Ethnobotany of medicinal plants used by the Yao people in Gongcheng County, Guangxi, China

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Research Article

Keywords: Ethnomedicine, medicinal plants, traditional knowledge, Yao ethnic group

Posted Date: April 20th, 2022

DOI: https://doi.org/10.21203/rs.3.rs-1566438/v1

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Abstract

Background

Gongcheng Yao Autonomous County (Gongcheng) is typical for the Yao people in northeastern Guangxi, southern China. The Yao people have a long history of using medicinal plants. In this study, we used ethnobotanical methods to collect traditional knowledge regarding herbal medicines in Gongcheng. Our study provides fundamental data for developing and applying local ethnic medicines and their protection.

Methods

Ethnobotanical data were collected from 103 villages in nine townships from 2014 to 2018 in Gongcheng. A total of 352 informants (279 male and 73 female) were interviewed through semi-structured interviews, key informant interviews, and guided field walks. All the informants were local inhabitants aged between 28 and 101 years of age, of which 40 key informants were selected based on the recommendations of knowledgeable elders and local medical institutions. The informant consensus factor (ICF) was used to evaluate the degree and importance of differences in medicinal plant species and calculated the relative frequencies of citation (RFC) for the recorded medicinal plants.

Results

Data from 352 local healers were collected for the study. The Guanyin and Sanjiang townships had the highest distribution of per capita healers (Pch), while the Gongcheng, Lianhua, and Ping'an townships were relatively lower. Of the 352 local healers, more than half were older than 60 years of age, and therefore faced the problem of suitable successors and potential loss of traditional medicinal knowledge. There are 12 types of diseases treated by local healers in the study area, and most of the types had a high ICF value. The highest ICF (0.80) was reported for digestive system disease, followed by urinary system disease (0.78) and nervous system disease (0.77). Traumatic injury and orthopedics, digestive system, and rheumatic disease are the most common ailments. The RFC value calculated in 33 medicinal plant species (with an FC of more than 5) ranged from 0.024 to 0.056. The higher RFC values included Kadsura longipedunculata, Schefflera heptaphylla, Plantago asiatica, etc. The most commonly used medicinal method was decoction; plasters, creams, and some form of moxibustion and cupping skills were locally practiced, but only rarely. The local healers used 306 medicinal plant species (116 families and 255 genera). Herbal plants were most commonly used among these, with whole plants and roots being favored.

Conclusion

The Yao people are highly skilled at using medicinal plants to treat various diseases in Gongcheng. Their treatment methods are varied, convenient, and efficient. Due to the impact of urbanization and economic development, knowledge of traditional medicine is under threat, with declining numbers of local healers and a lack of suitable successors. In order to protect and inherit Yao's traditional medicinal knowledge, it is necessary to educate young healers, and to protect biodiversity.

Background

Traditional medicine currently plays an important role in human health and the fight against the disease. It is common for local healers to excel in using local medicinal plants for disease treatment, especially in mountainous regions or areas inhabited by ethnic minorities where transportation is difficult [1–6]. The most significant advantage of local healers is their proximity and the ability to treat diseases in a timely manner. Furthermore, they are familiar with the patient's situation and living environment, offering effective treatment [7, 8]. Local healers play an important role in protecting traditional knowledge and biodiversity and local people's health, the development of medicines, and their application [9–12]. In recent years, research regarding medicinal plants and their traditional uses has been increasing worldwide [13–18].

The Yao nationality in China has a long history. Following thousands of years of survival and development, this indigenous population has adapted to the natural environment, and they have created their own medicinal knowledge database, which has played a significant role in their livelihood [19–22]; consequently, it has become an important part of the treasure of Traditional Chinese Medicine. However, historically, there has been no written record of traditional Yao medicinal knowledge, as it has been passed down from generation to generation solely through oral communication. Therefore, considerable Yao medical experience has been lost owing to the natural decline of aged Yao healers. Some Yao medical experience has disappeared before being recorded by the scientific community [23, 24].

The Yao people are one of the major ethnic minorities in Guangxi Zhuang Autonomous Region (Guangxi). According to the sixth census, the Yao population in Guangxi has reached 1.49 million, accounting for more than half of the total Yao population in China. Gongcheng Yao Autonomous County (Gongcheng) is an important gathering place for the Yao ethnic group in China and is the second-largest Yao Autonomous County in Guangxi. Here, the Yao population is greater than 148,000, amounting to about 60% of the total population of the county [25], and most parts of the Yao villages are located in the mountains (Fig. 1). The Yao nationality has a profound cultural heritage and simple folk customs; moreover, many traditional cultural activities have a distinctively local color, for example, the tradition of the "Panwang Festival", "Powang Festival", "Guandi Temple Fair", "Meishan Cultural Festival" and "River Lantern Festival" remain annual customs, and of particular note is the "Herbal medicinal market during the Dragon Boat Festival".
In recent years, during investigations into the herbal medicinal market during the Dragon Boat Festival of Gongcheng, previous authors found that most of the sellers of medicinal materials were middle-aged to older adults, with few young adults [26–27]. This imbalance is a potential threat to the inheritance of Yao medicine and, therefore, the loss of traditional knowledge. *China Traditional Yao Medicine* and *Yao Ethnic Medicinals in China* [28–29] are two books published regarding the investigation and study of local Yao medicine in Guangxi. Most of the commonly used prescriptions collected in these two books came from Jinxiu Yao Autonomous County and Du’an Yao Autonomous County in Guangxi. However, these two books rarely included Bama Yao Autonomous County and Fuchuan Yao Autonomous County in Guangxi. The local Yao medicine prescriptions in Gongcheng were also not included in previous investigations.

