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Ethnobotanical study on medicinal plants used by Maonan people in China

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Abstract

Background

This paper is based on an ethnobotanical investigation that focused on the traditional medicinal plants used by local Maonan people to treat human diseases in Maonan concentration regions. The Maonan people have relied on traditional medicine since ancient times, especially medicinal plants. The aim of this study is to document medicinal plants used by the Maonans and to report the status of medicinal plants and associated traditional knowledge.
Methods

Ethnobotanical data were collected from June 2012 to September 2014 in Huanjiang Maonan Autonomous County, northern Guangxi, southwest China. In total, 118 knowledgeable informants were interviewed. Following statistically sampling method, eighteen villages from 5 townships were selected to conduct field investigations. Information was collected through the approaches of participatory observation, semi-structured interviews, ranking exercises, key informant interviews, focus group discussions, and participatory rural appraisals.

Results

A total of 368 medicinal plant species were investigated and documented together with their medicinal uses by the Maonans, most of which were obtained from the wild ecosystems. The plants were used to treat 95 human diseases. Grinding was a widely used method to prepare traditional herbal medicines. There were significant relationships between gender and age, and between gender and informants’ knowledge of medicinal plant use. Deforestation for agricultural purposes was identified as the most destructive factor of medicinal plants, followed by drought and over-harvest.

Conclusions

The species diversity of medicinal plants used by the Maonans in the study area was very rich. Medicinal plants played a significant role in healing various human disorders in the Maonan communities. However, the conflicts between traditional inheriting system and recent socio-economic changes (and other factors) resulted in the reduction or loss of both medicinal plants and associated indigenous knowledge. Thus, conservation efforts and policies, and innovation of inheriting system are necessary for protecting the medicinal plants and associated indigenous knowledge. Awareness is also needed to be raised among local Maonans focusing on sustainable utilization and management of both medicinal plants and traditional knowledge.

Keywords

Medicinal plants, Traditional knowledge, The Maonans, Ethnomedicine, Huanjiang County

Background

Traditional medicine is used to maintain people’s health, as well as to prevent, diagnose, improve or treat physical and mental illnesses all over the world [1,2]. Medicinal plants are believed to be with healing powers, and people have used them for many centuries. Aimed to modern drug discovery, traditional medicinal plants have been studied and developed which is followed the ethnobotanical lead of indigenous cures used by traditional medical systems [3-5]. Traditional medicinal knowledge, especially using medicinal plants in the developing countries, has been in existence and use, and has been a part of therapeutic practices [6]. Therefore, the investigation of plants and their uses (especially medicinal purposes) is one of the most primary human concerns and has been practiced in the world [7-12].
The traditional use of medicinal plants in China is widely accepted. The population of 55 minorities is 11.2 millions occupying 8% of China’s population, and these minorities distribute in 65% of the country’s territory. Each minority has its own medicinal characteristic, and has various experiences of medicinal knowledge [13]. Traditional medicinal plants play an important role of protecting people’s lives and health in minority regions, especially in remote and poor area [14,15]. Because of unique natural conditions and customs in the ethnic minority areas, long-term practices of using medicinal plants have formed various systems of treating diseases [16-18]. For example, Tibetan medicine is famous for treating digestive disorders, rheumatic diseases and wounds [19,20]. The Mongolians have a long history of horse riding, and their medicine is effective to deal with bone fracture and brain concussion. Yao medicine has special advantages in cancers and skin problems [21].

North Guangxi has been recognized as a rich biodiversity and world-famous karst area. With the elevation between 700–1500 m, it is obviously affected by plateau terrain and subtropical monsoon climate. Thus, the temperature difference of four seasons is small but the vertical climate changes significantly. There are more than 10 ethnic groups living in north Guangxi and formed colorful ethnic characteristic. As one of the indigenous minorities, Maonan is mainly living in Huanjiang Maonan Autonomous County, Guangxi Zhuang Autonomous Region, southwest China. The exceptional altitudinal range, topography and climatic variability in this region have fostered a center of plant species endemism. Here the majority of Maonan people rely on medicinal plants for self-medication. The Maonan medicine has made a great contribution to protect the health of local people. This is due to free access to medicinal herbs, cultural traditions and high cost of hospital treatments in the town nearby. Local people widely utilize endemic species, and they have developed their own traditional medicinal knowledge. Without writing language, Maonan people pass on their indigenous knowledge from generation to generation orally. Nowadays, the Maonan children spend most of their time in schools, where they are taught in Han language. This decreases their chances to learn about the uses of the medicinal plants from the old people. Therefore, important information about medicinal plants is easily lost in the transfer process of indigenous knowledge. With the impact of increasing modern health facilities and modern civilization in Maonan area, indigenous knowledge is depleting rapidly. Although a number of ethnobotanical documentations about several ethnic groups have been published during the past decades in China, few field ethnobotanical studies have been conducted in Maonan society. It is therefore necessary to carry out a survey to document the medicinal plants and associated indigenous knowledge in Maonan region.

Thus, the purposes of the present work were as follows: (i) to document and analyze the knowledge and use of medicinal plants by Maonan people at the study area; (ii) to circulate the results within the scientific community in order to open a door for research in other disciplines; (iii) to document the medicinal plants that could be valuable in future’s phytochemical and pharmacological discoveries, and (iv) to contribute to the knowledge and conservational possibilities of plant biodiversity, bearing in mind that biological diversity is also related to the use and applications of natural resources.
Materials and methods

Study area and the people

The study area covered 18 villages of Huanjiang County (the only Maonan autonomous County in China) in the northern part of Guangxi Zhuang Autonomous Region, southwest China (Figure 1). The villages are located in 5 townships, which were selected based on Maonan traditional settlements, namely: Chengnan, Chengbei, Luoyang, Shuiyuan, Shangnan, Youdong, Mulun, Xia’nan, Pochuan, Fengyi, Zhongnan, Tangba, Xiatang, Yuhuan, Caimen, Guzhou, Xiyuan, and Jingyang villages. Huanjiang County is situated in the subtropical zone, located between 24°83′ and 25°06′ east longitude and between 107°92′ and 108°26′ north latitude, with the annual average temperature of 20°C and annual rain fall of 1500 mm. The vegetation of the county belongs to the subtropical evergreen montane forest. It is humid in summer and relatively dry in winter. The most Maonan villages are seated on the small strips of flat land or slopes in the rocky mountainous area at 500–1000 meters above sea level. The sinkholes and underground caverns in the area have well developed because of karst landform. Despite abundant rainfall, there are no big rivers but only a small number of streams. Water shortage has been a major obstacle to economic and social development in the Maonan areas.

Figure 1 Sketch map of the study area.

The Maonan minority, with a total population of about 107,200, is one of the 55 officially recognized ethnic groups in China. With no written language [22], the Maonans’ stories and traditions are remembered and passed down orally from generation to generation, but these are becoming less and less. The Maonan language belongs to the Dong-Shui branch of the Zhuang-Dong language group in the Chinese-Tibetan language family. The Maonan language is widely spoken in Maonan communities. Almost all of the Maonans know both Han and Zhuang languages, because they need to communicate with the Zhuang and Han people, the majorities in Guangxi. About 60% of the Maonan people live in Huanjiang County, which is the only Maonan autonomous county in China. The Maonans are polytheistic, and they pay homage to dozens of deities or immortals on various occasions. These icons include figures from myths, legends, celebrities of historical events, divinities from Taoism or Buddhism, ancestors of the family and so on [22]. Due to remote mountainous regions and poor economic environment, traditional remedies of medicinal plants are the most important and sometimes the only source of therapeutics in the Maonan villages. The long utilization history and traditional knowledge of medicinal plants had supported their livelihoods. The Maonan healers and farmers have developed their own ethnomedicinal knowledge.

Field works and ethnobotanical data collection

A total of 118 (106 males and 12 females) informants were interviewed in the study area, in which 80 were selected using snowball technique and 38 key informants were selected purposively and systematically based on the recommendations of knowledgeable elders, local authorities and development agents. All of the informants were local inhabitants aged between 21 and 85 years. Local Maonan healers were surely identified as key informants, because they were important custodians and participants of indigenous knowledge of medicinal plants. Interestingly, all these traditional healers were males. A few women were also interviewed to examine their medicinal knowledge and opinions.
Ethnobotanical investigations were carried out to collect data on medicinal plants used to treat human ailments following standard methods in Maonan area. The methodological approaches were semi-structured interviews, field observations, group discussions and guided field walks. The data were collected from June 2012 to September 2014. Interviews and discussions were undertaken based on a checklist of questions prepared in Chinese and translated into Maonan language. Information was carefully recorded during interviews with each informant. Field observations were performed with traditional healers guided on the morphological features and habitats of each medicinal plant species. Voucher specimens of cited medicinal plants were collected and their local identity was re-confirmed by other informants. The information obtained was cross-checked with the other informants. The information such as the local name, habit, wild/cultivated, availability of medicinal plants, need of conservation and efforts made by inhabitants, and traditional medicinal uses of plants were recorded. Group discussions were conducted on multipurpose, conservation, threats of the medicinal plants, and transferability of knowledge with the healers and local people in the villages. Also, the key informants were selected for preference ranking exercise.

**Specimen collection and identification**

The listed medicinal plants were collected from field and gardens, and the habits of these plants were recorded. The voucher specimens were made and deposited in the Herbarium, College of Life and Environmental Sciences, Minzu University of China, Beijing, China, for future references. The botanical identities of collected specimens were confirmed by the authors and other taxonomists at Minzu University of China. Plant names were checked with *Flora of China* and botanical websites (e.g. http://www.tropicos.org/).

**Data analysis**

The data were summarized using Microsoft Office Excel sheet. Descriptive statistical methods were applied to analyze and summarize the ethnobotanical data such as frequency and percentage.

Preference ranking exercise [23,24] was conducted by 8 key informants on 7 medicinal plants used to treat traumatic injury in the study area. The highest number of medicinal plants was prescribed by informants to fight traumatic injury. The plants in this exercise were short-listed by the key informants, and then their importance to manage traumatic injury was discussed. The plants were given to the informants and were ranked based on their efficacy. Medicinal plant that was believed to be the most effective was given the highest value 7, and the one with the least effectiveness a value of 1. Rank was determined based on the total score of each species. A total rank of preference exercise was obtained by summing the number of informant given.

The reported ailments were grouped into 21 categories based on the information gathered from the interviewees. Factor of informant consensus ($F_{IC}$) was calculated for each category to test the agreements of the informants on the reported cures for the group of diseases. The $F_{IC}$ was calculated as follows: number of use citations in each category ($N_{ur}$) minus the number of species used ($N_s$), and divided by the numbers of use citations in each category minus one [25,26]. The formula was listed as below:

$$F_{IC} = (N_{ur} - N_s) / (N_{ur} - 1)$$
Results

Medicinal plants reported

The study recorded 368 medicinal plant species (see Table 1). Ethnomedicinal information for each species, including scientific name, Chinese name, local name, family name, life form, habitat, plant parts used, preparation and uses, was listed in Table 1. The species belonged to 295 genera and 115 families were used by Maonan people to treat various human ailments. Among the families that contributed more medicinal species were Asteraceae, represented by 24 species (6.52%), Fabaceae with 19 (5.16%) species, and Rosaceae with 16 (4.35%), while other 292 families contributed 309 (83.97%) species were mostly represented by 1 or 2 species (Table 2).
| No. | Scientific name                                | Chinese name           | Maonan name | Family       | Life form | Habit     | Parts used     | Preparation and uses                                                                 |
|-----|-----------------------------------------------|------------------------|-------------|--------------|-----------|-----------|----------------|--------------------------------------------------------------------------------------|
| 1   | Abelmoschus sagittifolius (Kurz) Merr.        | 葫芦子 | --          | Malvaceae    | Herb      | Wild      | Root           | Grinding, decoction; Taken orally for furuncle                                          |
| 2   | Abrus cantoniensis Hance                       | 广东细叶同治草 | rouŋ²ra³tap⁷ | Fabaceae     | Shrub     | Wild      | Whole plant    | Boiled with meat; Taken orally soup, treating for fever due to common cold, bronchitis, epidemic parotitis and tuberculosis |
| 3   | Abutilon indicum (L.) Sweet                    | 六盘草           | ruoŋ³paj⁴luin⁶ | Malvaceae    | Herb      | Wild      | Whole plant    | Boiled with meat; Taken orally soup, treating for fever due to common cold, bronchitis, epidemic parotitis and tuberculosis |
| 4   | Acanthopanax gracilistylus W. W. Smith.        | 竹叶乌头       | mba³tsi³an²lau⁴ | Araliaceae   | Shrub     | Both      | Root, Bark     | Grinding, decoction; Taken orally for rheumatic arthritis, traumatic injury, carminative, bone fracture and pain of limbs |
| 5   | Acanthopanax trifoliatus (L.) Merr.            | 白簕            | mba³tsi³man⁴ndi⁵ | Araliaceae   | Shrub     | Both      | Stem, Root     | Medicinal liquor for treating rheumatic arthritis, traumatic injury, waist and legs pain, ostealgia and sciatica; Pound fresh part applied on the affected area, treating for eczema, ulcer and furuncle |
| 6   | Achillea wilsoniana Heimerl ex Hand. -Mazz.   | 云南野菊        | --          | Asteraceae   | Herb      | Wild      | Whole plant    | Pound fresh part applied on the affected area, treating for ulcer                        |
| 7   | Aconitum carmichaeli Debx.                    | 威灵仙          | ma³wei¹gou¹you¹ | Amananthaceae | Herb      | Wild      | Root           | Grinding and drink with wine for traumatic injury, removing blood stasis               |
| 8   | Adiantum capillus-jononis Rupr.                | 无义草          | taj²gou²møo² | Ranunculaceae | Both      | Tubur     | Tuber          | Grinding, decoction; Taken orally for scrofula, perineum ache                           |
| 9   | Aegle marmelos L.                             | 陈香菊          | ba³g¹sj¹mram³ | Acoraceae    | Herb      | Wild      | Root           | Powder; Taken orally for diarhea                                                       |
| 10  | Acorus tatarinowii Schott                     | 松香薯         | mao⁴n¹n¹vai³ | Acoraceae    | Herb      | Wild      | Rhizome        | Grinding, decoction; Taken orally for epilepsy and convulsion                          |
| 11  | Adenophora tetraphylla (Thunb.) Fisch.         | 木本黄花                    | mua³tai²g²ai² | Campanulaceae | Herb      | Wild      | Root           | Grinding, decoction; Taken orally for complications after measles                      |
| 12  | Alpinia galangensis Lour.                     | 西番莲性 常绿藤 | tuan²ryt³xian³jue⁶ | Adiantaceae  | Herb      | Wild      | Whole plant, Rhizome | Boiled with meat and drunk the soup, treating for piles                               |
| 13  | Ageratum conyzoides L.                       | 花枝蒿          | --          | Acoraceae    | Herb      | Wild      | Whole plant    | Grinding, decoction; Taken orally for swelling, clearing away heat and toxic materials |
| 14  | Aegle marmelos L.                             | 陈香菊          | --          | Acoraceae    | Herb      | Wild      | Whole plant    | Grinding, decoction; Taken orally for fever due to common cold, empyrosis and abscess  |
| 15  | Agrimonia pilosa Ledeb.                      | 龙芽草         | rouŋ⁵hu²cia² | Rosaceae     | Herb      | Wild      | Root           | Boiled with meat or wine and drunk the soup, treating for piles, enteritis, diarrhea, hemafecia, hematuria |
| 16  | Ainsliaea bonatii Beauverd                    | 心叶儿茶        | ma³ka²zai² | Asteraceae   | Herb      | Wild      | Whole plant    | Grinding, decoction; Taken orally for cough, asthma with throat itching               |
| 17  | Akebia quinata (Houtt.) Decne.                | 木通            | --          | Lardizabalaceae | Liana     | Wild      | Stem, Root, Fruit | Grinding, decoction; Taken orally for rheumatism, diuresis, promoting lactation |
| 18  | Alangium chinense (Lour.) Harms               | 八角枫          | mei¹da² | Alangiaceae  | Tree      | Both      | Fibrous root   | Grinding, decoction; Taken orally for rheumatic arthritis, lumbar muscle degeneration, asthma and bleeding |
| 19  | Allium fistulosum L.                          | 霞葱           | soŋ²xiem³nien³ | Liliaceae    | Herb      | Homegarden | Whole plant    | Grinding, decoction; Taken orally for common cold, pains, rheumatic headache, numbness of limbs and replenishing the liver |
| No. | Species/Name                                                                 | Scientific Name                          | Family          | Type                | Description                                                                                     |
|-----|-------------------------------------------------------------------------------|------------------------------------------|-----------------|---------------------|-----------------------------------------------------------------------------------------------|
| 20  | Allium sativum L.                                                             | Suan                                     | Liliaceae       | Herb                | Grinding, dispersed in water and drunk for pertussis cough, enteritis, tuberculosis, poor appetite, indigestion, diarrhea |
| 21  | Allium tuberosum Rottl. ex Spreng.                                            | Jiu                                      | Liliaceae       | Homegarden          | Whole plant                                                                                   |
| 22  | Alocasia macrorrhizor (L.) G. Don                                              | Reyahaiyu                                 | Araceae         | Wild                | Whole plant                                                                                   |
| 23  | Alpinia katsumadai Hayata                                                     | Caoudoukou 姜豆蔻                        | Zingiberaceae   | Herb                | Fruit                                                                                         |
| 24  | Alpinia oxyphylla Miq.                                                        | Yizhi 益智                                | Zingiberaceae   | Wild                | Fruit                                                                                         |
| 25  | Alternanthera sessilis (L.) DC.                                                 | Lianzicao 蓬子草                          | Amaranthaceae   | Wild                | Whole plant                                                                                   |
| 26  | Amomum tsako Crevost et Lematre                                                | Caoguo 草果                               | Zingiberaceae   | Homegarden          | Fruit                                                                                         |
| 27  | Amomum villosum Lour.                                                          | Sharen 砂仁                               | Zingiberaceae   | Herb                | Fruit                                                                                         |
| 28  | Andrographis paniculata (Burm. f) Nees                                         | Chuanxinlian 穿心莲                        | Acanthaceae     | Wild                | Whole plant                                                                                   |
| 29  | Androsace umbellata (Lour.) Men.                                               | Diandimei 点地梅                          | Primulaceae     | Wild                | Whole plant                                                                                   |
| 30  | Anemone hupehensis Lem.                                                         | Dapowanhuahuahua 打破碗花花               | Ranunculaceae   | Wild                | Root, Whole plant                                                                             |
| 31  | Aralia chinensis L.                                                            | Songmu 桃木                               | Araliaceae      | Tree                | Seed                                                                                          |
| 32  | Aralia undulata Hand.-Mazz.                                                    | Boyuansongmu波缘楤木                     | Araliaceae      | Shrub               | Root                                                                                            |
| 33  | Arctium lappa L.                                                               | Nuubang 牛蒡                               | Asteraceae      | Herb                | Fruit                                                                                         |
| 34  | Ardisia gigantifolia Stapf                                                     | Zoumatai 走马胎                           | Myrsinaceae     | Shrub               | Whole plant                                                                                   |
| 35  | Ardisia japonica (Thunb.) Blume                                                 | Zijinniu 蟾金牛                           | Myrsinaceae     | Shrub               | Whole plant                                                                                   |
| 36  | Arisaema erubescens (Wall.) Schott                                             | Yibasannanxing 一把伞南星                | Araceae         | Wild                | Tuber                                                                                         |
| 37  | Arisaema heterophyllum Blume                                                   | Tiananxing 天南星                         | Araceae         | Wild                | Tuber                                                                                         |
| 38  | Arisaema rhizomatum C. E. C. Fischer                                           | Xuelijian 雪里见                         | Araceae         | Herb                | Tuber                                                                                         |
| 39  | Aristolochia fangchi Y. C. Wu ex L. D. Chow et S. M. Hwang                    | Guangfangyi 广防己                        | Aristolochiaceae| Liana               | Tuber                                                                                         |
| 40  | Aristolochia kwangsiensis Chun et How ex C. F. Liang                          | Guangximadouling广西马兜铃               | Aristolochiaceae| Liana               | Tuber                                                                                         |
| 41  | Aristolochia versicolor S. M. Hwang                                             | Biansemadouling变色马兜铃               | Aristolochiaceae| Liana               | Whole plant                                                                                   |
| No. | Common Name | Scientific Name | Family | Type | Usage |
|-----|-------------|-----------------|--------|------|-------|
| 42  | Armeniaca vulgaris Lam. | Xing杏 | Rosaceae | Tree | Homegarden, Seed | Grinding, decoction; Taken orally for chronic trachitis, cough |
| 43  | Artemisia annua L. | 黄花蒿 | Rosaceae | Herb | Whole plant | Grinding, decoction; Taken orally for malaria, fever, indigestion, tuberculosis hot flashes and night sweat; washing for scab, pruritus and mosquito bite |
| 44  | Artemisia capillaris Thunb. | 香蒿 | Rosaceae | Herb | Whole plant | Grinding, decoction; Taken orally for headaches, toothache, cough, diarrhea, acute enteritis |
| 45  | Artemisia japonica Thunb. | Muhao | Rosaceae | Herb | Whole plant | Grinding, decoction; Taken orally for clearing away heat and toxic materials, inflammation and blood stasis |
| 46  | Asarum longerhizomatosum C. F. Liang et C. S. Yang | Xijingjin'erhuan | Aristolochiaceae | Herb | Whole plant | Grinding, decoction; Taken orally for headache, toothache, cough, diarrhea, acute enteritis |
| 47  | Asarum sieboldii Miq. | Xixin | Aristolochiaceae | Root, Stem | Whole plant | Grinding, decoction; Taken orally for cough, relieving pain |
| 48  | Asparagus cochinchinensis (Lour.) Merr. | Tianmendong | Asparagaceae | Herb | Wild | Grinding, decoction drunk for common cold, sore throat, parotitis and epidemic cerebrospinal meningitis |
| 49  | Azolla imbricata (Roxb.) Nakai | Manjianghong | Azollaceae | Herb | Whole plant | Pound fresh part applied on the affected area, treating for measles |
| 50  | Baphicacanthus cusia (Nees) Bremek. | Banlan | Acanthaceae | Whole plant | Grinding, decoction drunk for common cold, sore throat, parotitis and epidemic cerebrospinal meningitis |
| 51  | Bauhinia brachycarpa Wall. | Anyeyangtijia | Fabaceae | Tree | Both | Boiled with meat and drunk the soup, treating for cough, hemoptysis |
| 52  | Bauhinia championii (Benth.) Benth. | Longxuteng | Fabaceae | Stem | Whole plant | Grinding, decoction drunk for rheumatism, traumatic injury, stomachache, waist and legs pain |
| 53  | Belamcanda chinensis (L.) Redoute | Shegan | Iridaceae | Herb | Both | Grinding, decoction drunk for sore throat |
| 54  | Berberis julianae Schneid | Haozhuci | Berberidaceae | Shrub | Wild | Grinding, decoction; Taken orally for nephritis, jaundice, rheumatism, ostealgia, diarrhea, throat ache, kidney deficiency and waist pain |
| 55  | Bidens pilosa L. | Shegan | Asteraeae | Herb | Whole plant | Grinding, decoction; Taken orally for nephritis, jaundice, rheumatism, ostealgia, diarrhea, throat ache, kidney deficiency and waist pain |
| 56  | Bischofia javanica Bl. | Qiufeng | Euphorbiaceae | Tree | Both | Grinding, decoction; Taken orally for nephritis, jaundice, rheumatism, ostealgia, diarrhea, throat ache, kidney deficiency and waist pain |
| 57  | Bletilla striata (Thunb. ex A. Murray) Rchb. f. | Baiji白及 | Orchidaceae | Bulb | Whole plant | Powder swallowed for tuberculosis and empyrosis |
| 58  | Blumea balsamifera (L.) DC. | Ainaixiang艾纳香 | Asteraceae | Herb | Whole plant | Grinding, decoction; Taken orally for common cold, rheumatic arthritis, traumatic injury, dysmenorrhea and afterpains |
| 59  | Boehmeria nivea (L.) Gaudich. | Zhuma苎麻 | Urticaceae | Shrub | Whole plant | Grinding, decoction; Taken orally for miscarriage prevention, hernia, traumatic injury, bone fracture, diuresis, measles, joint sprain |
| No. | Scientific Name | Common Name | Family | Life Form | Parts Used | Uses |
|-----|----------------|-------------|--------|-----------|------------|------|
| 60  | Bombax malabaricum DC. | Mumian木棉 | Bombacaceae | Tree | Both | Flower, Root bark, Root | Gridding, decoction; Taken orally; Flower is treating for enteritis, stomach ulcer; Root bark is treating for rheumatism, traumatic injury; Root is treating for chronic nephritis gastricism, stomach ulcer, tuberculosis of cervical lymph nodes |
| 61  | Botrychium ternatum (Thunb.) Sw. | Yindijue阴地蕨 | Botrychiaceae | Herb | Wild | Whole plant | Gridding, decoction; Taken orally for cough |
| 62  | Brucea javanica (L.) Merr. | Yadanzi滇胆子 | Simaroubaceae | Shrub | Wild | Seed | Gridding, decoction; Taken orally for diarrhea, malaria and chronic diarrhea |
| 63  | Bryophyllum pinnatum (L.) Oken | Luoyeshenggen落地生根 | Crassulaceae | Herb | Wild | Whole plant | Pound fresh part applied on the affected area, treating for detumescence by detoxification, promoting blood circulation to arrest pain, draw out pus and toxin |
