

Ethnoveterinary data were collected by snowball method and selected 96 informants (male and female) from Maroog region in tehsil Chopal. The ethnoveterinary data were analyzed through used value.

Use Value

The use value is an ethnobotanical key that has been used to calculate the relative value of useful plant species [32,33].

\[ UV = \frac{\sum U_i}{n} \]

where \( U_i \) is the number of usage reports cited by each informer for a given plants and \( n \) is total number of informants. The use value is important to find which plants are most useful to specific inhabitants, estimating possible medicinal plant uses and determining community awareness [34,35]. It has been mentioned that use value places more significance to plants which have various uses, even if these species are not well identified [36]. A high use value indicates that the plant is important, while a low or zero use value indicates that the plant is rarely used or recorded. There is no indication in the use value whether the plant is used for one or more purposes [37].

3. Results

3.1. Ethnoveterinary Plants Reported by the Informants

In study site a total of 96 informants reported 100 plant species used for ethnoveterinary purposes. In this study, it was found that Rosaceae, Asteraeae and Lamiaceae were the highest reported families by rural people of Maroog. The Rosaceae family had 11 plant species, followed by Asteraeae family with 10 plants and the Lamiaceae family with 6
plants; the Apiaceae, Brassicaceae and Solanaceae families each contributed 3 plant species, while the Fabaceae and Polygonaceae families each contributed 4 plant species; the Amaranthaceae, Berberidaceae, Oxalidaceae, Pinaceae, Poaceae, Primulaceae, Pteridaceae, Ranunculaceae, Scrophulariaceae and Utricaceae contributed 2 plant species (Figure 2).

**Figure 2.** Representation of the families and number of plants studied at study site.
Some ethnomedicinal plants in the study area are well known for ethnoveterinary purpose was found as *Chenopodium album*, *Cannabis sativa*, *Cynodon dactylon*, *Bromus hordeaceus*, *Cedrus deodara*, *Ajuga parviflora*, *Foeniculum vulgare*, *Sonchus oleraceus* and *Urtica dioica*. The documented plants include 56 herbs, 26 shrubs, 7 trees, 5 ferns, 3 climbers and 3 grasses (Figure 3).

![Figure 3. Growth forms of plant species at study site.](image)

As shown in Figure 4, the rhizome, tubers and buds were the least frequently documented plant parts used in ethnoveterinary purpose.

![Figure 4. Representation of the number of citations of plant parts used.](image)
3.2. Use Value of Medicinal Plants

It was found that few plant species have greater used value Cannabis sativa (0.79), Cynodon dactylon (0.75), Datura stramonium (0.71), Rhododendron arboreum (0.71), Chenopodium album (0.69), Hedera nepalensis (0.68), Mentha viridis (0.65) and Viola canescens (0.63).

Different plant parts roots, leaves, stem, rhizoids and tubers, etc., are used to treat a variety of livestock diseases. A total of 100 plants were documented for ethnoveterinary preparations in rural region of Maraog. In discussion with aged people, they reported skin infections, mouth blisters, diarrhea, gastrointestinal disorders, cuts, udder infections and eye disorders were the most commonly found symptoms in livestock. The most popular methods of preparation include the use of leaf paste, infusion and decoction, with other methods such as wood ash being recorded less frequently. According to the data collected from the informants, it was found that the mode of administration can be oral or topical and certain plants can be used both orally and topically to treat livestock diseases. The majority of preparations use a single plant, with just a few combining multiple plant species.