While advocating the protection of biodiversity and sustainable utilization of resources, attention should also be paid to the protection and inheritance of national traditional knowledge and culture. Nowadays, some traditional knowledge of Yao people from Gongcheng is not documented scientifically and faces disappearing danger. The traditional knowledge regarding herbal medicines in Gongcheng should be preserved as soon as possible. The study aims to grasp the distribution of local healers in Gongcheng and their demographics, analyze the characteristics of the local healers’ composition and relate with the traditional knowledge. The current study also used ethnobotanical methods to investigate records of traditional knowledge and experience of ethnic medicine in Gongcheng, obtain first-hand information, record the medicinal plant species used and the types of diseases treated by local healers, analyze the characteristics of species composition and explore the uniqueness of their use methods. This study will provide preliminary data for the development and application of local ethnic medicine, and promote the protection inheritance of traditional medicinal knowledge.

**Methods**

**Study area**

Gongcheng Yao Autonomous County is located in the northeastern region of Guangxi (Fig. 2). The geographical coordinates are between 24°37′–25°17′N and 110°36′–111°10′E. The longest horizontal distance from east to west is 56 km, and the longest longitudinal distance from north to south is 75 km. The county's total area is 2149 km², about 0.91% of the total area of Guangxi. It has jurisdiction over 117 administrative villages in nine townships [30].

The county is located in the Nanling Mountain area, one of southern China’s priority areas for biodiversity conservation. Meng Zhu Mountain, Dupang Mountain, and Haiyang Mountain surround the territory, and centrally there is a huge river corridor scattered with karst landforms of peak clusters and depression (Fig. 3). Influenced by the mid-subtropical monsoon climate, the territory has formed a complex and unique microclimate ecological environment that has nurtured and preserved rich medicinal plant resources that support the Yao people and their medicinal culture.

**Data collection**

After get agreements from the local government and local healers, a total of 352 informants (279 male and 73 female) were interviewed in the study area, of which 312 were selected using the snowball technique, and 40 key informants were specifically selected based on the recommendations of knowledgeable elders and local medical institutions. All informants were local inhabitants aged between 28 and 101 years old. Local Yao healers were key informants, because they were important custodians and participants of the knowledge of indigenous medicine. The ethnobotanical investigations were carried out to collect data regarding medicinal plants used to treat human diseases following the methods of the Yao people.

We used semi-structured interviews, key informant interviews, and guided field walks to collect information. The ethnobotanical data were collected from 2014 to 2018. The questionnaire included the name, gender, nationality, age, family address, contact information, and other information of the local healers, as well as the diseases that can be treated effectively. Investigation and interview of key informants included information regarding the diseases, compatibility of medicinal materials, processing and treatment methods, taboos, and means of succession of information. In addition, the key informants were asked to perform preference ranking exercises. We followed the local Yao healers during their collection of herbs in the field and recorded the names, usages, and parts of the medicinal plants used.

**Specimen collection and identification**

Field observations were performed with local healers to identify the morphological features and habitats of each medicinal plant species. Voucher specimens and photographs of the local medicinal plants were collected from the field, herbal medicinal market, or home gardens, and the habits and habitats of these plants were recorded. For future reference, voucher specimens were deposited in the Herbarium of Guangxi Institute of Botany (IBK), Guilin, Guangxi, China.

Voucher specimens and photographs were identified and confirmed according to *Flora of China*, *Flora of Guangxi*, and other botanical websites such as https://www.cvh.ac.cn/, http://www.nssii.org.cn/2017/, http://www.iplant.cn/frps, and https://www.ipni.org/. Finally, specimens that were difficult to identify were discussed with consulting taxonomic experts, and the final inventory of medicinal plants was completed.

**Data analysis**

The data were analyzed using a Microsoft Office Excel sheet and statistical methods to analyze and summarize the ethnobotanical data. The key informants shortlisted the plants in this study, and then their importance in managing diseases was discussed. The preference ranking method was used to rank the diseases, application methods, medicinal parts, and the habits of the medicinal plants used by the local Yao healers in the study area [31].

The data per capita healers (Pch) of each township were calculated for the data of each township healer (person) divided by the population (thousands) of the township. If the Pch was equal to 1, that indicated one healer for an average of 1000 people. The formula used was:
Pch (‰) = H(p) / P(t)

The informant consensus factor (ICF) was used to analyze the difference of medicinal plant species used by different healers to treat a particular disease category [32]. The formula is listed below:

ICF = (nur-nt) / (nur-1)

Where nur is the sum of the number of plant species used by all informants to treat a particular disease category, and nt is the total number of plant species commonly used by all informants to treat a particular disease category.

The relative frequency of citation (RFC) was used to evaluate the important plant species used by local healers to treat various diseases. The formula is listed below:

RFC =FC/N

Where FC is the number of prescriptions mentioning the use of plant species, and N is the total number of prescriptions in this survey [33].