| 64  | Buddleja officinalis Maxim. | Mimenghua密蒙花 | Loganiaceae | Shrub | Wild | Flower | Gridding, decoction; Taken orally for swelling and pain of eye, hyperdacyrosis and cloudiness of cornea |
| 65  | Caesalpinia sappan Linn. | Sumu苏木 | Fabaceae | Tree | Wild | Heartwood | Gridding, decoction; Taken orally for traumatic injury, rheumatism, ostealgia, bleeding |
| 66  | Caesalpinia sepiaria Roxb. | Yunshi云实 | Fabaceae | Tree | Wild | Root, Seed | Medicinal liquor for treating contraception in the menstrual period |
| 67  | Callicarpa macrophylla Vahl | Dayezizhu大叶紫珠 | Verbenaceae | Shrub | Wild | Root, Leaf | Gridding, decoction; Taken orally for hemofecia and hemoptysis |
| 68  | Campasnooeca javanica Bl. | Jianqianbajo金钱豹 | Campanulaceae | Herb | Wild | Root | Powdered and swallowed for tuberculosis, enteritis, diarrhea, appendicitis, traumatic injury and piles |
| 69  | Cumptotherca acuminata Decne. | Xishu喜树 | Nyssaceae | Tree | Both | Fruit, Root | Gridding, decoction; Taken orally for cancer and chistosome |
| 70  | Canicoru lucidissima (Levl. et Vaniot) Hand.-Mazz. | Chuanxincao穿心草 | Gentianaceae | Tree | Wild | Whole plant | Gridding, decoction; Taken orally for stranguria, snake bite, stomachache, cough and jaundiced hepatitis |
| 71  | Capsella bursa-pastoris (L.) Medik. | Ji荠 | Cruciferae | Herb | Wild | Whole plant | Gridding, decoction; Taken orally for catching common cold, fever, nephritis, edema, hypertension, enteritis |
| 72  | Cassia tora L. | Jueming决明 | Fabaceae | Herb | Both | Seed | Gridding, decoction; Taken orally for hyperlipidemia, hepatitis, stomachache, acute conjunctivitis, habitual constipation, dental ulcer |
| 73  | Cassytha filiformis L. | Wugenteng无根藤 | Lauraceae | Herb | Wild | Stem | Gridding, decoction; Taken orally for vitiligo, jaundice, constipation, waist and knees pain, impotence and spermatorrhea |
| 74  | Cayratia japonica (Thunb.) Gagnep. | Wulianmei乌菱莓 | Vitaceae | Herb | Wild | Whole plant, Root | Medicinal liquor for paralysis |
| 75  | Celosia argentea L. | Qingshang青葙 | Amaranthaceae | Herb | Wild | Whole plant | Gridding, decoction; Taken orally for trachitis, gastricism |
| 76  | Cerastium glomeratum Thuill. | Qiuxuaju엔球序卷耳 | Caryophyllaceae | Herb | Wild | Whole plant | Pound fresh part applied on the affected area, treating for febrile convulsion |
| 77  | Chaenomeles sinensis (Thouin) Koehne | Mugua木瓜 | Rosaceae | Shrub | Homegarden | Fruit | Gridding, decoction; Taken orally for smooth the liver and stomach |
| 78  | Chirita eburnea Hance | Niu'erduo牛耳朵 | Gesneriaceae | Herb | Whole plant | Root | Gridding, decoction; Taken orally for bronchitis |
| 79  | Chloranthus holostegius (Handel-Mazzetti) Pei & Shan | Quanyuanjinilian全缘金栗兰 | Chloranthaceae | Herb | Wild | Root | Boiled with meat and drunk the soup, treating for weakness |
| Code | Scientific Name | Common Name | Family | Part Used | Plant Type | Associated Conditions |
|------|----------------|-------------|--------|-----------|------------|------------------------|
| 80   | *Cinnamomum camphora* (L.) Presl | Xiangzhangle香樟 | Lauraceae | Tree | Homegarden | Bark | Grinding, decoction; Taken orally for acute gastroenteritis, rheumatism, ostealgia, emesis, diarrhea and bone fracture |
| 81   | *Cinnamomum cassia* Presl | Rougui肉桂 | Lauraceae | Tree | Homegarden | Stem | Grinding, decoction; Taken orally for cough, dysmenorrhea and sweating |
| 82   | *Cinnamomum subhavennium* Miq. | Xianggui香桂 | Lauraceae | Tree | Both | Bark | Grinding, decoction; Taken orally for antiseptic |
| 83   | *Cirsium japonicum* Fisch. ex DC. | Daji大蓟 | Asteraceae | Herb | Wild | Root, Whole plant | Grinding, decoction; Taken orally for jaundice, scabies, hemafecia, muscle swelling and gastroduodenal ulcer |
| 84   | *Clematis chinensis* Osbeck. | Weilingxian威灵仙 | Ranunculaceae | Liana | Wild | Root, Leaf | Grinding, decoction; Taken orally for tontsillitis, jaundice, migraine and rheumatism |
| 85   | *Clerodendrum chinense* (Osbeck) Mabb. | Choumoli紫茉莉 | Verbenaceae | Shrub | Wild | Whole plant | Pound fresh part applied on the affected area, treating for rheumatic arthritis, traumatic injury, rheumatism and detumescence |
| 86   | *Clerodendrum cyrtopyllum* Turcz. | Daqing大青 | Verbenaceae | Shrub | Wild | Leaf | Ground, decoction; Taken orally for fever due to common cold, tontsillitis, pharyngitis, parotitis, enteritis and diarrhea |
| 87   | *Cox lacryma-jobi* L. | Yiyi薏苡 | Gramineae | Herb | Both | Root | Grinding, decoction; Taken orally for acute nephritis |
| 88   | *Colocasia antiquorum* Schott | Yeye野芋 | Araceae | Herb | Wild | Tuber | Pound fresh part applied on the affected area, treating for bleeding, furuncle, empyrosis and snake bite |
| 89   | *Commelina communis* L. | Yazhicao鸭趾草 | Commelinaceae | Herb | Wild | Whole plant | Grinding, decoction; Taken orally for diarrhea, influenza, acute tontsillitis, edema, enteritis, urinary tract infection, empyrosis and bleeding |
| 90   | *Crateagus pinnatifida* Bunge | Shanzha山楂 | Rosaceae | Tree | Homegarden | Fruit | Grinding, decoction; Taken orally for poor appetite, blood stasis |
| 91   | *Croton tiglium* L. | Badou巴豆 | Euphorbiaceae | Tree | Homegarden | Root Bark, Leaf | Pound fresh leaf applied on the affected area, treating for bleeding, herpes zoster; Pound root bark applied on the affected area, treating for snake bite |
| 92   | *Cucumis sativus* L. | Huanggua黄瓜 | Cucurbitaceae | Herb | Homegarden | Fruit | Pound fresh part applied on the affected area, treating for bleeding and skin whitening |
| 93   | *Curculigo orchioides* Gaertn. | Xianmao仙茅 | Amaryllidaceae | Herb | Homegarden | Whole plant | Grinding, decoction; Taken orally for headache due to common cold, rheumatic arthritis, neurasthenia, chronic nephritis, erectile dysfunction and seminal leakage |
| 94   | *Curcuma aromatica* Salisb. | Yujin郁金 | Zingiberaceae | Herb | Wild | Tuber | Grinding, decoction; Taken orally for bleeding, jaundice and cooling blood |
| 95   | *Curcuma longa* L. | Jianghuang姜黄 | Zingiberaceae | Herb | Homegarden | Rhizome | Grinding, decoction; Taken orally for abnormal menstruation, amenorrhea, flatulence and blood stasis |
| 96   | *Curcuma zedoaria* (Christm.) Roscoe | E'zhu莪术 | Zingiberaceae | Herb | Homegarden | Rhizome | Grinding, decoction; Taken orally for rheumatism, ostealgia, traumatic injury, abdomen pain |
| 97   | *Cuscuta chinensis* Lam. | Tuszi菟丝子 | Convolvulaceae | Herb | Wild | Whole plant | Grinding, decoction; Taken orally for hepatitis |
| 98   | *Cycnea hypoglauca* (Schauer) Diels | Fenyelunhuanteng粉叶轮环藤 | Menispermaceae | Liana | Wild | Root | Grinding, decoction; Taken orally for toothache, urinary tract infection, rheumatism, diphtheria, ostealgia; Pound fresh part applied on the affected area, treating for carbuncle, snake bite |
99 Cynanchum atratum Bunge | Baiwei 白薇 | lau² sin⁵ xi¹ | Asclepiadaceae | Herb | Wild | Root | Medicinal liquor for treating rheumatic arthritis
100 Cynanchum auriculatum Royle ex Wight | Niupixiao牛皮消 | g³/⁴i⁴ lin⁴ xiao⁵ | Asclepiadaceae | Shrub | Wild | Root | Boiled with meat and drunk the soup, treating for infantile dry-sickness and malnutrition
101 Cynanchum officinale (Hemsl.) Tsiang & H.D.Zhang | Zhushateng朱砂藤 | -- | Asclepiadaceae | Shrub | Wild | Root | Grinding, decoction; Taken orally for pain killer and weakness
102 Cynanchum paniculatum (Bunge) Kitag. | Xuchangqing徐长卿 | ta²/ta² ruoŋ² tin³ mia⁵ | Asclepiadaceae | Herb | Both | Root, Whole plant | Grinding, decoction; Taken orally for enteritis and diarrhea
103 Cyperus rotundus L. | Xiangfuzi香附子 | lak⁶ rut⁸ | Cyperaceae | Herb | Wild | Tuber | Grinding, decoction; Taken orally for clearing and activating the channels and collaterals, common cold, abnormal menstruation
104 Cyrtomium fortunei J. Sm. | Guanzhong贯众 | rin⁵ tsi⁵ án⁶ lau⁶ | Dryopteridaceae | -- | Wild | Whole plant | Grinding, decoction; Taken orally for common cold, parotitis, gastrorrhagia, hematuria, postpartum lochia and body deficiency disease
105 Datura metel L. | Yangjinhuai洋金花 | -- | Solanaceae | Herb | Wild | Flower | Pound and applied on the affected area for ulcer and pains
106 Datura stramonium L. | Mantuoluo曼陀罗 | ruoŋ⁵ cho¹ dun¹ | Solanaceae | Herb | Wild | Leaf | Pound fresh part applied on the affected area, treating for funicule and traumatic injury
107 Davallia mariesii T. Moore ex Baker | Gusuibu骨碎补 | xin² boa⁴ | Davalliaceae | -- | Wild | Rhizome | Grinding, decoction; Taken orally for bone fracture and fructus psoraleae
108 Desmodium heterocarpon (L.) DC. | Jiadidou假地豆 | thou⁵ ti⁶ pa⁶ | Fabaceae | Shrub | Wild | Whole plant | Grinding, decoction; Taken orally for preventing mumps, epidemic encephalitis B, kidney and vesical stone
109 Dichondra repens J.R. Forst. & G. Forst. | Matijin马蹄金 | ruoŋ⁵ tin⁴ mia⁴ | Convolvulaceae | Herb | Wild | Whole plant | Pound fresh part applied on the affected area, treating for bleeding, urinary stone and jaundiced hepatitis
110 Dicliptera chinensis (L.) Juss. | Gougancai狗肝菜 | ruoŋ⁵ tap⁵ ma⁴ | Acanthaceae | Herb | Wild | Whole plant | Grinding, decoction; Taken orally for fever due to common cold, epidemic hepatitis B, rheumatic arthritis, conjunctivitis, diuresis and measles
111 Dimocarpus longan Lour. | Longyan龙眼 | ruoŋ⁵ kuœ¹ juon² | Sapindaceae | Tree | Homegarden | Aril | Medicinal liquor for cosmetic, insomnia, forgetfulness, replenishing heart, tonic and blood deficiency
112 Dioscorea bulbifera L. | Huangdu黄独 | lak³ phuo² | Dioscoreaceae | Liana | Homegarden | Tuber | Grinding, decoction; Taken orally for cough, hemoptysis and epistaxis
113 Dioscorea cirrhosa Lour. | Shuliang薯蓣 | dan⁴ g³ tu² pin² | Dioscoreaceae | Liana | Homegarden | Tuber | Grinding, decoction; Taken orally for bone fracture, constipations, diarrhoea, disorder
114 Dioscorea opposita Thunb. | Shuyu薯蓣 | -- | Dioscoreaceae | Liana | Homegarden | Tuber | Grinding, decoction; Taken orally for weakness, cough and frequent urination
115 Diospyros kaki Thunb. | Shì柿 | den³ mian³ | Ebenaceae | Tree | Homegarden | Fruit, Persistent calyx | Pound fresh part mixing the rice wine applied on the affected area, treating for lymphadenectasis
116 Diplocyclos asperoides C.Y. Cheng & A. C.I. Chuaaxuduan川续断 | Chaaxuduan川续断 | noŋ² bu² ye⁴ | Dipsacaceae | Herb | Wild | Seed, Root | Boiled with meat and drunk the soup, treating for leucorrhoea and bone fracture
117 Disporum cantoniense (Lour.) Merr. | Wanshouzhu万寿竹 | ma³ mèi¹ ven⁵ | Liliaceae | Herb | Wild | Root, Rhizome | Boiled with meat and drunk the soup, treating for cough
118 Drymaria propinqua (Wall. ex Mett.) J. Sm. | Shilianjianghujue石莲姜蕨 | -- | Drynariaceae | -- | Wild | Rhizome | Medicinal liquor for treating rheumatic arthritis, traumatic injury, bone fracture and blood stasis
119 Duchesnea indica (Andrews) Teijsm. | Shenci蛇臣 | ta²/⁴ ga⁵ bei² sen⁹ | Rosaceae | Herb | Wild | Whole plant | Pound fresh part applied on the affected area, treating for empyrosis, snake bite, furuncle
120 Dysoxylum versipellis (Hance) M. Cheng ex T.S. Ying | Bajaoliian八角莲 | va³ piat⁵ lin⁵ | Berberidaceae | Herb | Both | Rhizome | Grinding, decoction; Taken orally for mumps, traumatic injury, lymphnoditis, snake bite, breast carcinoma
| No. | Scientific Name | Common Name | Family | Plant Type | Usage |
|-----|----------------|-------------|--------|------------|-------|
| 121 | *Eclipta prostrata* (L.) L. | Lichang草 | Asteraceae | Herb | Wild | Whole plant |
| 122 | *Elephantopus scaber* L. | Didancao地胆草 | Asteraceae | Herb | Wild | Whole plant |
| 123 | *Eleusine indica* (L.) Gaertn. | Niujincao牛筋草 | Gramineae | Herb | Wild | Whole plant |
| 124 | *Emilia sonchifolia* (L.) DC. | Yidianhong一点红 | Asteraceae | Herb | Wild | Whole plant |
| 125 | *Epimedium brevicornum* Maximowicz Trudy Imp. S.-Peterburgsk. | Yinyanghuo淫羊藿 | Berberidaceae | Both | Stem, Leaf | Medicine liquor for treating rheumatism, tonic |
| 126 | *Epimedium brevifolium* | Guangfangfen广防风 | Lamiaceae | Herb | Wild | Whole plant |
| 127 | *Equisetum arvense* L. | Wenjing问荆 | Equisetaceae | -- | Wild | Whole plant |
| 128 | *Equisetum hyemale* L. | Bitongcao笔筒草 | Equisetaceae | -- | Wild | Whole plant |
| 129 | *Eriobotrya japonica* (Thunb.) Lindl. | Pipa枇杷 | Rosaceae | Tree | Homegarden | Leaf |
| 130 | *Eucalyptus robusta* Sm. | An福 | Myrtaceae | Tree | Homegarden | Leaf |
| 131 | *Eucommia ulmoides* Oliv. | Duzhong杜仲 | Eucommiaceae | Both | Bark | |
| 132 | *Eucaulorum chinense* L. | Duoxugong多须公 | Asteraceae | Herb | Wild | Root |
| 133 | *Euphorbia anini* | Huoyangle火殃勒 | Euphorbiaceae | Shrub | Wild | Whole plant |
| 134 | *Euphorbia chrysocoma* H. Lév. & Vaniot | Shuihuanghua水黄花 | Euphorbiaceae | Herb | Wild | Root |
| 135 | *Euphorbia hirta* L. | Feiyangcao飞扬草 | Euphorbiaceae | Herb | Wild | Whole plant |
| 136 | *Euphorbia humifusa* Wildenow | Djinin地锦 | Euphorbiaceae | Herb | Wild | Whole plant |
| 137 | *Euphorbia mili* Des Moul. | Tiehaitang铁海棠 | Euphorbiaceae | Shrub | Both | Whole plant |
| 138 | *Euphorbia thymifolia* L. | Qian'gencao千根草 | Euphorbiaceae | Herb | Wild | Whole plant |
| 139 | *Evodia lepta* (Spreng.) Merr. | Sanyaku三桠苦 | Rutaceae | Tree | Wild | Root, Leaf |
| 140 | *Evodia rutaecarpa* (Juss.) Benth. | Wuzhuyu吴茱萸 | Rutaceae | Shrub | Wild | Fruit |
| No. | Species                              | Common Name | Family   | Origin       | Parts Used     | Uses                                      |
|-----|-------------------------------------|-------------|----------|--------------|----------------|-------------------------------------------|
| 141 | Fagopyrum tataricum (L.) Gaertn.    | Kerwa       | Polygonaceae | Herb         | Wild           | Fruit                                     |
| 142 | Fallopia multiflora (Thunb.) Haraldson | Heshouwuzhou | Polygonaceae | Herb         | Both           | Tuber, Stem                               |
| 143 | Fibraurea recisa Pierre              | Tianxiangteng天仙藤 | Menispermae | Liana        | Wild           | Root                                      |
| 144 | Ficus microcarpa L. f.               | Rongshe榕树 | Moraceae  | Tree         | Homegarden     | Leaf                                      |
| 145 | Ficus tikon Bureau                   | Diguo地果   | Moraceae  | Liana        | Wild           | Whole plant                               |
| 146 | Flemingia prostrata Roxb.            | Qianjinha千斤拔 | Fabaceae | Shrub        | Wild           | Root                                      |
| 147 | Gardenia jasminoides J. Ellis        | Zhizig根子   | Rubiaceae | Shrub        | Both           | Fruit                                     |
| 148 | Gastrodia elata Blume               | Tianma天麻   | Orchidaceae | Herb        | Wild           | Rhizome                                   |
| 149 | Gaudthera leucocarpa var. yunnanensis (Franch.) T.Z. Hsu & R.C. Fang | Baigubaizhu白果白珠 | Ericaceae | Shrub        | Whole plant, Root | Grinding, decoction; Taken orally for rheumatic arthritis and traumatic injury |
| 150 | Gelsemium elegans (Gardner & Champ. Benth.) | Gouwen钩吻  | Loganiaceae | Liana         | Wild           | Whole plant                               |
| 151 | Gentiana rhodantha Franch.           | Honghualongdan红花龙胆 | Gentianaceae | Herb        | Wild           | Root                                      |
| 152 | Geranium nepalense Sweet            | Nibor'laoguancao尼泊尔老鹳草 | Geraniaceae | Herb        | Wild           | Whole plant                               |
| 153 | Gerbera piloselloides (L.) Cass.     | Maodoadingcáo毛大丁草 | Asterolaceae | Herb        | Whole plant    | Grinding, decoction; Taken orally for clearing away heat and toxic materials, fever due to common cold, cough, diarrhea, infantile indigestion |
| 154 | Geum aleppicum Jacq.                 | Lubianqing路边青 | Rosaceae  | Herb         | Wild           | Whole plant                               |
| 155 | Ginkgo biloba L.                     | Yinxing银杏   | Ginkgoaceae | Tree         | Homegarden     | Fruit, Leaf                               |
| 156 | Glechis sinensis Lam.                | Zaojia巨葛   | Fabaceae  | Tree         | Both           | Pod                                       |
| 157 | Glochidion puberum (Linnaeus) Hutchinson | Suanpanzi算盘子 | Euphorbiaceae | Shrub        | Wild           | Root, Leaf                                |
| 158 | Gomphrena globosa L.                 | Qianrihong千日红 | Amaranthaceae | Herb        | Wild           | Flower                                    |
| 159 | Gonostegia hirta (Blume ex Hassk.) Miq. | Nuomituan糯米团 | Urticaceae | Herb        | Wild           | Whole plant, Root                         |
| 160 | Gymnotheca chinensis Deene.          | Luoshuo禄IRS | Saururaceae | Herb        | Homegarden     | Whole plant                               |