Table 2 describes all plants reported with their botanical name, family, habit, parts used and ailment treated.
| Botanical Name | Actual Morphology of Ethnomedicinal Plant | Family | Common Name | Voucher No. | Habit | Parts Used | Disease Treated | Mode | Ailment Treated and Citations | Use-Value |
|----------------|------------------------------------------|--------|-------------|-------------|-------|------------|----------------|------|-------------------------------|----------|
| *Abies pindrow* (Royle ex D. Don) Royle | | Pinaceae | Tonss | SUBMS/BOT-4184 | Tree | Leaves | Udder infection | Topical | Leaf paste is applied on udder of cow to treat clotting of milk (66). | 0.68 |
| *Adiantum venustum* D. Don | | Pteridaceae | Jamna | SUBMS/BOT-4185 | Fern | Leaves | Skin disease | Topical | Paste of plant part is applied on chronic tumors for rapid healing (57). | 0.59 |
| *Ajuga parviflora* Benth. | | Lamiaceae | Neel kanthi | SUBMS/BOT-4186 | Herb | Aerial part | Sores, Wounds | Topical | Fine powder of aerial parts with few drops of edible oil is applied on skin of cattle to treat sores, wounds (69). | 0.71 |
| *Amaranthus, blitum* L. | | Amaranthaceae Sukhichalayi | | SUBMS/BOT-4187 | Herb | Leaves | Diarrhea, Dysentery, Skin infection | Oral, Topical | Fresh leaves are used to cure diarrhea and dysentery. Paste of leaves is useful in curing skin infection (48). | 0.50 |
| *Androsace sarmentosa* Wall. | | Primulaceae | Phoolru | SUBMS/BOT-4188 | Herb | Leaves | Skin infections | Topical | Paste of fresh leaves is applied on skin infections (45). | 0.46 |
| Common Name                                | Family                | Local Name     | Plant Part(s) | Use(s)                                                                 | Preparation                                                                 | Reference |
|--------------------------------------------|-----------------------|----------------|---------------|----------------------------------------------------------------------|----------------------------------------------------------------------------|-----------|
| *Artemisia vestita* Wall. Ex Besser         | Asteraceae            | Chamber        | Herb, Flowers | Wounds                                                                | Paste of leaves or flowers is used to treat wounds (54).                       | 0.56      |
| *Aruncus dioicus* (Walter)Fernald          | Rosaceae              | Pothee         | Herb, Roots   | Internal bleeding, Stomach pains, Diarrhea                            | Roots along with warm water is used to stop bleeding after birth               | 0.58      |
| *Asplenium dalhousiae* Hook.               | Aspleniaceae          | Nanwein        | Whole plant   | Skin infections                                                       | Whole plant is used to treat bacterial skin infections (48).                  | 0.50      |
| *Berberis lycium* Royle                    | Berberidaceae         | Kashmal        | Leaves, Roots, Stem Bark, Tonic, Bone fractures, Wounds, Stomach infection, Skin infections | The paste of root bark is externally applied on wounds and on bone fracture. Decoction of root and stem barks are used against stomach infection (61). | 0.63      |
| *Berberis aristata* DC.                    | Berberidaceae         | Chatra         | Leaves        | Mouth infections, Itching, Eye infections                             | Paste of fresh leaves cure mouth and skin infections. Juice extract from fresh leaves is affective against eye infection (59). | 0.61      |
| Plant Name | Family | Genus | Common Name | Uses | Application Method | Effect | Reference |
|------------|--------|-------|-------------|------|--------------------|--------|-----------|
| Bergenia ciliata (Haw.) Sternb. | Saxifragaceae | Daclambu | Herb, Leaves, Roots | Wound healing | Topical | Paste of leaves/ root is applied on wound. Wood ash is also used for wound healing (55). |
| Bromus hordeaceus L. | Poaceae | Jawi | Grass Whole plant | Fodder | Oral | Plant is used as fodder for livestock as rich in nutritional content (50). |
| Buddleja crispa Benth. | Scrophulariaceae | Taakla | Shrub Leaves | Cold, Dysentery, Bleeding | Oral, Topical | Fresh leaves are given to animals to cure cold and dysentery. Paste of fresh leaves is used to stop bleeding (47). |
| Cannabis sativa L. | Cannabaceae | Bhang | Herb Leaves | Intestinal worms, Stomach pain | Oral | Powdered leaf balls are given to cattle to treat intestinal worms and body pain (76). |
| Capsella bursa-pastoris (L.) Medik. | Brassicaceae | Khandwa | Herb Leaves | Wound | Topical | Leaf paste is used to cure wounds (54). |
| Cedrus deodara (Roxb. ex D.Don) G. Don | Pinaceae | Devdar | Tree Leaves | Skin infections | Topical | Paste of fresh leaves is applied on skin to cure infections (53). |
| Genus Species                         | Family     | Submitter | SUBMS/BOT-4200 | Part Used | Use                          | Mode of Administration | Reference (Number) |
|--------------------------------------|------------|-----------|----------------|-----------|------------------------------|------------------------|---------------------|
| Chenopodium album L.                 | Amaranthaceae | Bathuwa   | Herb Whole plant | Skin disorders | Oral Decoction of whole plant with Solanum surattense is given orally to cure skin diseases (67). | 0.69 |
| Cirsium arvense (L.) Scop.           | Asteraceae  | Bhenda    | Herb Whole plant | Digestion   | Oral Used as feed for ruminants due to high nutritional value (45). | 0.46 |
| Clematis buchananiana DC.            | Ranunculaceae | Silra    | Climber Whole plant | Wound healing | Topical Plant paste is applied on wounds (56). | 0.58 |
| Clematis vitalba L.                  | Ranunculaceae | Garol    | Shrub Leaves | Skin eruptions | Topical Paste of leaves is applied on skin eruptions in livestock (47). | 0.48 |
| Coriaria nepalensis Wall.            | Coriariaceae | Gandhla   | Shrub Leaves, Fruits | Dysentery | Oral Fresh leaves and ripened fruits are used to cure dysentery (49). | 0.51 |
| Cotoneaster microphyllus Wall. ex Lindl. | Rosaceae  | Jampradua | Shrub Leaves | Acute dermatitis | Topical Leaf paste is used to treat acute dermatitis (51). | 0.53 |
| Common Name | Family          | Genus                     | Species                | Uses                                      | Description                                                                 |
|-------------|----------------|---------------------------|------------------------|-------------------------------------------|-----------------------------------------------------------------------------|
| Curculigo orchioides Gaertn. | Hypoxidaceae | Lehsun-phool SUBMS/BOT-4206 | Herb Leaves, Flowers | Diarrhea Oral | Paste of dried leaves and flowers is used to cure diarrhea (46).          |
| Cynodon dactylon (L.) Pers. | Poaceae      | Droob SUBMS/BOT-4207      | Grass Leaves           | Eye diseases, Stomach, Skin infections infection, Cold | Juice extract of leaves is used to treat eye diseases. Fresh leaves given to cure stomach infection and cold (72). |
| Cyperus cyperoides (L.) Kuntze | Cyperaceae   | Kadreen SUBMS/BOT-4208    | Grass Leaves           | Fodder Oral | It is used as fodder (52).                                               |
| Daphne papyracea Wall. ex G. Don | Thymelaeaceae | Baruvaa SUBMS/BOT-4209    | Shrub Aerial part      | Mange, Stomach pain Oral, Topical | Paste of aerial part is applied on skin for the treatment of mange. Decoction from aerial part is used to treat stomach pain (44). |