Results And Discussion

Distribution of local healers in the study area

Information on a total of 352 local healers was collected through our survey, which was distributed across 103 villages in nine townships in Gongcheng (Fig. 2). According to the statistics at the township level, Limu had the largest population of 54 local healers, followed by Sanjiang (48), Guanyin (47), and Xiling (45). Forty-three local healers in Jiahui, 35 in Lianhua, 35 in Gongcheng, 23 in Ping’an, and 22 in Longhu (Table 1). The value of per capita healers (Pch) was calculated, and the highest value was noted in Guanyin (4.90‰), followed by Sanjiang (3.33‰), Longhu (2.10‰), Jiahui (1.63‰), Limu (1.23‰), and Xiling (1.16‰), and the lowest values were in Gongcheng, Lianhua, and Ping’an, at around 0.60‰ (Table 1, Fig. 3).

From the data, we found that the Gongcheng, Lianhua, and Ping’an townships had relatively low Pch, at about 0.60‰. Because the Gongcheng township is the seat of the Gongcheng government, and the Lianhua and Ping’an townships are close to the Gongcheng township, these three townships have undergone the highest degree of urbanization, modern construction and economic development in recent years and are more influenced by modern Chinese and Western medicine. Hence, the number of local healers in these townships today is lower. The Guanyin and Sanjiang townships now have the highest distribution of Pch, reaching 4.90‰ and 3.33‰, respectively. These two townships are typical minority nationality townships, with the population of Yao nationality accounting for more than 90%. These results indicate that these areas with a denser population of Yao nationality had greater preservation of local healers and medicinal knowledge and must as key areas for the protection inheritance of traditional medicinal knowledge. In addition, the Guanyin township is located in the extreme north of Gongcheng and the Du Pangling Mountains. The Sanjiang township is located in southeastern Gongcheng and south of the Yindian mountains. These two townships are located in remote mountainous areas, are populated with many Yao people, and have a relatively low degree of economic development. With continuing urbanization and economic development, the succession and inheritance of local healers and traditional knowledge have been disregarded in recent years. Therefore, the protection and inheritance of traditional knowledge should be strengthened as quickly as possible, especially in Guanyin and Sanjiang townships.

Table 1 The number of local healers in townships within Gongcheng

| Township  | Area (10 km²) | Population (thousand) | Healers (person) | Pch (%) |
|-----------|---------------|-----------------------|------------------|--------|
| Guanyin   | 14.7          | 9.6                   | 47               | 4.90   |
| Sanjiang  | 29.6          | 14.4                  | 48               | 3.33   |
| Longhu    | 58.0          | 10.5                  | 22               | 2.10   |
| Jiahui    | 24.8          | 26.3                  | 43               | 1.63   |
| Limu      | 27.7          | 43.9                  | 54               | 1.23   |
| Xiling    | 43.1          | 38.8                  | 45               | 1.16   |
| Gongcheng | 9.0           | 54.5                  | 35               | 0.64   |
| Lianhua   | 36.1          | 58.2                  | 35               | 0.60   |
| Ping’an   | 24.0          | 38.2                  | 23               | 0.60   |

Note: The population data are from the statistics of Gongcheng annals in 2012.

Demographics of the informants

Among the 352 local healers in the study area, 279 (79.26%) were male, and 73 (20.74%) were female. This is owing to the conservative inheritance of Yao medicinal knowledge, and the custom of passing knowledge on to male members, rather than female members of the society; a matter which is also related to the fact that women are predominantly engaged in housework and agricultural work, while men are mostly engaged in physical and technical labor.
Concerning age, the oldest healer was a 101-year-old man from Changjia village, Limu township, who had been a healer for more than 60 years. The youngest was a woman aged 28 years, a healer for nearly 5 years. The ages were mostly between 40 and 79 years old (n=308), while only 23 healers were 28–39 years old, and only 21 were 80–101 years old. Notably, the number of young healers was very low (Fig. 4). Of all healers, those aged 60–69 years were the highest number (27.56%), followed by those aged 70–79 years (24.15%). Therefore, more than half of the local healers were >60 years old, and the lack of succession and inheritance of Yao medicine is evident. One reason for this phenomenon is that the manner of succession is quite conservative, in that passing on knowledge to external sources and female members are generally restricted. Furthermore, there is no written language of the Yao ethnic group. Therefore inheritance depends on oral transmission, and unfortunately, the great traditional knowledge has not been passed down by written records. Moreover, young people are resistant to learning traditional knowledge, as they feel it is outdated, useless, and a source of only meager income. They are more willing to travel great distances for work that will give them a higher income or learn Chinese medicine and Western medicine, which are generally more acceptable to the public. This phenomenon also occurs in other areas, with some facing the serious threat of losing their inherited traditions [7, 8, 34–36].

According to statistics, the number of years of medical service was 10–39 years (>60%) (Fig. 4). Twelve healers had been in the medical service for the longest duration (i.e., 60 years), and all these healers were >70 years old. Those who had been in the medical service for 50–59 years only accounted for 8.24%. Most of the famous and old healers in this survey are excellent representatives of local Yao healers in Gongcheng. Over their lifetimes, they continually accumulated practical experience from their therapeutic activities and also absorbed the experience of predecessors. This precious wealth of Yao medicine plays an important role in inheritance, innovation, and development. Furthermore, it is because of the accumulation and inheritance of the experience of Yao medicine from past generations that Yao medicine has developed and remained relevant in modern times. Therefore, these practices should be actively encouraged, and in-depth investigations and excavations should be implemented to avoid the decline in successors and loss of precious traditional experience.