For weakness and cough, Boiled with meat and drunk the soup, treating for deficiency of dizziness.

Grinding, decoction; Taken orally for stomachache, indigestion.

Grinding, decoction; Taken orally for weakness.

Grinding, decoction; Taken orally for headache, fever, acute tonsillitis, strep throat, diarrhea, jaundiced hepatitis, gastricism, enteritis.

Grinding, decoction; Taken orally for flu, malaria, bronchitis, acute enteritis, bacillary diarrhea, pertussis cough, tonsillitis.

Grinding, decoction; Taken orally for jaundice, diarrhea and internal injury.

Grinding, decoction; Taken orally for jaundiced hepatitis, fever, diarrhea, nephritis and edema.

Grinding, decoction; Taken orally for jaundiced hepatitis, fever, diarrhea, nephritis and edema.

Grinding, decoction; Taken orally for jaundiced hepatitis, fever, diarrhea, nephritis and edema.

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Grinding, decoction; Taken orally for jaundiced hepatitis, fever, diarrhea, nephritis and edema.

Grinding, decoction; Taken orally for jaundiced hepatitis, fever, diarrhea, nephritis and edema.

Grinding, decoction;Taken orally for clearing away heat and toxic materials, fever due to common cold, cough, diarrhea, infantile indigestion.
| No. | Scientific Name                        | Chinese Name                        | Part Used | Family            | Habitat         | Medicinal Use                                                                                     |
|-----|---------------------------------------|-------------------------------------|-----------|-------------------|-----------------|-----------------------------------------------------------------------------------------------|
| 161 | Gynostemma pentaphyllum (Thunb.) Makino | Jiaogulan                           | --        | Cucurbitaceae     | Whole plant     | Grinding, decoction; Taken orally for rheumatism, bronchitis and stomachache                  |
| 162 | Hedyotis diffusa Wild.                | Baihuasheshecao白花蛇舌草          | ruoŋ³ma³nu⁴si⁴ɻ⁵ | Rubiaceae         | Herb            | Grinding, decoction; Taken orally for rheumatism, cough, bronchitis, tonsillitis                |
| 163 | Hemsleya sphaeroarpa Kuang & A. M. Lu  | Shelian蛇莲                        | tei²ŋa⁴ɻ³ni³  | Cucurbitaceae     | Liana           | Powdered; Taken orally for appendicitis                                                        |
| 164 | Homalomena occulta (Lour.) Schott     | Qiannianjian千年健                  | ma³moŋ³te⁴   | Araceae           | Wild            | Grinding, decoction; Taken orally for rheumatism, numbness of limbs, traumatic injury, bone fracture |
| 165 | Houttuynia cordata Thunb.             | Yuxingcao鱼腥草                      | mba³wa⁴ɻ³    | Saururaceae       | Herb            | Grinding, decoction; Taken orally for edema, bronchopneumonia, nephritis, enteritis, diarrhea, cough |
| 166 | Hydrocotyle nepalensis Hook           | Hongmaticao红马蹄草                  | --         | Umbelliferae      | Wild            | Pound fresh part mixing with hot liquor and applied on the affected area, treating for traumatic injury |
| 167 | Hydrocotyle sibthorpioides Lam.       | Tianhusui天胡荽                      | na⁴xiao⁴ni⁴m³ | Umbelliferae      | Wild            | Grinding, decoction; Taken orally for headache due to common cold                               |
| 168 | Hypericum japonicum Thunb.            | Tianjihuang田基黄                    | ruoŋ³kha⁴kai² | Guttiferae        | Wild            | Grinding, decoction; Taken orally for hepatitis, acute conjunctivitis, tonsillitis and forepart hepatocirrhosis |
| 169 | Hypericum sampsonii Hance             | Yuanbaocao元宝草                      | wa³ci⁴n³    | Guttiferae        | Wild            | Grinding, decoction; Taken orally for traumatic injury, pain, indigestion, chest congestion     |
| 170 | Illicium difengpi B.N. Chang          | Difengpi地枫皮                       | --         | Magnoliaceae      | Shrub           | Grinding, decoction; Taken orally for rheumatism, rheumatic arthralgia and lumbar muscle degeneration |
| 171 | Impatiens balsamina L.                | Fengxianhua凤仙花                      | wa³dip³sim¹ | Balsaminaceae     | Homegarden      | Pound fresh part applied on the affected area, treating for furuncle, carbuncle                  |
| 172 | Impatiens pinnatiflora Hook. f.       | Kuaijiefengxianhua块节凤仙花         | fan²ms²ma³   | Balsaminaceae     | Herb            | Pound fresh part applied on the affected area, treating for scrofula                            |
| 173 | Imperata cylindrica (L.) P. Beauv.      | Baimao白茅                          | tan⁴ya⁴guan⁴ | Gramineae         | Herb            | Grinding, decoction; Taken orally for nephritis, edema, bleeding                               |
| 174 | Ipomoea cairica (L.) Sweet            | Wuzhaojilong五爪金龙                 | ruoŋ³lak⁴ong⁴ | Convolvulaceae    | Both            | Pound fresh part applied on the affected area, treating for carbuncle, clearing away heat and toxic materials |
| 175 | Ipomoea mauritiana Jacq.              | Qizhualong七爪龙                      | miau⁴ren⁴sen³ | Convolvulaceae    | Liana           | Boiled with meat and drunk the soup, treating for nephritis                                      |
| 176 | Ipomoea pescaprae (L.) R. Br.         | Houteng厚藤                          | ruoŋ³an⁴mia⁴  | Convolvulaceae    | Herb            | Grinding, decoction; Taken orally for rheumatic lumbocural pain and lumbar muscle degeneration |
| 177 | Iris tectorum Maxim                   | Yuanwei鸢尾                          | zo¹wa³ŋ⁴     | Iridaceae         | Herb            | Pound fresh part with water is taken as a drink for improving indigestion                      |
| 178 | Juglan regia L.                       | Hutaow阴桃                          | den³van⁴k³ŋ⁴ | Juglandaceae      | Tree            | Grinding, decoction; Taken orally for tensive, back pain                                       |
| 179 | Juncus effusus L.                     | Dengxincao灯心草                    | hän³da⁴ŋ⁵    | Juncaceae         | Herb            | Grinding, decoction; Taken orally for jaundiced hepatitis                                       |
| 180 | Justicia gendarussa Burm. f.          | Xiaobogu小驳骨                      | ruoŋ³tiək³dak³si⁵ | Acanthaceae     | Shrub           | Pound fresh part applied on the affected area, treating for bone fracture, traumatic injury, rheumatic arthritis, ulcer |

These entries provide information on the medicinal uses of various plants, including their parts used, family, and typical treatments. The text is divided into columns for scientific name, Chinese name, part used, family, habitat, and medicinal uses, offering a structured overview of traditional medical practices involving these plants.
### Lonicera japonica Thunb.

**Parts Used:** Stem, Flower

**Common Names:** Rendong忍冬, Yaocao药草

**Properties:** Wild, Whole plant, Stem, Flower

**Actions:** Grinding and decoction; Taken orally for jaundice, clearing away heat and toxic materials, headache and fever; Taken orally for pneumonia, bronchitis

**Uses:** For bone fracture, ostealgia, chronic gastricism, acute gastroenteritis

### Lobelia sequinii Br. ex Mart.

**Parts Used:** Seed

**Common Names:** Pukui蒲葵

**Properties:** Wild

**Actions:** Grinding, decoction or infusion with wine drunk for bone fracture, ostealgia, chronic gastricism, acute gastroenteritis

**Uses:** For jaundice, clearing away heat and toxic materials, headache and fever; flower is for enteritis, diarrhea, pneumonia, influenza

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**Note:** The table continues with information on various plants and their uses, properties, and common names. Each entry includes the scientific name, common names, parts used, and how they are utilized or applied. The table format is consistent across all entries, providing a comprehensive overview of the document's content.
203  **Lophatherum gracile** Brongn.  
Danzhuye淡竹叶  
mei²tun³se³  
Gramineae  
Herb  
Both  
Leaf  
Grinding, decoction; Taken orally for urinary tract infection, aphthous stomatitis, swelling, aching of gum

204  **Loropetalum chinense** (R. Br.) Oliv.  
Jimu橄木  
ruoŋ³mei²ci¹  
Hamamelidaceae  
Shrub  
Wild  
Leaf, Flower, Root  
Grinding, decoction; Taken orally; Leaf is for abdomen pain, metrorrhagia; Flower is for bleeding; Root is for traumatic injury, chronic arthritis, amenorrhea, bleeding

205  **Lycopus lucidus** Turcz. ex Benth.  
Disun地笋  
--  
Lamiaceae  
Herb  
Wild  
Whole plant  
Grinding, decoction; Taken orally for abnormal menstruation, amenorrhea, traumatic injury, bone fracture

206  **Lycopus lucidus** Turcz. ex Benth.  
Shisong石松  
m?au²mu²n⁴  
Lycopodiaceae  
--  
Wild  
Whole plant  
Grinding, decoction; Taken orally for rheumatic arthritis, arthralgia, leg cramp, hand and foot numbness

207  **Lycopodium japonicum** Thunb.  
Haijinsha海金沙  
ma³gon³bou³  
Lycopodiaceae  
--  
Wild  
Whole plant, Sporangium  
Pound fresh part applied on the affected area, treating for chronic ulcer, skin infection, furuncle, foot rot

208  **Lysimachia christinae** Hance  
Guoluhuang过路黄  
ma³g³ou²t³an³  
Primulaceae  
Herb  
Wild  
Whole plant  
Grinding, decoction; Taken orally for urinary tract infection, jaundice, hepatitis

209  **Lysimachia paridiformis** Franch.  
Luodimei落地梅  
--  
Primulaceae  
Herb  
Wild  
Whole plant  
Grinding, decoction; Taken orally for infantile convulsions

210  **Lysionotus pauciflorus** Maxim.  
Daoshibijutai吊石苣苔  
ba³dau³ma⁴  
Gesneriaceae  
Shrub  
Wild  
Whole plant  
Grinding, decoction; Taken orally for bronchitis, asthma

211  **Magnolia officinalis** Rehd. & E.H. Wilson  
Houpo厚朴  
--  
Magnoliaceae  
Tree  
Both  
Bark  
Grinding, decoction; Taken orally for emesis, diarrhea

212  **Mahonia bealei** (Fortune) Carrière  
Kuoyeshidagonglao阔叶十大功劳  
ruoŋ³wan³ljen⁴  
Berberidaceae  
Shrub  
Wild  
Root  
Grinding, decoction; Taken orally for pneumonia, tuberculosis, infectious hepatitis, acute gastroenteritis, bronchitis

213  **Mallotus apelta** (Lour.) Müll. Arg.  
Baibeiye白背叶  
mei¹phi¹iau³sei¹  
Euphorbiaceae  
Shrub  
Wild  
Root, Leaf  
Grinding, decoction; Taken orally for urinary tract infection, jaundice, hepatitis

214  **Mallotus barbatus** Müll. Arg.  
Maotong毛桐  
--  
Euphorbiaceae  
Shrub  
Wild  
Leaf  
Pound fresh part and applied on the affected area, treating for clearing away heat and toxic materials, bed ulcer, eczema

215  **Marsilea quadrifolia** L.  
Ping苹  
phuŋ⁴phieu³lau²  
Marsileaceae  
--  
Wild  
Whole plant  
Grinding, decoction; Taken orally for jaundiced hepatitis, asthma, edema, hepatic ascites, fever due to common cold

216  **Melastoma candidum** D. Don  
Yemudan野牡丹  
ruoŋ³lak⁴ma³nd⁴  
Melastomataceae  
Shrub  
Wild  
Whole plant  
Grinding, decoction; Taken orally for hemafecia, watery diarrhea

217  **Melastoma dodecandrum** Lour.  
Dinie地菍  
lak³nin¹  
Melastomataceae  
Shrub  
Wild  
Whole plant  
Grinding, decoction; Taken orally for removing blood stasis, traumatic injury, diarrhea, lithanguria, urinary obstruction

218  **Melia azedarach** L.  
Lian楝  
ruoŋ³ku³ljen⁴  
Meliaceae  
Tree  
Both  
Fruit, Leaf  
Grinding, boiled with water and washed the affected area for scabies, tinea capitis and rice paddy dermatitis

219  **Mimosa pudica** L.  
Hanxiucao含羞草  
ruoŋ³ra³n⁴se³  
Fabaceae  
Herb  
Both  
Whole plant  
Boiled with meat and drunk the soup, treating for leucorrhoea, abnormal menstruation, prostatitis, metrorrhagia