| Datura stramonium L. | Solanaceae   | Datura SUBMS/BOT-4210     | Shrub Leaves           | Skin infection Topical | Paste of fresh leaves is used to get rid of skin parasites (69).           |
| **Species**                     | **Family** | **Genus** | **Description** | **Part Used** | **Method** | **Use**                                                                 | **Rating** |
|-------------------------------|------------|-----------|-----------------|---------------|------------|--------------------------------------------------------------------------|------------|
| *Desmodium elegans* DC.       | Fabaceae   | Murta     | Shrub Leaves    | Fodder        | Oral       | Fresh leaves are used as fodder (43).                                    | 0.44       |
| *Deutzia scabra* Thunb.       | Hydrangeaceae | Suniya    | Shrub Leaves    | Skin infections | Topical    | Paste of fresh leaves is useful against skin infections (51).            | 0.53       |
| *Diplazium esculentum* (Retz.) Sw | Athyriaceae | Lingar    | Fern Leaves     | Diarrhea      | Oral       | Young leaves boiled in water is useful against diarrhea (39).           | 0.40       |
| *Elaeagnus umbellata* Thunb.  | Elaeagnaceae | Genhi     | Shrub Flowers   | Reduce inflammation | Topical    | Flowers are used to reduce inflammation on affected areas (44).        | 0.45       |
| *Epilobium hirsutum* L.       | Onagraceae | Dandri    | Herb Leaves     | Mouth ulcers, Wasp sting | Oral, Topical | Paste of leaves is used to treat mouth ulcers and wasp stings (42).     | 0.43       |
| *Equisetum arvense* L.        | Equisetaceae | Ramban    | Herb Aerial part | Urinary tract infections | Oral, Topical | Plant extract is used to treat urinary tract infections and other health infection (49). | 0.51       |
| **Erigeron alpinus** L. | Asteraceae | Chipru | SUBMS/BOT-4215 | Herb | Leaves | Bleeding | Topical | Paste of fresh leaves is applied on bleeding wound (40). | 0.41 |
|------------------------|------------|--------|----------------|------|--------|----------|---------|-----------------------------------------------------------|------|
| **Erigeron bonariensis** L. | Asteraceae | Kupru | SUBMS/BOT-4216 | Herb | Leaves | Stomach pain, Urinary infection | Oral | Plant is used to treat stomach pain and urinary infection (47). | 0.48 |
| **Evolvulus nummularius** (L.) L. | Convolvulaceae | Ghareu | SUBMS/BOT-4217 | Herb | Leaves | Skin infection | Topical | Paste of fresh as well as dry leaves is applied to cure skin infections caused by parasites (53). | 0.55 |
| **Fagopyrum acutatum** (Lehm.) Mansf. ex K. Hammer | Polygonaceae | Fafri | SUBMS/BOT-4218 | Herb | Leaves | Skin infections | Topical | Paste of leaves is applied on skin infections (45). | 0.46 |
| **Foeniculum vulgare** Mill. | Apiaceae | Sounph | SUBMS/BOT-4219 | Herb | Leaves, Seeds | Poisoning, Cough, Tonic, Skin infection | Oral, Topical | Dried seeds are given to cure poisoning and cough. Seeds with hot water is given to animals after parturition, used as tonic. (59). | 0.61 |
| **Fragaria virginiana** Mill. | Rosaceae | Bhumbal | SUBMS/BOT-4220 | Herb | Roots, Leaves, Fruits | Skin infection, Indigestion | Oral, Topical | Juice of ripened fruit is applied on skin infection. Paste of powdered root and leaves is applied on cuts and wounds (48). | 0.50 |
| Scientific Name                  | Family       | Common Name          | Habit      | Parts Used | Uses                                      | Preparation                                                                 | Use                                                                 | Value |
|---------------------------------|--------------|----------------------|------------|------------|-------------------------------------------|---------------------------------------------------------------------------|---------------------------------------------------------------------|-------|
| *Galinsoga quadriradiata*       | Asteraceae   | Sheliya              | Herb       | Leaves     | Cuts, Wounds                             | Topical                                                                   | Paste of dry as well as fresh leaves is applied on cuts and wounds (47). | 0.48  |
| *Gentiana argentea*             | Gentianaceae | Bhuin neem           | Herb       | Leaves, Flowers, Roots | Skin infections, Wound, Poisoning | Topical, Oral | Paste of fresh leaves are used to treat skin infections and wounds. Decoction of whole plant is used in the treatment of poisoning (51). | 0.53  |
| *Geranium nepalense*            | Geraniaceae  | Bhrago-ro-naush      | Herb       | Leaves     | Skin infections                          | Topical                                                                   | Paste of fresh leaves is used to cure skin infections (49).           | 0.51  |
| *Girardinia diversifolia*       | Urticaceae   | Lindu bhaber         | Shrub      | Leaves     | Gastric infection                       | Oral                                                                      | Fresh leaves boiled with hot water is used for treating gastric infection (47). | 0.48  |
| *Goodyera repens*               | Orchidaceae  | Kaligatti            | Herb       | Leaves, Roots | Stomach pain                            | Oral                                                                      | Powdered leaves and roots are used to treat stomach pain (55).        | 0.57  |
| Scientific Name                  | Family       | Common Name | Submissions | Part/Part(s) | Use                  | Method | Result                  |
|---------------------------------|--------------|-------------|-------------|--------------|----------------------|--------|-------------------------|
| **Hedera nepalensis** K.Koch    | Araliaceae   | Kanewari    | SUBMS/BOT-4226 | Climber Leaves Leeches | Topical | Leaf extract is used to remove leeches in sheep (66). | 0.68   |
| **Helichrysum arenarium** (L.) Moench | Asteraceae   | Dhareri     | SUBMS/BOT-4227 | Herb Aerial part Cough | Oral   | Extract obtained from the plant is used to treat cough (48). | 0.5    |
| **Heracleum maximum** W. Bartram | Apiaceae     | Patla       | SUBMS/BOT-4228 | Herb Roost Swellings, Blisters | Topical | Paste prepared from the root is applied on swellings and blisters (43). | 0.44   |
| **Hypericum perforatum** L.     | Hypericaceae | Choliphulya | SUBMS/BOT-4229 | Shrub Aerial part | Relive pain Oral | Used to relive nerve pain due to puncture wounds (57). | 0.59   |
| **Ilex dipyrena** Wall.         | Aquifoliaceae | Khareu      | SUBMS/BOT-4230 | Tree Leaves | Enhance milk production Oral | Fresh leaves are fed to cattle to enhance the milk secretion and to increase strength (61). | 0.63   |
| **Impatiens glandulifera** Royle | Balsaminaceae | Rdheu      | SUBMS/BOT-4231 | Herb Leaves, Flowers | Poisoning Oral | Infusion of fresh leaves and flowers is used to cure poisoning occurred from toxic plants (59). | 0.61   |
| Scientific Name       | Family          | Common Name | Plant Type | Part Used | Disease/Condition                           | Medicinal Use                                                                 | Value |
|-----------------------|-----------------|-------------|------------|-----------|---------------------------------------------|--------------------------------------------------------------------------------|-------|
| *Indigofera gerardiana* Baker | Fabaceae        | Kathi       | Shrub      | Bark      | Broken bones Topical                        | Bark is boiled in milk and a bandage is formed and is used externally to treat broken bones (47). | 0.48  |