**Diseases treated in the study area**

After sorting and statistical analysis, 352 local healers demonstrated a good history of treating diseases, which could be classified into 12 categories based on the eight systems of the human body and the medication characteristics of the Yao people. Gongcheng had the largest number of healers (176, 50%) who were successful in treating traumatic injury and orthopedics, followed by digestive system disease (101, 28.69%), skin and facial disease (93, 26.42%), and rheumatic disease (91, 25.85%) (Table 2).

Traumatic injury and orthopedics were the most common diseases that local healers effectively treated; these were related to local people being engaged in agricultural and forestry production; this type of labor commonly results in mechanical injuries, knife wounds, and fractures. Rheumatism, hyperostosis, traumatic injury, lithiasis, skin diseases, gynecological disorders, pediatrics, snake bites, orthopedics, and liver disease were commonly mentioned in the survey. According to the results, more than 30 local healers effectively treated these common diseases effectively, especially rheumatism and hyperostosis, which were resolved by more than 70 local healers. As these diseases are common, local healers must treat them timely, convenient, and efficiently to improve outcomes.

The public has recognized the unique curative effect of Yao medicine through the historical accumulation of experience with such diseases. Gynecological and pediatric diseases are common in the daily lives of the Yao. The various gynecological drugs commonly used include *Campsis grandiflora, Hedyotis caudatifolia, Euonymus fortune, Nuphar pumila, Saururus chinensis, and Dichroa febrifuga*. Furthermore, pediatric drugs including *Chirita mbrisepala, Ilex rotunda, Siphonostegia chinensis, Polygala polifolia*, and *Striga asiatica* are potent and convenient for Yao healers who prefer to use fresh herbs as materials.

Disease incidence is often closely related to the local environment and climate, as well as ethnic activities and lifestyles. According to the survey, Gongcheng had the largest number of healers who could effectively treat rheumatic disease because Gongcheng is located in the south of the Nanling Mountains, where the high mountains, dense forests, high temperature, rainy weather, wind, cold, and damp heat, are conducive to the development of rheumatism. Moreover, the ancestors of the Yao people frequently migrated to higher elevations with dense forests in the mountains. Life in these mountainous regions is tough, and traumatic injuries, snake bites, and insect bites are frequent occurrences; in addition, skin diseases and orthopedic diseases such as fractures, lumbocrural pain, and muscle or bone pain are locally common. Thus, the local healers’ ability to treat such diseases has increased. Similar results have also been found in other minority areas in southern China [7, 8, 37, 38].

**Table 2** The types of diseases treated by local healers
| Category                                    | Disease                                                                 | Number of healers who effectively treated diseases | Percentage of total healers (%) |
|---------------------------------------------|------------------------------------------------------------------------|---------------------------------------------------|--------------------------------|
| Traumatic injury and Orthopedics            | Hyperostosis (72), Traumatic injury (69), Orthopedics (fracture, lumbocruural pain, muscle and bone pain) (35) | 176                                               | 50.00                          |
| Digestive system disease                    | Liver disease (hepatitis, liver ascites) (34), Gastropathy (gastritis, gastric ulcer, gastric hemorrhage) (23), Enteritis (diarrhea, dysentery) (17), Cholecystitis (2), Pancreatitis (1), Hemorrhoids (10), Typhoid (14) | 101                                               | 28.69                          |
| Skin and facial disease                     | Skin diseases (herpes zoster, eczema, scabies, urticaria) (47), Undefined swelling and soreness (26), Bum and scald (12), Toothache (4), Eye disease (3), Earache (1) | 93                                                | 26.42                          |
| Rheumatic disease                           | Rheumatism (90), Scapulohumeral periarthritis (1)                       | 91                                                | 25.85                          |
| Gynecological disorders                     | Gynecological disorders (irregular menstruation, metrorrhagia, infertility) (46), Mastitis (10) | 56                                                | 15.91                          |
| Urinary system disease                      | Nephritis (8), Stone (47)                                               | 55                                                | 15.63                          |
| Nervous system disease                      | Snake bite (37), Diseases of acupuncture and massage department (4), Epilepsy (2), Migraine (1) | 44                                                | 12.50                          |
| Pediatric                                   | Pediatric (infantile malnutrition, fever, jaundice, convulsion) (41)    | 41                                                | 11.65                          |
| Circulation system disease                  | Hypertension (5), Heart disease (3), Anemia (1), Stroke (cerebral infarction) (24) | 33                                                | 9.38                           |
| Respiratory system disease                  | Cold (wind-cold, high fever) (17), Pharyngitis (7), Pneumonia (5), Rhinitis (2) | 31                                                | 8.81                           |
| Immune system disease                       | Lymphadenitis (8), Rheumatoid arthritis (3), Diabetes (2)              | 13                                                | 3.69                           |
| Others                                      | Gray hair (1), Fatigue (1), Male infertility (1), Dog bite (1), Bald spot (1), Alopecia (1) | 6                                                 | 1.70                           |