220  **Mirabilis jalapa** L.  
Zimoli紫茉莉  
ruoŋ³jɛn³wa³  
Nyctaginaceae  
Herb  
Both  
Root  
Grinding, decoction; Taken orally for insomnia
| No. | Scientific Name                                      | Common Name       | Family            | Plant Type | Part Used                      | Medicinal Use                                                                 |
|-----|-----------------------------------------------------|-------------------|-------------------|------------|-------------------------------|-------------------------------------------------------------------------------|
| 221 | *Momordica cochinchinensis* (Lour.) Spreng.         | 青木香            | Cucurbitaceae     | Liana      | Seed, Leaf, Stem              | Grinding, decoction; Taken orally for innominate inflammatory of unknown origin, carbuncle, lymphodinitis |
| 222 | *Morus alba* L.                                     | 桑                | Moraceae          | Tree       | Both                          | Leaf, Bark                                                                    |
| 223 | *Murraya henryi* Harms                              | 唐王木香          | Meliaceae         | Shrub      | Whole plant                   | Root                                                                          |
| 224 | *Murraya exotica* L.                                | 唐王木香          | Rutaceae          | Tree       | Whole plant                   | Root                                                                          |
| 225 | *Massaenda pubescens* W.T. Aiton                    | 玉叶金花          | Rubiaceae         | Shrub      | Both                          | Stem, Leaf                                                                    |
| 226 | *Myrica rubra* (Lour.) Siebold & Zucc.              | 杨梅              | Myricaceae        | Tree       | Homegarden                    | Root, Bark                                                                    |
| 227 | *Nandina domestica* Thunb.                          | 南天竹            | Berberidaceae     | Shrub      | Wild                          | Root, Stem, Fruit                                                             |
| 228 | *Nepeta cataria* L.                                 | 荆芥              | Lamiaceae         | Herb       | Homegarden                    | Whole plant                                                                   |
| 229 | *Nephrorhynchis cordifolia* (L.) C. Presl           | 肾蕨              | Davalliaceae      | Wild       | Rhizome, Leaf, Whole plant    | Wild                                                                          |
| 230 | *Oenanthe javanica* (Blume) DC.                     | 柄草              | Umbelliferae      | Herb       | Whole plant                   | Wild                                                                          |
| 231 | *Ophioglossum reticulatum* L.                       | 锦鸡蕨            | Ophioglossaceae   | Wild       | Whole plant                   | Pound fresh part applied on the affected area, treating for furuncle, snake bite and acute conjunctivitis |
| 232 | *Ophiopogon japonicus* (L.f.) Ker Gawl.             | 贝母              | Liliaceae         | Herb       | Both                          | Tuber                                                                         |
| 233 | *Opuntia stricta* (Haw.) Haw. var. *dilleni* (Ker-Gawl.) Benson | 仙人掌            | Cactaceae         | Shrub      | Both                          | Stem                                                                          |
| 234 | *Oroxylum indicum* (L.) Kurz                        | 木蝴蝶            | Bignoniaceae      | Tree       | Homegarden, Bark, Seed        | Grinding, decoction; Taken orally for chronic bronchitis, cough              |
| 235 | *Osbeckia ophiopara* C.Y. Wu & C. Chen              | 朝天罐            | Melastomataceae   | Shrub      | Wild                          | Root                                                                          |
| 236 | *Oxalis corniculata* L.                             | 水芹              | Oxalidaceae       | Whole plant| Wild                          | Whole plant                                                                   |
| 237 | *Paederia scandens* (Lour.) Merr.                    | 荷木酸            | Rubiaceae         | Liana      | Whole plant, Root             | Medicinal liquor for treating flu, cough, pertussis cough, diarrhea, stomachache, chest stuffiness |
| 238 | *Paeonia lactiflora* Pall.                          | 丹参              | Ranunculaceae     | Herb       | Homegarden                    | Root                                                                          |
| 239 | *Paeonia suffruticosa* Andrew                       | 川芎              | Ranunculaceae     | Shrub      | Homegarden                    | Root, Bark                                                                     |
| 240 | *Palhinhaea cernua* (L.) Vasc. & Franco             | 垂穗石松          | Lycopodiaceae     | Wild       | Whole plant                   | Grinding, decoction; Taken orally for relaxing tendons and activating collaterals, carminative, blood stasis, bleeding |
| 241 | Paris polyphylla Sm. | Qiyeyizhihua 七叶一枝花 | wa⁶ten¹va³ | Trilliaceae | Herb | Wild | Whole plant | Pound fresh part applied on the affected area, treating for traumatic injury and snake bite. Grinding, decoction; Taken orally for rheumatism, ostealgia, traumatic injury and asces due to cirrhosis; Pound fresh part applied on the affected area, treating for snake bite, herpes zosters. |
| 242 | Pentasacme championii Benth. | Shishumo 石茉莉 | ruoŋ⁶saŋ¹nut³ | Asclepiadaceae | Herb | Wild | Whole plant | Grinding, decoction; Taken orally for rheumatism, ostealgia, traumatic injury and asces due to cirrhosis. |
| 243 | Perilla frutescens (L.) Britton | Zisu紫苏 | mba⁶ha⁶lan¹ | Lamiaecae | Herb | Homegarden | Whole plant | Medicinal liquor for treating rheumatic arthritis. |
| 244 | Periploca forrestii Schlr. | Heilonggu黑龙骨 | mei³za⁶nam¹ | Asclepiadaceae | Shrub | Wild | Whole plant | Grinding, decoction; Taken orally for diabetes insipidus. |
| 245 | Phellodendron amurense Rupr. | Huangbo黄檗 | mei³bi³?an³ | Rutaceae | Tree | Wild | Bark | Grinding, decoction; Taken orally for diabetes insipidus. |
| 246 | Pholidota chinensis Lindl. | Shixiantao石仙桃 | ruoŋ⁶xien¹thui² | Orchidaceae | Herb | Wild | Whole plant | Grinding, decoction; Taken orally for cough, tuberculosis, scrofula, diuresis, infantile malnutrition. |
| 247 | Pheragnites australis (Cav.) Trin. ex Stead. | Luwei芦苇 | gan⁷di³nau¹ | Gramineae | Herb | Wild | Root | Grinding, decoction; Taken orally for infantile whitish aphthae. |
| 248 | Phyllanthus urinaria L. | Yexiazhu叶下珠 | thuŋ⁷thin⁵sei¹ | Euphorbiaceae | Herb | Wild | Whole plant | Grinding, decoction; Taken orally for jaundiced hepatitis, diarrhea, enteritis, nephritis, edema and lithanguria. |
| 249 | Phyllostachys viridula (L.) Desv. | Paiqianshu排钱树 | ruoŋ⁶vak⁶jien² | Fabaceae | Shrub | Wild | Leaf, Root | Grinding, decoction; Taken orally for common cold, cough, asthma, emesis. |
| 250 | Physalis angulata L. | Kuzhi苦藠 | -- | Solanaceae | Herb | Wild | Whole plant | Grinding, decoction; Taken orally for epidemc parotitis, cough, jaundice, hepatitis, diarrheaa. |
| 251 | Phytolacca acinosa Roxb. | Shanglu商陆 | lak⁶phaködøn⁶ | Phytolaccaceae | Herb | Both | Root | Grinding, decoction; Taken orally for cervical erosion, digestibility ulcer, liver ascites, constipation, diuresis. |
| 252 | Pilea cavaleriei H. Lév. | Shiyoucai石油菜 | bma⁶ju³thui² | Urticaceae | Herb | Wild | Whole plant | Grinding, decoction; Taken orally for lung heat panting, cough, tuberculosis, traumatic injury, empyrosis, furunle. |
| 253 | Piper hancei Maxim. | Shanjushan茴香 | tshuon⁴pi⁴fun⁶ | Piperaceae | Liana | Wild | Stem, Leaf | Grinding, decoction; Taken orally for lumbar muscle degeneration, chronic gastricism, cough, ostealgia, rheumatic arthritis, heatstroke, numbness of limbs. |
| 254 | Pistia stratiotes Linnaeus Sp. | Dapiao大薸 | -- | Araceae | Herb | Wild | Whole plant | Pound fresh part applied on the affected area, treating for removing blood stasis. |
| 255 | Plantago asiatica L. | Cheqian车前 | mba³b³k⁴ | Plantaginaceae | Herb | Wild | Whole plant | Grinding, decoction; Taken orally for traumatic tract infection, urinary stone, fever and cough due to common cold, nephritis, edema, bronchitis, hypertension. |
| 256 | Platycodon grandiflorus (Jacq.) A. DC. | Jieqing桔梗 | -- | Campanulaceae | Herb | Both | Root | Grinding, decoction; Taken orally for inflammation, cough. |
| 257 | Plumbago zeylanica L. | Baihuadan白花丹 | ruoŋ⁶ra⁶v⁶k⁴ | Plumbaginaceae | Herb | Wild | Whole plant | Grinding, decoction; Taken orally for traumatic injury. |
| 258 | Pogonia japonica Rchb. f. | Zhulan朱兰 | ma⁶za⁶zao³ | Orchidaceae | Herb | Wild | Whole plant | Boiled with meat and drunk the soup, treating for enuresis. |
| 259 | Polygala japonica Houtt. | Guazijin瓜子金 | ya⁵yiŋ⁶zi²m³ | Polygalaceae | Herb | Wild | Whole plant | Grinding, decoction; Taken orally for neurasthenia. |
| No. | Species                                      | Common Names                          | Family     | Type       | Part Used                                      | Uses                                                                                                                                                                                                 |
|-----|---------------------------------------------|----------------------------------------|------------|------------|-----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 260 | Polygonatum cyrtomena Hua                   | Duohuahuangjing多花黄精               | Liliaceae  | Herb      | Rhizome                                       | Pound fresh part mixed with rice wine, applied on the affected area, treating for lymphadenectomy, urinary tract infection, chronic bronchitis, pneumonia, nephritis, edema. |
| 261 | Polygonatum odoratum (Mill.) Drue             | Yuzhu玉竹                             | Liliaceae  | Herb      | Homegarden Rhizome                           | Grinding, decoction; Taken orally for moistening lung for resting cough.                                                                                                                          |
| 262 | Polygonatum sibiricum Redouté               | Huangjing黄精                         | Liliaceae  | Herb      | Both Rhizome                                 | Grinding, decoction; Taken orally for tuberculosis, diabetes, hypertension, weakness after ill, invigorating spleen, reinforcing stomach.                                                          |
| 263 | Polygonum aviculare L.                      | Shegan射干                            | Polygonaceae | Herb      | Whole plant                                  | Grinding, decoction; Taken orally for stranguria due to hematuria.                                                                                                                              |
| 264 | Polygonum chinense L.                       | Huotanmu火炭母                         | Polygonaceae | Herb      | Whole plant, Rhizome                         | Grinding, decoction; Taken orally for diarrhea, enteritis, indigestion, hepatitis, pharyngitis. Pound fresh part applied on the affected area, treating for traumatic injury, furuncle, eczema, dermatitis, puritus. |
| 265 | Polygonum hydropiper L.                     | Shuiliao辣蓼                           | Polygonaceae | Herb      | Whole plant                                  | Grinding, decoction; Taken orally for diarrhea, acute ulcer, common cold, typhoid, rheumatism, ostealgia, traumatic injury. Pound fresh part applied on the affected area, treating for eczema, centipede bite.  |
| 266 | Polygonum perfoliatum (L.) L.               | gangban'gui杠板归                      | Polygonaceae | Herb      | Whole plant                                  | Grinding, decoction; Taken orally for jaundice, diarrhea, malaria, nephritis, edema. Pound fresh part applied on the affected area, treating for furuncle, eczema, carbuncle.                                        |
| 267 | Portulaca oleracea L.                       | Machixian马齿苋                        | Portulacaceae | Herb      | Whole plant                                  | Grinding, decoction; Taken orally for cystitis, diarrhea, hypertension.                                                                                                                             |
| 268 | Potentilla chinensis Ser.                   | Weilingcai委陵菜                       | Rosaceae   | Herb      | Whole plant                                  | Grinding, decoction; Taken orally for clearing away heat and toxic materials, diarrhea.                                                                                                           |
| 269 | Potentilla freyniana Bornm.                 | Sanyeweilingscai三叶委陵菜            | Rosaceae   | Root      | Whole plant                                  | Grinding, decoction; Taken orally for preventing rashes.                                                                                                                                             |
| 270 | Potentilla kleiniana Wight & Am.             | Shehanweilingcai蛇含委陵菜            | Rosaceae   | Herb      | Whole plant                                  | Grinding the fresh part, decoction drunk for infantile fever.                                                                                                                                       |
| 271 | Prunella vulgaris L.                        | Xiankucao夏枯草                        | Lamiaceae  | Herb      | Whole plant                                  | Grinding, decoction; Taken orally for clearing away heat and toxic materials, kidney deficiency.                                                                                                       |
| 272 | Psoralea corylifolia L.                     | Buguzhi补骨脂                         | Fabaceae   | Herb      | Seed                                          | Medicinal liquor for treating rheumatism and kidney deficiency.                                                                                                                                     |
| 273 | Pteris multifida Poir.                      | Jinglanbiancao井栏边草               | Pteridaceae | Wild      | Whole plant                                  | Grinding, decoction; Taken orally for diarrhea, jaundiced hepatitis, hemafecia, hematuria.                                                                                                           |
| 274 | Pueraria lobata (Willd.) Ohwi                | Biue'chai葛                            | Fabaceae   | Wild      | Tuber                                         | Grinding, decoction; Taken orally for fever, hypertension, protecting the liver, promoting salivation.                                                                                               |
| 275 | Pulsatilla chinensis (Bunge) Regel           | Baiouweng白头翁                        | Ranunculaceae | Herb      | Rhizome                                       | Grinding, decoction; Taken orally for diarrhea, malaria, dysmenorrhea, uterine bleeding.                                                                                                           |
| 276 | Punica granatum L.                          | Shiliu石榴                             | Punicaceae  | Shrub     | Homegarden Pericarp                          | Grinding, decoction; Taken orally for diarrhea, acute enteritis, piles, proctitis                                                                                                                   |
| 277 | Pyrolo calliantha Andres                     | Laticiau鹿蹄草                        | Pyrolaceae  | Herb      | Whole plant                                  | Grinding, decoction; Taken orally for cough, weakness.                                                                                                                                             |
| 278 | Pyrosia lingua (Thunb.) Farw.               | Shiwei石韦                             | Polypodiaceae | Wild      | Whole plant                                  | Grinding, decoction; Taken orally for senile chronic bronchitis, pneumonia, nephritis, edema, urinary tract infection.                                                                                   |
| **279** Quisqualis indica L. | Shijunzi使君子 | lak⁵ram² | Combretaceae | Liana | Wild | Seed | Chewed for infantile malnutrition product, deprivring ascariid |
| **280** Rubus ulmifolius (D. Don) H. Harms | Niuweicao牛尾草 | te³'ven⁴'pion⁴ | Lamiaceae | Herb | Wild | Whole plant, Leaf | Grinding, decoction; Taken orally for hepatitis, enteritis, common cold |
| **281** Raphanus sativus L. | Luobo萝卜 | ve⁴'log⁴'bu⁵ | Cruciferae | Herb | Homegarden | Seed | Grinding, decoction; Taken orally for senile chronic bronchitis |
| **282** Rauvolfia verticillata (Lour.) Baill. | Luofuma罗木 | -- | Apocynaceae | Shrub | Both | Root | Pound fresh part applied on the affected area, treating for bleeding, pain killer, hypertension, dispersing blood stasis |
| **283** Rehmannia glutinosa (Gaertn.) Liboisch. ex Fisch. & C.A. Mey. | Dihuang地黄 | ma²liao⁴'lip⁷ | Scrophulariaceae | Herb | Wild | Tuber | Grinding, decoction; Taken orally for removing heat to promote salivation |
| **284** Reineckia carnea (Andr.) Libosch. ex Fisch. & C.A. Mey. | Jixiangcao吉祥草 | taŋ⁵'kap⁸ | Liliaceae | Herb | Whole plant | Root, Fruit | Grinding, decoction; Taken orally for cough, blood stasis, rheumatism, traumatic injury, jaundice, amenorrhea |
| **285** Reynoutria japonica Houtt. | Huzhang虎杖 | ruoŋ⁴'waŋ⁴'chim⁶ | Polygonaceae | Herb | Wild | Rhizome | Grinding, decoction; Taken orally for cough, pertussis cough, diarrhea, hemoptysis, sore throat, scrotula |
| **286** Rhoeo discolor (L’Hér.) Hance | Zibeiwannianqing紫青万年青 | ruoŋ⁴'phuoŋ²'wa³ | Commelinaceae | Herb | Wild | Flower | Grinding, decoction; Taken orally for cough, arthrosis, trauma, respiratory infections, dermatitis, hemorrhage, vertigo, amenorrhea, ascariid |
| **287** Rhus chinensis Mill. | Yanfumu盐麸木 | mei⁵'wos⁵ | Anacardiaceae | Shrub | Both | Cecidium | Grinding, decoction; Taken orally for bleeding, arrest sweating, piles, pharyngitis, inflammation |
| **288** Ricinus communis L. | Bimu蓖麻 | thuŋ⁴'ja⁶ | Euphorbiaceae | Herb | Homegarden | Seed | Pound fresh part applied on the affected area, treating for scabies |
| **289** Rorippa indica (L.) Hiern. | Hancai蔊菜 | ma²you⁴'ye⁴ | Cruciferae | Herb | Whole plant | Root, Fruit | Pound fresh part and mixed with rapeseed oil, applied on the affected area, treating for dermatitis |
| **290** Rosa chinensis Jacq. | Yuejihua月季花 | ng⁴'jy⁴'ng⁵'zam⁵ | Rosaceae | Shrub | Homegarden | Flower | Grinding, decoction; Taken orally for abnormal menstruation |
| **291** Rosa laevigata Michx. | Jinyingzi金樱子 | lak⁵'man⁴ | Rosaceae | Shrub | Both | Root, Fruit | Grinding, decoction; Taken orally for bone fracture, traumatic injury, appendicitis, diarrhea, enteritis, stomachache |
| **292** Rosa multiflora Thunb. | Yeqiangwei野蔷薇 | -- | Rosaceae | Shrub | Wild | Seed | Grinding, decoction; Taken orally for clearing and activating the channels and collaterals, diuresis |
| **293** Rosa roxburghii Tratt. | Saosiuhua缫丝花 | taŋ⁴'di⁴'nm³'gaŋ⁴ | Rosaceae | Shrub | Wild | Root | Grinding, decoction; Taken orally for indigestion, stomachache |
| **294** Rubus parvifolius L. | Maomei茅莓 | lak⁵'thom⁴'pha⁴ | Rosaceae | Shrub | Whole plant | Root | Grinding the fresh part, decoction; Taken orally for jaundice, toothache, chronic hepatitis, stomachache, diarrhea, splagitis |
| **295** Rumex nepalensis Spreng. | Nibo'er'suanmo尼泊尔酸模 | ma¹'ran⁴'lou² | Polygonaceae | Herb | Wild | Root | Grinding, decoction; Taken orally for nephritis |
| **296** Salvia miltiorrhiza Bunge | Danshen丹参 | dan⁴'sen⁵ | Lamiaceae | Herb | Homegarden | Root | Grinding, decoction; Taken orally for afterpains, removing blood stasis |
| **297** Sambucus chinensis Lindl. | Jiegucao接骨草 | -- | Caprifoliaceae | Herb | Wild | Rhizome | Grinding, decoction; Taken orally for rheumatic arthritis, tonsillitis, rheumatoid arthritis, urinary tract infection |
| **298** Sambucus williamsii Hance | Jiegumuo接骨木 | ruoŋ⁴'ra⁴'liem² | Caprifoliaceae | Shrub | Both | Leaf | Grinding, decoction; Taken orally for traumatic injury, rheumatic arthritis, waist and legs pain, bone fracture, scapulohumeral periarthritis |
| **299** Sanguisorba officinalis L. | Diyu地榆 | gai⁴'gu²'va³ | Rosaceae | Herb | Wild | Root | Grinding the fresh part, decoction; Taken orally for diarrhea |
| Number | Herb Name | Common Name | Family | Type | Part(s) Used | Preparation | Use | Other Uses |
|--------|-----------|-------------|--------|------|-------------|-------------|-----|------------|
| 300    | Sapindus mukorossi Gaertn. | Wuhuanzi无患子 | Sapindaceae | Tree | Seed | Grinding, decoction; Taken orally for tuberculosis, pertussis cough |
| 301    | Sapindus discolor (Champ. ex Benth.) Müll. Arg. | Shanwuji山乌桕 | Euphorbiaceae | Tree | Leaf | Grinding, decoction; Taken orally for traumatic injury, snake bite, constipation, carbuncle, abscess, fever |
| 302    | Sargentodoxa cuneata (Oliv.) Rehder & E.H. Wilson | Daxueteng大血藤 | Lardizabalaceae | Liana | Root, Stem | Medicinal liquor for treating rheumatic arthritis, traumatic injury, ostealgia |
| 303    | Saurauia tristyla DC. | Shuidongge水东哥 | Actinidiaceae | Shrub | Whole | Grinding, decoction; Taken orally for carbuncle, cough, bronchitis, toothache |
| 304    | Saururus chinensis (Lour.) Baill. | Sanbaicao三白草 | Ranunculaceae | Herb | Whole plant | Grinding, decoction; Taken orally for nephritis, edema, lithangiuria, eczema, furuncle, carbuncle |
| 305    | Saxifraga stolonifera Curtis | Hu'ercao虎耳草 | Saxifragaceae | Herb | Wild | Pound fresh part applied on the affected area, treating for traumatic hemorrhage, furuncle, parotitis, empyrosis |
| 306    | Schefflera heptaphylla (L.) Frodin | E'zhangchhai鹅掌柴 | Araliaceae | Tree | Both | Grinding and decoction; Taken orally; Root and Stem bark are for fever, rheumatism, ostealgia, traumatic injury, sore throat; Leaf is for eczema, allergic dermatitis |
| 307    | Schizocapsa plantaginea Hance | Lieguoshu裂果薯 | Taccaceae | Herb | Wild | Rhizome |
| 308    | Scutellaria barbata D. Don | Banzhilian半枝莲 | Lamiaceae | Herb | Whole | Grinding, decoction; Taken orally for cough, traumatic injury, pharyngitis, heart and stomach pain |
| 309    | Selaginella moellendorffii Hieron. | Jianganjuanbai江南卷柏 | Selaginellaceae | -- | Whole | Pound fresh part applied on the affected area, treating for hemotoma after contusion |
| 310    | Selaginella tamariscina (P. Beauv.) Spring | Juanshai卷柏 | Selaginellaceae | -- | Whole | Grinding, decoction; Taken orally for hemafecia, epistaxis, metorrhagia, traumatic injury, chronic hepatitis, proctoptosis |
| 311    | Semiaquilegia adoxoides (DC.) Makino | Tiankui天葵 | Ranunculaceae | Herb | Wild | Tuberculosis, pertussis cough |
| 312    | Seneio scandens Buch.-Ham. ex D. Don | Qianlingguang千里光 | Asteraceae | Herb | Wild | Whole plant |
| 313    | Senna occidentalis (L.) Link | Wangjiangnan望江南 | Fabaceae | Shrub | Both | Seed |
| 314    | Serissa japonica (Thunb.) Thunb. | Liuyuexue六月雪 | Rubiaceae | Shrub | Whole | Grinding, decoction; Taken orally for habitual constipation, hypertension, headache, indigestion, epifoliculitis, oral mucosa ulcer |
| 315    | Setcreasea purpurea Boon | Zizhumei紫竹梅 | Commelinaeae | -- | Whole | Pound fresh part applied on the affected area, treating for bleeding, snake bite, activating blood and hemps |
| 316    | Sida szechuenensis Matsuda | Badusan拔毒散 | Malvaceae | Shrub | Whole | Pound fresh part applied on the affected area, treating for traumatic injury and inflammation |
| 317    | Sugesbeckia orientalis L. | Xixian嶋荃 | Asteraceae | Herb | Whole | Grinding, decoction; Taken orally for insomnna, hypertension, acute jaundiced hepatitis, diarrhea, malaria, numbness of limbs |
| 318    | Smilax glabra Roxb. | Tufuling土茯苓 | Smilacaceae | Herb | Homegarden | Rhizome |
| 319    | Solanum capsicoides All. | Niuqiezi牛茄子 | Solanaceae | Herb | Whole | Grinding, decoction; Taken orally for fever due to common cold, headache, cough, abscess, chest stuffiness |
| ID  | Scientific Name                  | Common Name | Plant Type | Growth Habit | Part Used | Habitat | Medicinal Use                                                                 |
|-----|----------------------------------|-------------|------------|--------------|-----------|---------|--------------------------------------------------------------------------------|
| 320 | Solanum violaceum L.             | Citianqie朝天茄 | Solanaceae | Shrub        | Leaf, Fruit | Wild    | Pound fresh part applied on the affected area, treating for yellow-water ulcer, fingers ulcer and ringworm |
| 321 | Solidago decurrens Lour.          | Yizhihuanghua一枝黄花 | Asteraceae | Herb         | Whole plant | Wild    | Grinding, decoction; Taken orally for fever, headache, jaundice, bronchitis, acute gastricism, upper respiratory infection, swelling, throat ache |
| 322 | Sophora flavescens Aiton         | Kushen苦参   | Fabaceae   | Wild         | Whole plant | Root    | Grinding, decoction; Taken orally for piles, cutaneous puritis                  |
| 323 | Sophora tonkinensis Gagnep.      | Yuenanhui越南槐 | Fabaceae   | Shrub        | Whole plant | Root    | Grinding, decoction; Taken orally for acute pharyngitis, tonsillitis, swelling and aching of gums, cough, constipation |
| 324 | Sparganium stoloniferum (Buch.-Ham. ex Graebn.) | Heisaneleng黑三棱 | Sparganiaceae | Herb         | Stem      | Tubber | Grinding, decoction; Taken orally for blood stasis, pain killer                |
| 325 | Spaltholobus sinensis Chun & T.C. Chen | Hongxueteng红血藤 | Fabaceae   | Liana        | Whole plant | Root    | Medicinal liquor for treating traumatic injury                                   |
| 326 | Spaltholobus suberectus Dunn     | Mihuadou密花豆 | Fabaceae   | Liana        | Stem      | Whole plant, Root | Grinding, decoction; Taken orally for stomachache, enriching blood, waist and knees pain |
| 327 | Spiranthes sinensis (Pers.) Ames | Shoucao绶草   | Orchidaceae | Wild         | Whole plant | Tubber | Grinding, decoction; Taken orally for diabetes, leucorrhoea, weakness, sore throat, neurasthenia and erectile dysfunction |
| 328 | Stahlianthus involucratus (King ex Baker) Craigi | Tutianqi土田七 | Zingiberaceae | Herb         | Both      | Tubber | Grinding, decoction; Taken orally for traumatic injury, rheumatism, ostealgia |
| 329 | Stemona tuberosa Lour.           | Dabaibu大百部 | Stemonaceae | Liana        | Tubber    | | Grinding, decoction; Taken orally for pertussis cough, tuberculosis, bronchitis |
| 330 | Stephanaria cepharantha Hayata   | Jinxianliawugui金线吊乌龟 | Menispermaeae | Liana        | Tubber    | | Pound fresh part applied on the affected area, treating for carbuncle, snake bite |
| 331 | Streptocauleon juvenis (Lour.) Merr. | Anxiateng接骨藤   | Asclepiadaceae | Liana        | Root, Leaf | | Grinding, decoction; Taken orally; Root is for diarrhea, piles, pneumonia, vitiligo and arrhythmia; Pound fresh leaf applied on the affected area, treating for snake bite, eczema and vaginitis |
| 332 | Striga asiatica (L.) Kuntze     | Dujuiaojin独脚金 | Scrofulariaceae | Herb        | Whole plant | | Grinding, decoction; Taken orally for infantile malnutrition, dampness-heat constitution, diarrhea, jaundiced hepatitis |
| 333 | Strophanthus divaricatus (Lour.) Hook. & Arn. | Yangjiaoniu羊角拗 | Apocynaceae | Shrub        | Stem, Leaf | | Grinding, decoction; Taken orally for rheumatic arthritis, traumatic injury, snake bite, sprain |
| 334 | Taxillus chinensis (DC.) Dansser | Guangjisheng广寄生 | Loranthaceae | Shrub        | Whole plant | | Grinding, decoction; Taken orally for conjunctivitis, epidemic parotitis, enteritis, gastricism, hepatitis, diarrhea, acute mastitis, sphenitis |
| 335 | Tetrapanax papyrifer (Hook.) K. Koch | Tongtuomu通脱木 | Araliaceae  | Shrub        | Homegarden | Stem pith | Boiled with meat and drunk the soup, treating for promoting lactation |
| Plant Name              | Common Name          | Genus                      | Family            | Plant Part   | Use                                                                 |
|------------------------|----------------------|----------------------------|-------------------|--------------|----------------------------------------------------------------------|
| Tetragmina planicaule  | Hook. f.             | Tinospora sagittata        | Violaceae         | Wild         | Treating for rheumatoid arthritis, muscle degeneration, cough, traumatic injury, lumbar muscle degeneration, sciatica |
| Tinospora sinensis     | Lour. Merr.          | Zhonghuaqinbiyuansinensis  | Menispermacae     | Wild         | Treating for rheumatoid arthritis, muscle degeneration, cough, traumatic injury, lumbar muscle degeneration, sciatica |
| Toddalia asiatica     | (L.) Lam.            | Feilongzhaxuefengdaolv    | Rutaceae          | Wild         | Root                                                                 |
| Trachelospermum       | jasminoides (Lindl.)| L.                        | Apocynaceae       | Whole plant  | Whole plant                                                          |
| Trachycarpus          | fortunei (Hook.)     | Zonglizhixing             | Palmae            | Whole plant  | Whole plant                                                          |
| Trichosanthus         | kiriowii Maxim.      | Guajoloufuyu              | Cucurbitaceae     | Root         | Root                                                                |
| Trichosanthus         | rosthornii Harms     | Zhonghuaqinbiyuansinensis  | Cucurbitaceae     | Wild         | Tuber                                                               |
| Typhonium             | blumei Nicolson &   | Litoujianzhixue           | Araceae           | Wild         | Whole plant                                                          |
| Typhonium             | giganteum Engl.     | Dujiaoliujiu               | Araceae           | Wild         | Whole plant                                                          |
| Uncaria               | rhynophylla (Miq.)   | Goutengjuhe               | Rubiaceae         | Hooked stem  | Hooked stem                                                          |
| Urena lobata          | L.                   | Ditaohuamedicua           | Malvaceae         | Whole plant  | Whole plant                                                          |
| Valeriana             | jatamansi Jones      | Zhizhuxiangzhi           | Valerianaceae     | Wild         | Rhizome                                                             |
| Ventilago             | leioscarpae Benth.   | Yiheguozhibie            | Rhamnaceae        | Wild         | Whole plant                                                          |
| Verbena               | officinalis L.       | Mahiancaowuli            | Verbenaceae       | Wild         | Whole plant                                                          |
| Vernoniasinerea (L.)  | Less.                | Yexiangniuji              | Asteraceae        | Whole plant  | Whole plant                                                          |
| Viola                 | inconspicua Blume    | Changsejincai             | Violaceae         | Whole plant  | Whole plant                                                          |
| Viola                 | philippica Cav.      | Zhihuadidingzhihe        | Violaceae         | Whole plant  | Whole plant                                                          |
| Viscum liquidambaricolum | Hayata             | Fengxianghuishengsengchuanshangyu     | Loranthaceae   | Whole plant  | Whole plant                                                          |