| *Juglans regia* L. | Juglandaceae     | Akhrot, khodh | Tree       | Bark      | Oral diseases Topical                       | Paste of bark is used to cure oral diseases (54).                              | 0.56  |
| *Juncus effusus* L. | Juncaceae        | Kirala      | Herb       | Leaves    | Urine infection Oral                        | Fresh leaves are given to cure urine infection (48).                           | 0.5   |
| *Juniperus communis* L. | Cupressaceae     | Gala        | Shrub      | Leaves    | Intestinal parasites Snake bite Oral, Topical | Paste of dried leaves is used to treat the worms inside the digestive tract. Paste of dried leaves is used to cure snake bite (42). | 0.43  |
| *Lepidium campestre* (L.) R.Br. | Brassicaceae    | Khoru       | Herb       | Leaves, Stem | Skin infection Topical                       | Infusion of leaves and stem prepare in hot water is used to treat skin infections (45). | 0.46  |
| *Malva verticillata* L. | Malvaceae       | Mikanchi    | Herb       | Leaves    | Flatulence Oral                             | Infusion of leaves is used for the treatment of flatulence (47).               | 0.48  |
| Plant Name                      | Family         | Genus           | Species                  | Common Name       | Part Used             | Medicinal Uses                                                                 | Activity Score |
|--------------------------------|----------------|-----------------|--------------------------|-------------------|-----------------------|--------------------------------------------------------------------------------|----------------|
| *Mentha viridis* (L.) L.        | Lamiaceae      | Mentha          | *viridis*                | Pahari pudina     | Leaves, Stomach       | Stomach infection, Skin infections, Hoof diseases                               | 0.65           |
|                                |                |                 |                          |                   |                       | Fresh leaves are given to cure stomach infection.                              |                |
|                                |                |                 |                          |                   |                       | Paste of fresh leaves is beneficial against skin infection and hoof diseases   |                |
|                                |                |                 |                          |                   |                       | (63).                                                                        |                |
| *Nicotiana tabacum* L.          | Solanaceae     | Nicotiana       | *tabacum*                | Tambakhoo         | Leaves, Stem          | Pain relief                                                                   | 0.52           |
|                                |                |                 |                          |                   |                       | Decoction of leaves is used to reduce pain (50).                              |                |
| *Oxalis articulata* Savigny    | Oxalidaceae    | Oxalis          | *articulata*             | Shash              | Leaves, Flowers       | Poisoning, Cold                                                              | 0.48           |
|                                |                |                 |                          |                   |                       | Paste of fresh leaves is used to treat poisoning in animal. Whole plant is     |                |
|                                |                |                 |                          |                   |                       | given to cure cold (47).                                                      |                |
| *Oxalis corniculata* L.        | Oxalidaceae    | Oxalis          | *corniculata*            | Shash             | Leaves, Flowers       | Snakebites, Cold                                                              | 0.54           |
|                                |                |                 |                          |                   |                       | Paste of fresh leaves is used to treat snakebites. Whole plant is given to    |                |
|                                |                |                 |                          |                   |                       | cure cold (52).                                                              |                |
| *Petridium aquilinum* (L.) Kuhn | Dennstaedtiaceae | Petridium   | *aquilinum*              | Barna             | Leaves, Roots         | Bone fractures, Pain                                                         | 0.5            |
|                                |                |                 |                          |                   |                       | Paste of leaves is used in binding bone fracture. Decoction of roots is used  |                |
|                                |                |                 |                          |                   |                       | as pain reliving agent (48).                                                  |                |
| *Platanus orientalis* L.       | Platanaceae    | Platanus        | *orientalis*             | Kimti             | Leaves, Bark          | Diarrhea, Dysentery, Wounds                                                   | 0.47           |
|                                |                |                 |                          |                   |                       | A decoction of bark is used to cure diarrhea, dysentery. Leaves are used to   |                |
|                                |                |                 |                          |                   |                       | heal wounds (46).                                                            |                |
| Plant Name                                  | Family       | Genus          | Species                          | Use                  | Part Used     | Method      | Effect                                      | Reference |
|---------------------------------------------|--------------|----------------|----------------------------------|----------------------|---------------|------------|---------------------------------------------|-----------|
| Potentilla indica var. wallichii (Franch. & Sav.) Th. Wolf | Rosaceae     | Potentilla     | indic var. wallichii             | Leaves, Fruits       | Herb          | Topical    | Paste of fresh fruits and leaves is applied on insect bites (40). | 0.41      |
| Potentilla tabernaemontani Asch.            | Rosaceae     | Potentilla     | tabernaemontani                 | Flowers, Leaves, Roots| Herb          | Oral, Topical | Juice from fresh leaves and flowers is used to cure stomach infection. Paste of powdered root is applied on hoof infections (61). | 0.63      |
| Primula denticulata Sm.                     | Primulaceae  | Primula        | denticulata                     | Flower               | Herb          | Topical    | Flower paste is used to treat snakebites in cattle (54). | 0.56      |
| Prinsepia utilis Royle                      | Rosaceae     | Prinsepia      | utilis                           | Fruits               | Shrub         | Topical    | Oil of fruits is used to relieve from joint pain (45). | 0.46      |