**Informant consensus factor**

The ICF was calculated for each disease category, ranging from 0.44 to 0.80 (Table 3). The highest ICF (0.80) was reported for digestive system disease with 20 species and 98 use reports, followed by urinary system disease (0.78) with 9 species and 37 use reports, nervous system disease (0.77) with 8 species and 32 use reports, skin and facial disease (0.75) with 19 species and 74 use reports, and pediatric (0.75) with 9 species and 33 use reports, etc. The higher the ICF value, the higher the diversity of plant species used by healers to treat a particular disease category. The lower the ICF value, the more concentrated the plant species used by healers to treat a particular disease category [32]. Most disease categories had a high ICF value (near 1). The digestive system disease had the highest ICF value; this was probably related to the local healers obtaining a diversity of medicinal plants from wild habitats, while having little communication with other healers, during the conservative inheritance of medicinal knowledge. There were 110 plant species used to treat traumatic injury and orthopedic diseases, and this was likely related to the local people being prone to traumatic injury, hyperostosis, knife wound and fracture when engaged in agricultural and forestry production. Therefore, the healers were required to use a variety of plants for treatment when dealing with these emergencies. The lowest ICF was for circulatory and rheumatic disease, which was probably related to the long treatment cycle of these diseases. During long-term treatments, local healers had a high consensus on the species of medicinal plants used.

**Table 3** Informant consensus factor (ICF) by categories of diseases in the study area
Methods of treatment and ethnic characteristics

In all, 248 prescriptions were collected through interviews with local healers; their methods of treatment mainly included nine types: decoction (114, 45.97%); external application (50, 20.16%); medicinal liquor (26, 10.48%); stewing with meat (17, 6.85%); soaking (17, 6.85%); external washing (16, 6.45%); acupuncture and moxibustion cupping (4, 1.61%); plaster (3, 1.21%); and cream (1, 0.40%) (Fig. 5). There are several methods of external application, including fresh herbs directly smashed for external application; dry herbs ground into a powder to spread on the affected area; or herbs mixed with tea oil, tung oil, vinegar, or secondary rice water for external application. Medicinal liquor has always been a preferred method by local healers, and many also prefer to use their secret recipes; medicinal liquor is easy to prepare, and its ingredients can be more effective in this form. It also has antiseptic and antitoxic effects, which can delay hydrolysis and enhance the stability of many drugs. During our investigation, we also found that some Yao medicine methods were more distinctive, for example, stewing herbs with pig tripe, pig feet, pig bones, snails, frogs, or fish.

Local healers believe that when fresh herbs are directly used for general decoction or external washing without being specially processed, their medicinal power is fierce and toxic side effects may occur, especially in the use of Dayao (a type of traditional medicine defined by local Yao people). When herbs are mixed with meat, bone, or other compatible stews, their power is lessened, and the toxicity of some fresh herbs can be reduced after prolonged decoction. The decoction is the most common method of herbal remedy preparation and is used widely by other ethnic groups [7, 8, 39–44]. In addition, a small number of local healers make plasters and creams, and some use moxibustion and cupping skills for treatment, but this is quite rare.

In the current study, the local healers used rosin, tung oil, or Huangdan and other auxiliary materials to make ointments such as rheumatic bone pain ointment, Wuliu ointment, and other commonly used ointments for the treatment of rheumatic bone pain, scalds, knife wounds, and other diseases. Furthermore, it is worth noting that local healers made Liaodiaozhu cream (a type of cream prepared mainly from the plant Cynanchum paniculatum), wherein the crystals precipitate from the freshly picked herbs after washing, kneading, and sealing in a bottle. This cream is widely popular for its effect, convenience, and ease of preservation in treating common diseases such as knife wounds and styes.