Note: The table lists plants with their common names, scientific names, families, and parts used for various medical applications.
| No. | Name                  | Common Name   | Family         | Type       | Part Used  | Main Uses                                                      |
|-----|----------------------|---------------|----------------|------------|------------|----------------------------------------------------------------|
| 358 | Vitex negundo L.     | Huangjing     | Verbenaceae    | Shrub      | Stem, Leaf | Grinding, decoction; Taken orally for diarrhea, malaria, enteritis, common cold, heatstroke |
| 359 | Vitex trifolia L.     | Manjing       | Verbenaceae    | Shrub      | Fruit      | Powder, swallowed for headache                                |
| 360 | Wikstroemia indica (L.) C.A. Mey. | Liuogewang | Verbenaceae    | Shrub      | Stem, Leaf | Grinding, decoction; Taken orally for clearing away heat and toxic materials, traumatic injury, hepatitis, parotitis |
| 361 | Woodwardia japonica (L.) Sm. | Gouji        | Verbenaceae    | Shrub      | Wild       | Grinding, decoction; Taken orally for neurasthenia, rheumatic arthralgia, diuresis, waist and knees pain |
| 362 | Wrightia laevis Hook. f. | Lanshu       | Verbenaceae    | Shrub      | Wild       | Grinding, decoction; Taken orally for bleeding, traumatic injury, mumps |
| 363 | Xanthium sibiricum Patrin ex Widder | Cang'er     | Verbenaceae    | Shrub      | Wild       | Grinding, decoction; Taken orally for traumatic injury, rheumatic arthralgia, headache |
| 364 | Zanthoxylum armatum DC. | Zhuyehuajiao | Verbenaceae    | Shrub      | Wild       | Grinding, decoction; Taken orally for traumatic injury, chronic gastricism, cough, depriving ascariad |
| 365 | Zanthoxylum nitidum (Roxb.) DC. | Liangmianzhen | Verbenaceae    | Shrub      | Wild       | Grinding, decoction; Taken orally for duodenal ulcer, traumatic injury, rheumatism, diarrhea, malaria, chronic gastricism |
| 366 | Zea mays L.           | Yumi          | Gramineae      | Herb       | Column     | Powder swallowed for diabetes                                |
| 367 | Ziziphus jujuba Mill. | Zao           | Rhamnaceae     | Tree       | Whole plant | Grinding, decoction; Taken orally for urinary tract infection, tonsillitis, acute conjunctivitis, carbuncle |
| 368 | Zehneria indica (Lour.) Keraudren | Laoshuladonggua | Cucurbitaceae  | Herb       | Orange     | Grinding, decoction; Taken orally for infantile diarrhea       |
Table 2 Taxonomic diversity of medicinal plants in the study area