| Pteris cretica var. laeta (Wall. ex Ettingsh.) C. Chr. & Tardieu | Pteridaceae  | Pteris         | cretica var. laeta              | Leaves               | Fern          | Topical    | Paste of green leaves is used to treat skin infection and bleeding (49). | 0.51      |
| Common Name                  | Family       | Other Names                        | Part Used                  | Use                          | Route of Administration | Reference |
|-----------------------------|--------------|-----------------------------------|---------------------------|------------------------------|-------------------------|-----------|
| Pashia Buch.-Ham. ex D.Don  | Rosaceae     | Kainth                            | Tree, Fruits              | Eye infection               | Topical                 | 0.51      |
| Quercus floribunda Lindl.   | Fagaceae     | Moru                              | Tree, Leaves              | Skin infection              | Topical                 | 0.47      |
| Rhododendron arboreum Sm.   | Ericaceae    | Buransh                           | Tree, Flowers, Leaves     | Snake bite, Diarrhea        | Oral                    | 0.71      |
| Rosa brunonii Lindl.        | Rosaceae     | Kujja                             | Shrub, Fruits, Leaves     | Diarrhea, Lactation         | Oral                    | 0.44      |
| Rosa sericea Wall. ex Lindl.| Rosaceae     | Junglee kuja                       | Shrub, Fruits, Leaves     | Gastric infection           | Oral                    | 0.40      |
| Rubia cordifolia L.         | Rubiaceae    | Majith                            | Shrub, Stem, Leaves       | Hoof diseases, Blisters     | Topical                 | 0.45      |
| **Genus** | **Species** | **Family** | **Common Name** | **Type** | **Parts Used** | **Uses** |
|-----------|------------|------------|----------------|---------|---------------|---------|
| **Rubus ellipticus Sm.** | | Rosaceae | Hinser | Shrub, Bark, Roots | Urine infection, Gastric troubles | Oral | Juice of the root is used in the diarrhea. The bark from this plant is used to cure urinary infection (41). 0.42 |
| **Rubus niveus Thunb.** | | Rosaceae | Kamrai | Shrub, Fruits | Snake bite, Tonic | Oral | Extracts and juices from the fruits is used as an antidote for snake bites and as a tonic during pregnancy (37). 0.38 |
| **Rumex obtusifolius L.** | | Polygonaceae | Kransh | Herb, Leaves, Roots | Skin infection, Sores | Topical | Paste of fresh leaves is applied on skin infections. Paste of dried roots is applied on sores (40). 0.41 |
| **Rumex tuberosus L.** | | Polygonaceae | Khatti patti | Herb | Leaves | Skin infection | Topical | Paste of fresh leaves is applied on skin infections (37). 0.38 |
| **Rumex hastatus D. Don** | | Polygonaceae | Bhanora | Herb, Tuber | Wound, Dysentery | Topical, Oral | The extract of leaves of plant is applied on wounds and cuts to check bleeding. The juice of the plant is used in the treatment of dysentery (33). 0.34 |
| **Salix triandra L.** | | Salicaceae | Bhaill | Shrub, Bark, Leaves | Fever, Joint pains | Oral, Topical | Powder of leaves is given to cure fever. Paste of bark and leaves is affective against joint pains (36). 0.37 |
| Common Name                          | Family      | Genus                           | Species                     | Common Names | Main Uses                        | Plant Parts | Application Methods | Notes                        |
|-------------------------------------|-------------|---------------------------------|-----------------------------|--------------|----------------------------------|-------------|---------------------|-------------------------------|
| Salvia lanata Roxb                  | Lamiaceae   | Salvia                          | lanata                       | Herb         | Leaves                           | Healing wounds | Topical             | Paste of fresh leaves are applied on external wounds (43). 0.44 |
| Sarcococca saligna Mull.Arg.        | Buxaceae    | Sarcococca                      | saligna                      | Shrub        | Leaves                           | Fever        | Oral                | Aqueous extract of leaves is used as antipyretic (41). 0.42 |
| Scutellaria ovata Hill              | Lamiaceae   | Scutellaria                      | ovata                        | Herb, Flowers| Leaves                           | Respiratory infection, Diarrhea, Nose bleeding | Oral, Topical         | Plant extract with hot water is affective against respiratory infection and diarrhea. Paste of leaves is useful for preventing nose bleeding (38). 0.39 |
| Scutellaria scandens D.Don          | Lamiaceae   | Scutellaria                      | scandens                     | Herb, Flowers| Leaves                           | Skin infection | Topical             | Powdered leaves and flowers are applied on skin infections for its cure (48). 0.50 |
| Selinum wallichianum (DC.) Raizada & H.O. Saxena | Apiaceae   | Selinum                         | wallichianum                 | Herb         | Roots                            | Stomachache   | Oral                | Dried and powdered leaves are used for abdominal diseases (49). 0.51 |
| Silene vulgaris (Moench) Garcke     | Caryophyllaceae | Silene                  | vulgaris                     | Herb         | Leaves, Roots                    | Vomiting, Poisoning, Constipation, Skin infections | Topical, Oral | Decoction of roots is used to treat vomiting, poisoning and constipation. Liquid extract of leaves is used to cure skin infections (42). 0.43 |
| **Genus**          | **Species**                      | **Family** | **Common Name** | **Parts Used** | **Uses**                                                                 | **References** | **Activity** |
|-------------------|----------------------------------|------------|-----------------|----------------|--------------------------------------------------------------------------|----------------|-------------|
| **Solanum nigrum**| L.                               | Solanaceae | Genhi           | Herb           | Leaves, Flowers, Roots, Fruits; Itching, Oral ulcer, Cough, Urine infection; Topical, Oral | Paste of powdered leaves, fruit, flower is used against itching, oral ulcers. | 0.45         |
| **Sonchus asper** | (L.) Hill                        | Asteraceae | Dudhiya         | Herb           | Whole plant, Leaves, Stem, Skin infection; Topical, Oral                 | Freshly prepared plant extract is applied on skin infections | 0.59         |
| **Sonchus brachyotus** | DC.                          | Asteraceae | Sadhi           | Herb           | Bud, Flowers, Leaves, Stem, Roots; Puss in ear, Dermatitis, Ulcers; Topical, Oral | Extract of bud is used against puss formed in the ear. A decoction of the whole plant is used to treat stomach infection, itching, ulcers | 0.37         |
| **Sonchus oleraceus** | (L.) L.                  | Asteraceae | Dudhi           | Herb           | Leaves, Whole plant; Diarrhea, Inflammation Warts; Oral, Topical | Whole plant is given to animals suffering from diarrhea. Latex is applied on the inflammation and warts | 0.5          |
| **Stemmacantha rhapontica** | (L.) Dittrich       | Asteraceae | Kusumphoo 1     | Herb           | Bark, Leaves; Indigestion; Oral, Topical                               | Extract of bark and roots is used for indigestion | 0.37         |
| **Thlaspi arvense L.** | Brassicaceae | Mahula | SUBMS/BOT-4274 | Herb | Seeds, Whole plant | Inflammation, Fever, Tonic | Topical, Oral | Powdered form of seeds is used to calm down swelling of limbs. Plant juice is used as tonic (47). | 0.48 |
|---|---|---|---|---|---|---|---|---|---|