Table 4

| Categories                      | nur | nt | ICF |
|---------------------------------|-----|----|-----|
| Digestive system disease        | 98  | 20 | 0.80|
| Urinary system disease          | 37  | 9  | 0.78|
| Nervous system disease          | 32  | 8  | 0.77|
| Skin and facial disease         | 74  | 19 | 0.75|
| Pediatric                       | 33  | 9  | 0.75|
| Immune system disease           | 16  | 6  | 0.67|
| Traumatic injury and Orthopedics| 110 | 42 | 0.62|
| Gynecological disorders         | 62  | 27 | 0.57|
| Respiratory system disease      | 51  | 23 | 0.56|
| Circulatory diseases            | 19  | 11 | 0.44|
| Rheumatic disease               | 67  | 38 | 0.44|
| No. | Scientific name                        | Family               | Chinese name      | Local name            | Habit       | Medicinal part | Usage                                | Voucher specimen number |
|-----|---------------------------------------|----------------------|-------------------|-----------------------|-------------|----------------|--------------------------------------|-------------------------|
| 1   | Lycopodiastum casuarinoides (Spring) Holub ex R.D. Dixit | Lycopodiaceae        | Teng shi song     | Jin gu feng, Shen jin cao, Song jin teng | Herbaceous vine | Whole plant   | Lumbocural pain, falling injury       | YY1567                  |
| 2   | Selaginella doederleini Hieron.       | Selaginellaceae      | Shen lv juan bai  | Shi shang bai         | Herb        | Whole plant    | Jaundice hepatitis                    | 450332141115081LY       |
| 3   | Selaginella uncinata (Desv. ex Poir.) Spring | Selaginellaceae      | Cui yun cao       | Cui yun cao           | Herb        | Whole plant    | Gallstone, hepatitis                  | 450332141117031LY       |
| 4   | Equisetum ramosissimum Desf.          | Equisetaceae         | Jie jie cao       | Bi tong cao           | Herb        | Whole plant    | Stone, constipation, epistaxis, scald, allergies | 450332141117014LY       |
| 5   | Angiopteris fokiensis Hieron.         | Marattiaceae         | Fu jian guan yin zuo lian | Ma ti jue        | Herb        | Rhizome       | Cooling blood, stop bleeding, relieve itching, analgesia | 450332141115050LY       |
| 6   | Cibotium barometz (L. Sm.)            | Cibotiaceae          | Jin mao gou ji    | Gou ji                | Herb        | Rhizome       | Rheumatic bone pain, lumbar hyperplasia, paraplegia   | 450332141115049LY       |
| 7   | Alsophila spinulosa (Wall. ex Hook.) R. M. Tryon | Cyatheaceae          | Suoluo            | Long gu feng          | Herb        | Stem          | Insomnia, rheumatic bone pain, high fever, gynecological disorders | 6-5029                  |
| 8   | Lygodium japonicum (Thunb.) Sw.       | Lygodiaceae          | Hai jin sha       | Jin sha teng          | Herbaceous vine | Whole plant   | Infertility, Stone                      | 450332141114023LY       |
| 9   | Pteris multifida Poir.                | Pteridaceae          | Jing lan feng wei jue | Feng wei cao         | Herb        | Whole plant    | Scald, furuncle, allergies              | 450332141114067LY       |
| 10  | Pteris semipinnata L.                 | Pteridaceae          | Ban bian qi       | Herb                  | Whole plant   | Snake bite     |                                       | YY1568                  |
| 11  | Asplenium antrophyoides Christ        | Aspleniaceae         | Xia chi chao jue  | Zhen wu jian          | Herb        | Whole plant    | Acute tonsillitis, bruise, undefined swelling and soresness      | 450332150401009LY       |
| 12  | Nephrolepis cordifolia (L.) C. Presl  | Nephrolepidaceae     | Shen jue          | Tian e bao dan        | Herb        | Tuber         | Hyperthyroidism                          | 450332150330026LY       |
| 13  | Humata griffithiana (Hook.) C. Chr.   | Davalliaceae         | Bei gai yin shi jue | Bai mao lian         | Herb        | Whole plant    | Bruise, gynecological disorders, infantile malnutrition          | 45032150330012LY       |
| 14  | Lemmaphyllum drymoglossoides (Baker) Ching | Polypodiaceae       | Bao shi lian     | Bao shi jue           | Herb        | Whole plant    | Lung abscess, infantile malnutrition, liver cirrhosis              | 6090323                 |
| 15  | Neolepisorus fortunei (T. Moore) Li Wang | Polypodiaceae       | Jiang nan xing jue | Sheng fa cao          | Herb        | Whole plant    | Bald spot                                                   | 450332141116062LY       |
| 16  | Pyrosia lingua (Thunb.) Farw.         | Polypodiaceae        | Shi wei           | Herb                  | Whole plant   | Lung abscess   |                                                | 450332141116055LY       |
| 17  | Drynaria rossii Nakaie                | Polypodiaceae        | Hujue             | Gu sui bu             | Herb        | Rhizome       | Bruise, fracture                                       | 450332141117067LY       |
| 18  | Cycas revoluta Thunb.                 | Cycadaceae           | Su tie            | Tie shu hua           | Shrub       | Flower, Seed   | Male flowers are used for tonifying Yang, enteritis, female flowers are used for gynecological disorders, | YY1569                  |
| No. | Scientific Name                      | Family         | Common Name  | Part Used          | Properties                                                                 | Code                  |
|-----|------------------------------------|----------------|--------------|--------------------|---------------------------------------------------------------------------|-----------------------|