| Family       | Number of genera | Percentage (%) | Number of species | Percentage of species (%) |
|--------------|------------------|----------------|------------------|---------------------------|
| Asteraceae   | 22               | 7.46           | 24               | 6.52                      |
| Fabaceae     | 15               | 5.08           | 19               | 5.16                      |
| Rosaceae     | 11               | 3.73           | 16               | 4.35                      |
| Euphorbiaceae| 8                | 2.71           | 14               | 3.80                      |
| Liliaceae    | 9                | 3.05           | 13               | 3.53                      |
| Araceae      | 7                | 2.37           | 11               | 2.99                      |
| Lamiaceae    | 9                | 3.05           | 9                | 2.45                      |
| Polygonaceae | 4                | 1.36           | 8                | 2.17                      |
| Zingiberaceae| 4                | 1.36           | 8                | 2.17                      |
| Lauraceae    | 4                | 1.36           | 7                | 1.90                      |
| Ranunculaceae| 6                | 2.03           | 7                | 1.90                      |
| Rutaceae     | 5                | 1.69           | 7                | 1.90                      |
| Asclepiadaceae| 4              | 1.36           | 7                | 1.90                      |
| Cucurbitaceae| 6                | 2.03           | 7                | 1.90                      |
| Gramineae    | 6                | 2.03           | 6                | 1.63                      |
| Araliaceae   | 4                | 1.36           | 6                | 1.63                      |
| Rubiaceae    | 6                | 2.03           | 6                | 1.63                      |
| Verbenaceae  | 4                | 1.36           | 6                | 1.63                      |
| Other families| 162           | 54.92          | 188              | 51.09                     |
| Total        | 295              | 100            | 368              | 100                       |

The distribution of informants in age, gender and education class was shown in Table 3. The majority of informants interviewed were above 40 years old in this investigation. The male informants were 89.8% and less educated. There was a significant correlation between the informant age and phytomedicinal knowledge.

Table 3 Demographic profile of informants

| Indicator | Description | Frequency (%) |
|-----------|-------------|---------------|
| Age       | 20-29       | 7 (5.9)       |
|           | 30-39       | 23 (19.5)     |
|           | 40-49       | 38 (32.2)     |
|           | 50-59       | 29 (24.6)     |
|           | 60-69       | 12 (10.2)     |
|           | 70-79       | 5 (4.2)       |
|           | ≥80         | 4 (3.4)       |
| Gender    | Male        | 106 (89.8)    |
|           | Female      | 12 (10.2)     |
| Education | None        | 27 (22.9)     |
|           | Primary     | 72 (61.0)     |
|           | Secondary   | 13 (11.0)     |
|           | Tertiary    | 6 (5.1)       |

Life forms, plant parts used, method of collection and administration

The result of life form analysis of medicinal plants showed that herbaceous plants constituted the highest proportion represented by 203 (55.16%) species, while there were 67 (18.21%) shrubs species, 43 (11.68%) lianas and 41 (11.14%) tree species (Figure 2).
Informants of the study area used different plant parts for preparation of traditional drugs (e.g. leaves, roots, seeds, barks and fruits). The informants reported that more species (153) of medicinal plants were harvested for their whole plants, and these were followed by roots (83), leaves (45), stems (30), fruits (29), tubers (29), rhizomes (27) and 51 other parts (seed, bark, flower and so on) (Figure 3). The majority of remedies were prepared from fresh materials, and some were prepared from either dried or fresh materials while a few were only used from dried materials.

Of these 368 species of medicinal plants collected from the study area, most of them (256, 67.72%) were obtained from the wild habitats whereas 54 (14.67%) were from home gardens, and only 58 (15.76%) species were from both home gardens and wild habitats (see Table 1). The majority of plants used as medicine were freely harvested by healers from natural environment, while some exotic or difficult-accessed species were bought from medicinal materials suppliers. Generally fresh parts were wild harvest. Most medicinal plants were not available from local market, only some species were found to be sold but mainly for their uses as spice or food, such as *Zanthoxylum armatum*, *Nepeta cataria* and *Houttuynia cordata*.

Diseases treated in the study area

The medicinal plants were used to treat 95 human ailments in the study area. With regard to human diseases, traumatic injury was the one against which a high number of medicinal plants (67 species) were prescribed, followed by diarrhea (65 species), cough (44 species), hepatitis (37 species), enteritis (35 species), rheumatism (30 species), arthritis (27 species), bleeding (26 species), snake bite (24 species), furuncle (22 species) and nephritis (22 species).

The highest number of species (139, 37.57%) was used for the treatment of internal organs like liver (hepatitis, cirrhosis, jaundice, hepatic ascites, hepatosplenomegaly and so on), stomach (stomachache, stomach ulcer, gastroduodenal ulcer, flatulence, gastricism, indigestion and poor appetite), enteron (enteritis, proctoptosis, appendicitis and so on), spleen and diarrhea, with 251 (20.69%) of all conditions (Table 4 Rheumatic problems (83 species used, 22.4%) were mentioned as 140 (11.54%) of all uses; 83 species (22.4%) were used to treat respiratory problems, with 112 applications (9.23%). Bone problems were treated with 72 species (19.46%), with 85 conditions (7.01%). Skin problems were mentioned in 87 uses (7.17%), with 65 species (17.57%) used for treatment. Inflammation was treated with 48 species (12.97%), and comprised 67 (5.52%) of all conditions (Table 4).
Table 4 Informant consensus factor by categories of diseases in the study area

| Category                                      | Number of spp. | Total of spp. (%)| Number of use citation | Total of use citations (%) | F<sub>IC</sub> |
|-----------------------------------------------|----------------|------------------|-------------------------|---------------------------|---------------|
| Stomach, intestine and liver diseases (Internal Organ) | 139            | 37.57            | 236                     | 10.69                     | 0.41          |
| Respiratory system                            | 83             | 22.43            | 153                     | 6.93                      | 0.46          |
| Rheumatic problems                            | 83             | 22.43            | 217                     | 9.83                      | 0.62          |
| Traumatic injury and sprain                   | 72             | 19.46            | 275                     | 12.46                     | 0.74          |
| Skin diseases, skin cut and wound             | 65             | 17.57            | 152                     | 6.89                      | 0.58          |
| Urinary system                                | 47             | 12.70            | 105                     | 4.76                      | 0.56          |
| Inflammation                                  | 48             | 12.97            | 143                     | 6.48                      | 0.67          |
| Infectious diseases                           | 40             | 10.81            | 78                      | 3.53                      | 0.49          |
| Fever and malaria                             | 36             | 9.73             | 132                     | 5.98                      | 0.73          |
| Bleeding and hemorrhages                      | 36             | 9.73             | 95                      | 4.30                      | 0.63          |
| Pain                                          | 30             | 8.11             | 64                      | 2.90                      | 0.54          |
| Animal bite (snake, centipede, mosquito and bat) | 30             | 8.11             | 86                      | 3.90                      | 0.66          |
| Gynecological problems                        | 29             | 7.84             | 54                      | 2.45                      | 0.47          |
| Infantile diseases                            | 28             | 7.57             | 110                     | 4.98                      | 0.75          |
| Heart and circulatory system                  | 25             | 6.76             | 42                      | 1.90                      | 0.41          |
| Male problems                                 | 25             | 6.76             | 76                      | 3.44                      | 0.68          |
| Nerves and psychosomatic problems             | 12             | 3.24             | 14                      | 0.63                      | 0.15          |
| Hyperlipidemia and diabetes                   | 6              | 1.62             | 13                      | 0.59                      | 0.58          |
| Brain diseases                                | 5              | 1.35             | 7                       | 0.32                      | 0.33          |
| Cancer and tumors                             | 4              | 1.08             | 6                       | 0.27                      | 0.40          |
| Other Uses (edema, swelling and so on)        | 87             | 23.51            | 149                     | 6.75                      | 0.42          |

Ranking, informant consensus factor and multipurpose of medicinal plants

Among all ailments in the villages surveyed, traumatic injury was the most commonly disease against which a high number of medicinal plants (67 species) were prescribed. Seven medicinal plant species were used effectively for treating traumatic injury according to key informants. The results revealed *Gaultheria leucocarpa* was the most preferred medicinal plant, followed by *Acanthopanax trifoliatus*, and *Sargentodoxa cuneata* (Table 5).

Table 5 Preference ranking to medicinal plants used to treat traumatic injury

| List of medicinal plants          | Informants | Total | Rank |
|----------------------------------|------------|-------|------|
|                                  | R<sub>1</sub> | R<sub>2</sub> | R<sub>3</sub> | R<sub>4</sub> | R<sub>5</sub> | R<sub>6</sub> | R<sub>7</sub> | R<sub>8</sub> |     |
| *Acanthopanax trifoliatus*       | 4          | 7      | 5     | 5     | 7     | 5     | 4     | 5     | 42  | 2  |
| *Bauhinia championii*            | 3          | 4      | 6     | 7     | 1     | 3     | 1     | 2     | 27  | 5  |
| *Gaultheria leucocarpa*          | 5          | 5      | 7     | 6     | 5     | 6     | 6     | 3     | 43  | 1  |
| *Justicia ventricosa*            | 2          | 6      | 3     | 1     | 4     | 4     | 2     | 4     | 26  | 6  |
| *Polygonum chinense*             | 6          | 1      | 1     | 2     | 2     | 1     | 3     | 1     | 17  | 7  |
| *Sargentodoxa cuneata*           | 7          | 3      | 4     | 4     | 3     | 7     | 5     | 7     | 40  | 3  |
| *Sambucus williamsii*            | 1          | 2      | 2     | 3     | 6     | 2     | 7     | 6     | 29  | 4  |

Key—R represented respondents; Scores in the table indicated ranks given to medicinal plants based on their scarcity. Highest number (7) is for the medicinal plants which informants thought most preferred in the area and the lowest number (1) for the least preferred medicinal plant.

Table 4 gave an overview of the main illness categories. The diseases that were prevalent in the study area had relatively higher F<sub>IC</sub> values. Medicinal plants to treat certain disease...
effectively and with reputation in Maonan communities also have higher FIC: traumatic injury and sprain (0.74), fever and malaria (0.73) and infantile diseases (0.75). Moreover, informants indicated the effectiveness of traditional medicines to get relief from certain diseases including traumatic injury, bone fracture, health problems associated with the liver disorder, snake bite, and spider poisoning.