| **Thymus linearis Benth.** | Lamiaceae | Marcha | SUBMS/BOT-4275 | Herb | Flowers, Leaves | Stomach infection, Fever | Oral | Paste of flowers and leaves are used to cure stomach infection. Semi-solid paste of dried plant is given in the form of small balls to cure fever during the winter (50). | 0.52 |
|---|---|---|---|---|---|---|---|---|---|

| **Trifolium repens L.** | Fabaceae | Khatti shash | SUBMS/BOT-4276 | Herb | Leaves, Flowers | Skin infection, Cough | Topical, Oral | Paste of fresh leaves used to treat skin infection. Powdered flowers along with leaves are used to cure cough (41). | 0.42 |
|---|---|---|---|---|---|---|---|---|---|

| **Urtica dioica L.** | Urticaceae | Kunkshi | SUBMS/BOT-4277 | Herb | Leaves | Diarrhea, Skin infection | Oral | Semifluid paste of leaves with hot water is beneficial against diarrhea. Leaves with other food is given to cattle to get relief in skin diseases during lactation (39). | 0.40 |
|---|---|---|---|---|---|---|---|---|---|

| **Valeriana jatamansi** | Caprifoliaceae | Mushki | SUBMS/BOT-4278 | Herb | Leaves, Rhizome | Skin infection, Wound healing, Redness of eyes | Topical | Powdered leaves are used to cure skin infections. Paste of root is applied on wounds for better healing. Rhizomes are used to treat dryness and redness of eyes in the cattle (52). | 0.54 |
| Species                     | Family          | Common Name          | Accession Number | Part Used                  | Condition                           | Use/Remedy                                                                 | DEC Value |
|-----------------------------|-----------------|----------------------|------------------|-----------------------------|-------------------------------------|----------------------------------------------------------------------------|-----------|
| *Verbasum thapsus* L.       | Scrophulariaceae | Kukurdara            | SUBMS/BOT-4279   | Herb, Leaves, Flowers, Roots | Pain, Warts, Flatulence, Topical, Oral | Decoction leaves is used to treat warts on the skin. Decoction of inflorescence is used to cure flatulence in cattle (42). | 0.43      |
| *Veronica persica* Poir.   | Plantaginaceae   | Raat ki kali         | SUBMS/BOT-4280   | Herb, Leaves                | Skin infection, Wound healing       | Paste of fresh leaves used to cure skin disorders and serve as an excellent wound healing remedy (47). | 0.48      |
| *Viburnum grandiflorum*    | Adoxaceae       | Pothi                | SUBMS/BOT-4281   | Shrub, Leaves               | Constipation                        | A paste of leaves with hot water is affective against constipation (44). | 0.45      |
| *Vicia sativa* L.          | Fabaceae        | Matari               | SUBMS/BOT-4282   | Climber, Seeds, Leaves      | Skin infection                      | Paste of dry seeds and leaves are used against skin parasites (49). | 0.51      |
| *Viola canescens* Wall.    | Violaceae       | Banaksha             | SUBMS/BOT-4283   | Herb, Leaves, Flowers, Stem, Roots | Dysentery, Cold, Cough, Skin infection | Powder of whole plant with hot water is used for dysentery. Decoction of flowers along with fennel is used to cure cold and cough. Paste of fresh leaves and stem is used to treat skin infections (61). | 0.63      |
4. Discussion