| 19  | Ginkgo biloba L.                    | Ginkgoaceae    | Yin xing     | Bai guo Tree Seed  | cough, frequent urination, abnormal leukorrhea                          | 450332150414035LY    |
| 20  | Pinus massoniana Lamb.              | Pinaceae       | Ma weisong   | Songzhen Tree Leaf | Rheumatic bone pain                                                        | 450332150330019LY     |
| 21  | Cunninghamia lanceolata (Lamb.)     | Cupressaceae   | Shan mu      | Tree Stem and leaf  | Stone, rubella                                                           | YY1570                |
| 22  | Gnetum parvifolium (Warb.) Chun     | Gnetaceae      | Xiao ye mai ma teng | Ma gu feng Woody vine Stem | Rheumatic bone pain, stroke                                               | 450332150615025LY    |
| 23  | Houpoea officinalis (Rehder & E. H. Wilson) N. H. Xia & C. Y. Wu | Magnoliaceae   | Hou pu       | Tree Bark, Flower   | Stem bark are used for thick tongue fur, cirrhosis ascites, infantile diarrhea, infantile malnutrition, Flower are used for angina | 6090388              |
| 24  | Kadsura coccinea (Lem.) A. C. Sm.   | Schisandraceae | Hei lao hu   | Da zuan Woody vine Stem | Rheumatic bone pain, traumatic injury, knuckles swollen and painful       | 450332150617044LY    |
| 25  | Kadsura heteroclita (Roxb.) Craib   | Schisandraceae | Yi xing nan wu wei zi | Hai feng teng Woody vine Stem | Rheumatic bone pain                                                        | 0142                 |
| 26  | Kadsura longipedunculata Finet & Gagnep. | Schisandraceae | Nan wu wei zi | Xiao zuan Woody vine Stem | Rheumatism, stomachache, gastric hemorrhage                              | 450332150331002LY    |
| 27  | Kadsura oblongifolia Merr.          | Schisandraceae | Leng fan teng | Xiao hong zuan Woody vine Stem | Rheumatism, hyperostosis, sciatica, stroke sequela                       | YY1571                |
| 28  | Fissistigma oldhamii (HemsI.) Merr. | Annonaceae     | Gua fu mu    | Tie zuan, Xun gu feng Shrub Stem, Root | Tocolysis, rheumatic bone pain, sciatica, fever, typhoid                  | 450332141116001LY    |
| 29  | Cinnamomum camphora (L.) J. Presl   | Lauraceae      | Zhang        | Zhang shu, Xiang zhang Tree Stem and leaf | Bruise, bee sting                                                        | 450332141114020LY    |
| 30  | Cinnamomum cassia J. Presl          | Lauraceae      | Rou gui      | Gui zhi, Gui pi Tree Bark, Stem and leaf | Renal elimination of water, rheumatic bone pain, stroke, cold             | YY1572                |
| 31  | Litsea cubeba (Lour.) Pers.         | Lauraceae      | Shan jijiao  | Shan cang zhi Tree Fruit, Root | Scapulohumeral periarthritis, abdominal distension pain, rheumatic bone pain, undefined swelling and pain | 450332141115083LY    |
| 32  | Aconitum carmichaeli Debx.          | Ranunculaceae  | Wu tou       | Cao wu Herb Root   | Dispel wind-damp, bruise, hyperostosis                                   | YY1573                |
| 33  | Clematis chinensis Osbeck           | Ranunculaceae  | Wei ling xian | Hei jiuniu Woody vine Root | Bruise, rheumatic bone pain, hyperostosis, fallopian tube obstruction     | 450332141114071LY    |
| 34  | Ranunculus sieboldii Miq.           | Ranunculaceae  | Yang zimaogen | Ya jiaocai Herb Whole plant | Bruise, eye inflammation                                                  | 450332150329004LY    |
| 35  | Nuphar pumila (Timm) DC.            | Nymphaeaceae   | Ping peng    | Leng gu feng Herb Rhizome | Pneumonia cough, rheumatic                                               | 6-5218               |
| No. | Common Name                                                                 | Family           | Chinese Name         | Part               | Function                                           | Code   |
|-----|------------------------------------------------------------------------------|------------------|----------------------|--------------------|----------------------------------------------------|--------|
| 36  | Dysosma versipellis (Hance) M. Cheng                                          | Berberidaceae    | Ba jiao lian         | Herb Rhizome       | Hemorroids, undefined swelling and soreness, lymphadenopathy, snake bite | 6090016 |
| 37  | Mahonia fortunei (Lindl.) Fedde                                               | Berberidaceae    | Shi da gong lao      | Tu huang lian      | Shrub Flower                                       | Hepatitis | 450332141118024LY |
| 38  | Akebia trifoliata (Thumb.) Koidz.                                             | Lardizabalaceae  | San ye mu tong       | Mu tong, Lan jiu niu | Woody vine Stem                                    | Stone, rheumatism paralysis, fallopian tube obstruction, enteroptosis, hepatitis,liver ascites, hemorrhoids | 450332150330025LY |
| 39  | Sargentodoxa cuneata (Oliv.) Rehder & E. H. Wilson                           | Lardizabalaceae  | Da xue teng           | BinLang zuan       | Woody vine Stem                                    | Hyperostosis, rheumatic bone pain, traumatic injury | 450332150821046LY |
| 40  | Cyclea hypoglaucia (Schauer) Diels                                            | Menispermaceae   | Fen ye lun huan teng | Shan dou gen, Jin xian feng | Herbaceous vine Root                               | Lymphadenitis, cough, toothache, acute pharyngitis, typhoid dysentery | 450332150614022LY |