The Maonans naturally relied on plants for multipurpose. Table 6 showed the most frequently inventoried medicinal plants had more functions used by the Maonans in local societies. In addition to medicinal value, most of medicinal plants were also valued for their economic, edible and ornamental values which were considered to serve an ecological role in the study sites. These plants included Acanthopanax trifoliatus, Litsea pungens, Platycodon grandiflorus, Rubus parvifolius, and Talinum paniculatum. Besides their medicinal purpose, these plants were sold in the local markets for the purposes of foods, spices and herbal teas, such as Allium fistulosum, Allium tuberosum, Cinnamomum cassia, Perilla frutescens, Oenanthe javanica, Gardenia jasminoides, Houttuynia cordata, and Juglans regia.

| Species name              | Medicinal value | Edible value | Economic value | Ornamental value |
|---------------------------|-----------------|--------------|----------------|-----------------|
| Acanthopanax trifoliatus  | ✓               | ✓            | ✓              |                 |
| Buddleja officinalis      | ✓               | ✓            | ✓              |                 |
| Houttuynia cordata        | ✓               | ✓            | ✓              |                 |
| Litsea pungens            | ✓               | ✓            | ✓              | ✓               |
| Murraya exotica           | ✓               | ✓            | ✓              |                 |
| Nephrolepis cordifolia    | ✓               | ✓            | ✓              |                 |
| Paederia scandens          | ✓               | ✓            |                |                 |
| Platycodon grandiflorus   | ✓               | ✓            | ✓              |                 |
| Rauvolfia verticillata    | ✓               | ✓            | ✓              |                 |
| Rubus parvifolius         | ✓               | ✓            | ✓              |                 |
| Sargentodoxa cuneata      | ✓               | ✓            |                |                 |
| Talinum paniculatum       | ✓               | ✓            | ✓              |                 |
| Tetrapanax papyrifer      | ✓               | ✓            |                |                 |

Mode of preparation, condition, dosage of application

Various plant species were collected and used immediately. Most of the medicinal formulations were administrated orally in ailment categories other than dermatological problems. In dermatological ailments, plants were administrated externally. Water and some additives were often used in the preparation of remedies, such as alcohol, oil, honey, salt, sugar, eggs, chicken, duck and meat. The additives were claimed to either increase nutrition or improve flavor. Most informants used measuring units such as cup, bowl, spoon, fingers and scale but still differed in the doses they administered. The various ways of measuring dosage were generally categorized under three major classes. One dosage was used for those medicinal plants which were expected to be highly toxic. For such medicines the measurement was undertaken by number or weight. The second was the dosage used for medicinal plants which have side effect. The dosage was measured by their hand and taken by container. The third case referred to the medicinal plants without any observable side effects. Medicines prepared were taken according to patients’ personal preference.

Most of the medicinal plant preparations involved the use of single plant species or a single plant part while those mixing different plants or plant parts were less encountered in the study.
area excluding those for treating bone fracture, rheumatism and other difficult diseases. Suffering from common diseases (common cold, indigestion, mosquito bite and so on), the Maonans usually picked up some medicinal plants for treatments by themselves. Otherwise, they should turn to the Maonan healers for help, and the local healers usually prepared remedies by mixing various plants or plant parts. Lack of consistency regarding amount of medicines was observed among informants. There was no concise standard in measurement or unit used among the informants.

**Threats to medicinal plants and conservation practices**

Various factors that were considered as main threats for medicinal plants were recorded by discussion with the informants in the study area. The principal threats of medicinal plants were reported to include drought, deforestation, medicinal purpose, and firewood collection in this area. Informants ranked that the major factors were deforestation for the purpose of agricultural expansion (75%), drought (10%), collection of medicinal plant material (10%) and firewood (5%). The Maonan people knew the benefits of conserving medicinal plants. However, the effort of conserving medicinal plants was very limited, because most medicinal plants were collected from wild. Even the local healers who frequently made use of medicinal plants for livelihood did not conserve medicinal plants very well, and they preferred to collect them from wild when using for patients.

**Discussion**

**Medicinal plants and associated traditional knowledge**

On the basis of field investigation and literature studies, 368 species of medicinal plants belonged to 295 genera and 115 families were cataloged. Chinese name, scientific name, local name, family name, used parts and the treatment of diseases were listed. Asteraceae (with 24 species) occupied the highest proportion (6.52%), followed by Fabaceae, Rosaceae and Euphorbiaceae. Moerman also found that species of plants in the sunflower family (Asteraceae) tended to be represented in ethnobotanical usage in excess of what would be expected by their occurrence in local environments [27-29]. In contrast, Moerman identified the greater number of families across North America in general. The most widely used plant remedies by the Maonans were obtained from herbaceous species which constituted the highest category of 203 species (55.16%). Similar findings were reported by other studies throughout the world, and the authors reported that people derived their medicine from herbs partly because of the fact that forests had been degraded, and it took less time and effort to harvest plant material from medicinal herbs [6,30-32].

The special geographical environment results in the rich biodiversity of medicinal plants in the study area. The Maonans have learnt to use local medicinal plants for treatment and prevention in the course of struggling with the ailments. The number of reported medicinal plants and their uses by the Maonans indicate the depth of indigenous knowledge on the medicinal plants and their applications. The Maonans have collected their indigenous knowledge and experience of medicinal plants. Without written language, the knowledge of medicinal plants is still taught orally in the Maonan communities. There is not data record or any illustrated identification which guides for the medicinal plants of Maonan people and their uses.
The Maonans have the traditional customs of disease prevention and emphasize on the function of medicinal food in ordinary life. They usually add medicinal plants into food for the purpose of enhancing the body’s immunity and disease resistance, such as *Talinum paniculatum*, *Gymnotheca chinensis*, *Osbeckia opipara* and so on. The Maonans have the custom of collecting the medicinal plants for cooking and bathing in dragon-boat festival, such as *Acorus calamus*, *Curcuma longa*, *Paederia scandens* and *Leonurus artemisia*. They believe that it would be beneficial for their health. This is because many plants matured in the season of dragon-boat festival [33].

**Preparation, dosage and route of administration of medicinal plants**

The most widely harvested part was the whole plant, followed by the roots, leaves, stems and others. The Maonan people used a lot of roots, stems, rhizomes and bark for medicinal purpose. They believed these parts were the most effective. However, such collection of the medicinal plants might kill or damage plants when harvesting. Utilization of leaves might not cause detrimental effect on the plants compared with plant species that root was utilized. Most of medicinal plants were claimed to be prepared from a single species or plant part in the present study, and the different parts of medicinal plant were used to treat disparate diseases. Although Maonan people preferred to treat illnesses with single species, it was observed that the healers mostly used multiple species or plant parts in order to increase the function and efficacy of the drug as they reported during the interviews. Representatively, the Maonan healers mostly used more than one plant species to prepare remedy for treating bone fracture and traumatic injury.

Grinding was the most widely used method of preparation for remedy in the study area. Pounding and powdering fresh plant materials were the other methods of preparation in the study area. Due to the efficiency and richness of the fresh medicinal plants in the study area, preference of application of fresh plant parts was observed. Moreover, internal and skin diseases were more prevalent in the study area. The fresh material use might be an attempt not to lose volatile oils, the concentration of which could decrease on drying. Moa* et al.* reported that the disadvantage was that utilization of fresh plant parts may threaten the plants through frequent collection including in dry seasons since local people made minimal efforts in storing dried plant material for later use [6].

The Maonans usually use the processing methods such as decoction, medicinal liquor, external application and medicated bath. The way of using herbs was benefit for the popularity in a simple and easy method. They used different additives like alcohol, oil, honey, salt, sugar, eggs, chicken, duck and meat in order to increase the flavor, taste and general acceptability of certain orally administered remedies. Because of poverty, eating animal meat and eggs could increase proteins and might be helpful for body recovery when the Maonans were ill. The Maonan healers considered that alcohol could promote the blood circulation and accelerate the absorption of exudates. In addition, the Maonan healers used different procedures to administer the medicinal plants and alcohol combinations. The medicinal plants were soaked in alcohol for nearly one month and then the patients could drink or applied externally on the affected parts. For example, *Acanthopanax gracilistylus*, *Achyranthes bidentata*, *Ardisia gigantifolia*, *Ardisia japonica*, *Arisaema heterophyllum*, *Davallia mariesii*, *Dipsacus asperoides*, *Drynaria propinqua*, *Homalomena occulta*, *Sambucus williamsii*, *Bauhinia championii*, *Murraya exotica*, and *Paris polyphylla* were usually soaked in alcohol for treating traumatic injury and bone fracture.
Effectiveness and popularity of medicinal plants

Due to the influence of geography, climate and food culture in Maonan areas, the Maonan healers understood the varieties of diseases, such as traumatic injury, snake bite, hepatitis, respiratory disease, digestive system disease, rheumatoid arthritis, and skin problems. The local people expressed they preferred to use traditional medicines rather than western drugs to get relief from some diseases including bone fracture, health problems associated with the liver, snake bite and those caused by hepatitis. The Maonan healers treated ailments based on the patients’ physical conditions, lack of consistency regarding amount of medicines to be used was observed among informants during the interviews. The healers usually did not know which ingredients were important for the therapeutic effect in the multiple prescriptions. The lack of precise dosage was one shortage of traditional medicinal plant uses.

Most of Maonan people knew how to use several medicinal plants for treating ailments and health protection. Traditional medicine knowledge was not only in the hands of the Maonan healers and herbalists in the study area. Moreover, Maonan people grew medicinal plants in their home gardens. Plant species maintained by Maonan healers was found to be significantly distinct from plant species managed by farmers. The Maonan healers knew more than 30 medicinal plant species, while most of the non-healers reported less than 15 species. Ethnomedicinal usage of plants managed by healers was remarkably distinct from usage categories managed by farmers. The Maonan healers were reported to use a combination of multiple medicinal plants to treat an illness, but the farmers always used single plant species or a single plant part.

Medicinal plant cultivation and trade

The Maonan people in the study area knew the benefits of conserving medicinal plants. However, the effort of conserving medicinal plants was very limited. For example, only 20.75% of medicinal plants were collected from home gardens, and most of the plants from home gardens were used for foods, spices and substitutes for tea. The majority of medicinal plants were harvested from wild habitats. Even Maonan healers who made use of medicinal plants for a livelihood did not conserve the important medicinal plants in their home gardens, and they preferred to collect them from wild or hidden places when patients visited them. It was explained by informants that local healers did not let the other villagers know the identity of the medicinal plants they were using. Informants further explained that if healers planted the species in their home gardens, they worried that somebody else might recognize them when they were preparing the medicine from the plants. Thus the healers’ income would be decreased.

Because of complex terrain and language barrier, the Maonans have been in the traditional self-sufficient agricultural economy in the karst areas. There is a seasonal medicinal market which opens 3 times each month. The sites of purchase and sale of local medicinal plants are located in the town. The medicinal plants grown by farmers were used for household healthcare and little was sold in herbal markets, while medicinal plants were cultivated by healers rarely for trading, either. Not many medicinal plants were solely cultivated for their medicinal purpose, except that the plants were multipurpose (Table 6). Lack of water and land, most Maonan people would prefer to cultivate foods or cash crops rather than medicinal plants. The other reason was that most medicinal plants were not sold at reasonable prices and therefore not profitable, providing very little incentives for their cultivation. The local medicinal markets were small-scaled and were not paid enough attention. The markets
provided convenience for the exchange of local medicinal plants, but not providing a good place for indigenous knowledge. This trend might not be beneficial for maintaining traditional practices and giving traditional knowledge the respect it deserves.

**Threats to medicinal plants and conservation practices in the study area**

According to informants, nowadays it would take a lot of time and travel long distances to search for some medicinal plants, especially trees and some shrubs. The principal threats of medicinal plants were reported in the study area, including deforestation for agricultural purposes, urbanization, drought, over-harvesting of known medicinal species and firewood collection. Also, informants ranked deforestation for agricultural purposes as the most serious threat to medicinal plants followed by drought, collection of other different factors and firewood. The conservation of medicinal plants was less realized in the study area.

**Medicinal plants knowledge secrecy, mode of transfer, gender issue and threats between different social groups within the Maonan area**

This study highlighted the rich biodiversity of medicinal plants and ethnomedicinal practice in Maonan area to maintain wellbeing and support livelihoods. This study revealed that, most of the knowledge on herbal remedies was handled down to the younger members of the community by elders orally, who were over 40 years old and less-educated. The Maonan herbalists and healers were male, and only men had the opportunities to study knowledge of traditional medicinal plants in the family. The conservative concept of Maonan healers made a systematic indigenous knowledge of Maonan traditional medicine, which had always been in the hands of a few people. The age structure and knowledge transmission system had the negative influence on the inheritance and development of indigenous knowledge. It dramatically exposed the vulnerability of traditional medicinal knowledge if its transmission was limited by acculturation or inter-ethnic exchange from generation to generation [15,34,35].

Nowadays, the fact is that inheritance of indigenous knowledge is difficulty from the elders to the young generation. Most young people do not believe that studying indigenous knowledge is beneficial for their life because it is less profited compared to working in the urban area. Furthermore, some young people think traditional medicine is anti-science. While male Maonan people work outside, women take responsibility to take care of their families and educate children. If women know how to use medicinal plants, it will be beneficial for training children. According to our interviews, the Maonan women are eager to learn the traditional herbal medicinal knowledge. They may become potential and effective inheritors in the Maonan area, if customary inheriting system allows them.

**Conclusions**

The paper is an ethnobotanical study on medicinal plants used by Maonan people. We documented 368 species (belonging to 295 genera and 115 families) of medicinal plants used by the Maonans in Huanjiang Maonan Autonomous County, northern Guangxi, southwest China. These plants were used to treat 95 human diseases, such as traumatic injury, bone fracture, health problems associated with the liver disorder, snake bite, and spider poisoning etc. Traditional knowledge about the use, preparation, and application of these medicinal plants is usually passed verbally from generation to generation. The valuable information
about medicinal plants could be preserved while recording in the written form. Moreover, the documentation of medicinal plants can serve as a basis for future investigation of new medicinal resources.

Among the medicinal plant species, the whole plants of herbaceous species are harvested from field and constituted the highest proportion of medicinal plants to be utilized. More roots and barks are used than other plant parts, which imply that traditional medical culture in the Maonan area does threaten some species. Although high numbers of medicinal plant species have been reported to be used for human health problems, many wild species are being threatened by various anthropogenic factors while conservation efforts are less practiced in the study area. Deforestation for agricultural purposes is the major threat factor. To save and protect medicinal plants, the external help is necessary, by providing the Maonan people with both seedlings or seeds and cultivation techniques of medicinal plants.

The Maonan men are the only inheritors to transmit traditional medicinal knowledge to the next generations. Unfortunately, the knowledge on herbal remedies is held by elders, who are less educated and above 40 years old. Most young men prefer to look for jobs in urban areas instead of studying the Maonan’s medicinal knowledge. It is urgent to find solution of conserving and transmitting the traditional medicinal knowledge in the study area.

Thus, government agencies should encourage the Maonan people to maintain the biodiversity and the ethnomedicinal knowledge by providing the local people with planting materials of the most threatened and preferred medicinal and multipurpose species so that they can grow these plants in their home gardens or farmlands. Public awareness is needed to encourage the local Maonan people to sustainably utilize and manage the medicinal plant resources. Ex situ and in situ conservation measures should be taken to protect the medicinal plants in the study areas from further loss.

Consent

Permissions were provided by all participants in this study, including the local Maonan people. Consent was obtained from the local communities prior to the field investigations. The authors have all copyrights.

Competing interests

The authors declare that they have no competing interests.

Authors’ contributions

LYH designed the study, analyzed the data, and drafted the manuscript. SWM contributed to the preparation of the manuscript. CLL designed the study, revised and finalized the manuscript. All authors participated in the field surveys. All authors read and approved the final manuscript.
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The bar graph shows the number of plant species by life form. There are 203 herbs, 67 shrubs, 43 trees, 41 lianas, and 14 others.