4.1. Ethnoveterinary Prospective of Wild Plants

Ethnopharmacological studies are an important step in the development of natural-source drugs. Today, around 65% of Indian people are dependent on the medicinal plants [38]. Traditional knowledge of medicinal plant use, wild crafting and preservation promotes research for novel drugs, as well as the time effectiveness [39–42]. Medicinal plants have the capability to treat both infectious and noninfectious diseases and not only used to treat human diseases, but are also frequently utilized to treat animal ailments [43–46]. The primary goal of the ethnoveterinary study is to compile a list of plant species that have ethnoveterinary applications in the unexplored region of tehsil Chopal in district Shimla, Himachal Pradesh, India. In earlier studies, all over the world, it was documented that those medicinal plants show significant role in the human being healthcare system, as well as that of animals. They are easily available from nature, without any cost [47–49]. The documentation of ethnobotanical studies from rural and unexplored areas of all over the world is highly significant for future researchers [49–51]. In ethnoveterinary practices, plants are used for the treatment of diseases due to reduced number of side effects [52,53]. Ethnoveterinary medicines are easily available from surroundings without much effort [2,22]. In this study, it was found that Rosaceae family is the most frequently mentioned species from Maraog region in Shimla district. The Rosaceae plants have traditionally used to treat skin diseases, intestinal disorders, hoof infections and eye infections. In relation to shrubs and trees, herbaceous plants were used most frequently in the Maraog region. In various studies, all over the world, it was reported that different medicinal plants possess different types of phytochemicals. Phytochemical components present in different plant species are the most significant method for identifying the active medicinal potential of plants [54–57]. The concentration of phytochemicals in plant species varies according to geographical variations [58–60]. In ethnobotanical studies, it was reported that aged people have great traditional knowledge as compared to younger generation due to western culture followed by new generation [21,61]. The study, conducted in different regions of India, proved that new generation is not interested in traditional knowledge due to socioeconomic and cultural changes in the society [62]. The use value is a quantitative method that determines the relative importance of plant species for societies [63]. The most commonly used species had a high use value, showing that they are significant. The species with high use values found in this study had previously been scientifically well-known for their phytochemical composition and medicinal value. Saponins, tannins, flavonoids and phenolic compounds are among the chemical compounds contained in *Che nopodium album*, which are responsible for its antimicrobial activity [64]. The Cannabinoids, which have anti-inflammatory properties, are contained in the chemical components of *Cannabis sativa* [65]. The phytochemical study of *Cynodon dactylon* revealed details of flavonoids, alkaloids, glycosides, tannins, saponins, volatile oils and flavonoids, which are responsible for its dermatological and anti-inflammatory action [66]. Similarly phenolic acids, flavonoids (quercetin, rutin) and alkaloids like berberine, berbamine, palmatine, columbamine, jatrorrhizine, oxyacanthine in *Berberis aristata*, Alkaloids like berberine, berbamine, chenabine, karakoramine, palmatine, baluchistanamine, gigiltine, jhelumine, punjabine, sindamine in *Berberis lycium* [67], pentadecanoic acid, hexadecanoic acid, heptadecanoic acid, octadecanoic acid, eicosanoic acid, steroids, amino acids (glycine, histidine) and flavonoids (tricin, kaempferol, quercetin) in *Capsella bursa-pastoris* [68], alkaloids (atropine, hyoscymamine, scopolamine), glycosides, saponins and tannins in *Datura stramonium* [69], flavonoids, terpenoids, alkaloids, carbohydrates, proteins, amino acids, steroids (phytosterols), saponins and tannins in *Equisetum arvense* [70], glyxylic acid, oxalic acid, vitexin, isovitexin, netural lipids, glycolipids, vitamin c, phaspholipids, fatty acids and tocopherols in *Oxalis corniculate* [67]. Nepalin, nepodin and rumicin in *Rumex hastatus*, flavonoids (catechin, epicatechin, rutin), phenolic acids (caffeic acid, gallic acid,
protocatechuic acid), fatty acids (linoleic acid 67.9%), carbohydrates (polysaccharides) in Solanum nigrum [70], taraxacin, taraxacerine, cerylalcohol, lactulo-taraxacian, choline, inulin, tannin, etereal oil, vitamin C, xanthophylls, potassium and vitamin A in Taraxacum officinale [67], alkaloids (betaine, choline), amino acids, carbohydrates, protein polymer (neutral and acidic), carotenoids (carotenes) and saponins in Urtica dioica [71]. Curculigenin in Curculigo orchioides [72], Caryophyllene oxide, β-Caryophyllene, germacrene, β-Pinene in Jugi-ans regia [55]. All of these compounds show antibacterial, antidiabetic, wound healing, hepatoprotective and anti-inflammatory activities. The majority of medicinal preparations use only one plant species, but certain medications are made with two or more plants, which improve their therapeutic effectiveness [73,74]. In the current findings, it was observed that the most frequently used plant parts were leaves followed by flowers, roots and fruits, etc. Due to harsh environmental conditions and non-availability of veterinary facilities at higher altitudes, the rural people of high altitude in Himachal Pradesh used traditional remedies to treat their livestock’s illnesses [21,50].

4.2. Prospects of Using Wild Plant Species in Horticulture

The inhabitants were using the different plant species not only to feed and treat the diseases of their livestock, but also to nurture themselves. Plant species like Rubus niveus, Rubus ellipticus, Pyrus pashia, Prinsepia utilis, Berberis lycium, Elaeagnus umbellata and Juglans regia are well known for their fruit yields [18,75–79]. J. regia and P. pashia are important fruiting plants as they are employed by inhabitants for their fruit production, which is a good source of their income [19,80]. The oil extracts of P. utilis are consumed by locals and the remaining part of the fruit is used for feeding the cattle along with other dietary products [81–83]. It was also observed that some plant species and their products were used by locals for different agricultural and horticultural activities. The organic manure was prepared by using plants like Amaranthus blitum, Artemisia vestita, Bromus hordeaceus, Cannabis sativa, Capsella bursa-pastoris, Erigeron bonariensis, Fagopyrum acutatum, Sonchus asper and Urtica dioica along with cattle dung. The use of cannabis manure has been reported to be effective in removing harmful soil elements [84]. The plant residues were also used in the preparation of vermiwash, which is used in various agricultural and horticultural activities [85]. The paste of roots of Cirsium arvense and Rubus ellipticus was practiced to remove the root borer from the apple plant in the study region. Many researchers have reported on Rubus ellipticus for its antimicrobial activities and the extraction of silver nanoparticles which act as pathogen destroyers and root enhancers [86]. Inhabitants also showed that mulching their plant nursery with branches of Cedrus deodara and Abies pindrow was also beneficial in retaining moisture in the soil, keeping pests away and controlling weeds. Some plants were difficult to find in the wild and some was used to enhance their economy therefore, people have started cultivation of such species in their fields. For instance, P. pashia is used for the establishment of pear orchards and this species is abundant in the wild and locals collect their seeds and grow them in their fields. Similarly, it was difficult to collect herbs such as Valeriana jatamansi and Bergenia ciliata, so they are grown by the villagers in their gardens. These approaches to preserving wild plants have been employed by many communities throughout the world [87–90].

Therefore, proper documentation, conservation and pharmaceutical studies are needed to find some important medicinal plants from unexplored regions of Himachal Pradesh in India. In the literature study, it was found that Aruncus dioicus, Asplenium dal-housiae, Galinsoga quadriradiata, Gentiana argentea, Malva pusilla, Silene vulgaris and Viburnum grandiflorum were documented for the first time for ethnoveterinary purposes from the study area of Maraog region in Shimla district, Himachal Pradesh, India. Future pharmacological studies for the illnesses suggested by current survey respondents could be particularly interesting for these species. Increased interest in the chemical profile and biological activity of these species is expected as a result of this new knowledge. Their significance lies in the possibilities of discovering new medical plant uses and herbal therapies in veterinary medicine.
5. Conclusions

The rural people of Maraog region in tehsil Chopal of district Shimla in Himachal Pradesh, India, used ethnoveterinary plants to treat their livestock diseases. The current study documents the ethnoveterinary medicines, which can be used as a database for scientific research studies in the future. It was observed that, from all categories of plants, herbs and shrubs were the most documented ethnoveterinary plants by the native informants of study site. In this study, most of the plants are first time documented for ethnoveterinary purposes from Maraog region in tehsil Chopal of district Shimla, so its urgent need to document different medicinal plants from unexplored regions of Himachal Pradesh. In the study area, internally and externally medicinal formulations were used to treat livestock illnesses. The male informants of the study site possess good traditional knowledge as compared to the female informants. The rural people reported that new generation is not much interested in traditional knowledge due to the social, cultural and modernization, so it is urgently needed to document and conserve ethnomedicinal plants used for both human and livestock diseases in the rural areas of Shimla district, Himachal Pradesh, India.

Supplementary Materials: The following are available online at www.mdpi.com/article/10.3390/horticulturae7100351/s1, Supplementary Information S1: (A) Demographic Data, (B) Ethnoveterinary Plant Uses and (C) Informants Declaration.

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