| 41  | Tinospora sagittata (Oliv.) Gagnep.                                           | Menispermaceae   | Qing niu dan         | Jin guo lan        | Herbaceous Root tuber                             | Detumescence, cooling blood, sore and ulcer, undefined swelling and soreness, mastitis, traumatic injury, stomachache, toothache, lymphadenitis, gynecological inflammation, gynecological cyst | 6090322 |
| 42  | Tinospora sinensis (Lour.) Merr.                                              | Menispermaceae   | Zhong hua qing niu dan | Kuan jin teng      | Woody vine Stem                                    | Dispel wind, analgesia, relaxing sinew and activating coll | 450332151022002LY |
| 43  | Aristolochia debilis Sieb. et Zucc.                                          | Aristolochiaceae | Ma dou ling           | Qing mu xiang      | Herbaceous vine Root                               | herpetic zoster | YY1574 |
| 44  | Aristolochia tubiflora Dunn                                                   | Aristolochiaceae | Guan hua ma dou ling | Tong cheng hu, Tian ran cao | Herbaceous Root tuber                             | Analgesia, stop bleeding, relieving superficies, febrile convolution, snake bite | 450332160516008LY |
| 45  | Aristolochia gongchengensis Y.S.Huang,Y.D.Peng & C.R.Lin                      | Aristolochiaceae | Gong cheng ma dou ling | Tian zuan          | Woody vine Root tuber                             | Stroke, thrombus, dizziness, headache | Y3030 |
| 46  | Asarum insigne Diels                                                         | Aristolochiaceae | Jin er huan           | Tu xi xin          | Herb Root                                          | Snake bite, stomachache | YY1575 |
| 47  | Houttuynia cordata Thunb.                                                     | Saururaceae      | Jicai                 | Yu xing cao        | Herb Whole plant                                   | Wind-heat type common cold | 450332160512010LY |
| 48  | Saururus chinensis (Lour.) Bail.                                              | Saururaceae      | San bai cao           | Guo tang ou        | Herb Rhizome                                       | Dysmenorrhea, gynecological inflammation, dissipate blood stasis, stimulate saliva, cold cough | 450332150616043LY |
| 49  | Piper wallichii (Miq.) Hand.-Mazz.                                            | Piperaceae       | Shi nan teng          | Shi nan feng       | Herbaceous vine Root tuber                        | Gout | 450332160512006LY |
| 50  | Sarcandra glabra                                                              | Chloranthaceae   | Cao                    | Zhong              | Shrub Whole plant                                  | Rheumatic bone | 45032141115031LY |
| No. | Common Name | Family      | Scientific Name                  | Part         | Use                          | Code          |
|-----|-------------|-------------|----------------------------------|--------------|------------------------------|---------------|
| 51  | Macleaya cordata (Willd.) R. Br. | Papaveraceae | Macleaya cordata (Willd.) R. Br. | Herb Whole plant | Traumatic injury | 450332141116045LY |
| 52  | Viola inconspicua Blume | Violaceae | Viola inconspicua Blume | Herb Whole plant | Typhoid | 450332150412015LY |
| 53  | Viola philippica Cav. | Violaceae | Viola philippica Cav. | Herb Whole plant | Pinkeye, undefined swelling and soreness | 450332150412018LY |
| 54  | Polygala fallax Hemsl. | Polygalaceae | Polygala fallax Hemsl. | Shrub Root | enrich the blood, tonifying qi, rheumatic bone pain, male infertility | 450332150617027LY |
| 55  | Polygala polifolia C. Presl | Polygalaceae | Polygala polifolia C. Presl | Herb Whole plant | Infantile malnutrition, traumatic injury, hyperostosis | 450332150910001LY |
| 56  | Saxifraga stolonifera Curtis | Saxifragaceae | Saxifraga stolonifera Curtis | Herb Whole plant | Otitis media, sore and ulcer, | YY1576 |
| 57  | Drosera peltata Thunb. | Droseraceae | Drosera peltata Thunb. | Herb Corm | Insecticide, relieve itching, hyperostosis | YY1577 |
| 58  | Portulaca oleracea L. | Portulacaceae | Portulaca oleracea L. | Herb Whole plant | Dysentery, herpes zoster | 450332150908001LY |
| 59  | Talinum paniculatum (Jacq.) Gaertn. | Talinaceae | Talinum paniculatum (Jacq.) Gaertn. | Herb Root | Hemorrhoids | 450332141115024LY |
| 60  | Antenoron filiforme (Thunb.) Roberty & Vautier | Polygonaceae | Antenoron filiforme (Thunb.) Roberty & Vautier | Herb Whole plant | Stone | 450332150619003LY |
| 61  | Fagopyrum dibotrys (D. Don) H. Hara | Polygonaceae | Fagopyrum dibotrys (D. Don) H. Hara | Herb Whole plant | Long menstrual period, prostatitis | 450332141115116LY |
| 62  | Fallopia multiflora (Thunb.) Haraldson | Polygonaceae | Fallopia multiflora (Thunb.) Haraldson | Herb Whole plant | Furuncle, bruise, gray hair | 450332141114078LY |
| 63  | Polygonum chinense L. | Polygonaceae | Polygonum chinense L. | Herb Whole plant | Burn and scald, furuncle, insecticide, relieve itching, eye inflammation | 450332141115051LY |
| 64  | Polygonum hydropiper L. | Polygonaceae | Polygonum hydropiper L. | Herb Whole plant | Diarrhea, acute gastroenteritis, | YY1578 |
| 65  | Polygonum perfoliatum L. | Polygonaceae | Polygonum perfoliatum L. | Herb Whole plant | Furuncle, infantile malnutrition | 450332150411010LY |
| 66  | Polygonum runcinatum var. sinense Hemsl. | Polygonaceae | Polygonum runcinatum var. sinense Hemsl. | Herb Rhizome | Snake bite, sciatica, stomachache, traumatic injury, undefined swelling and soreness, mastitis | 450332151020001LY |
| 67  | Reynoutria japonica Houtt. | Polygonaceae | Reynoutria japonica Houtt. | Herb Rhizome | Constipation, liver cirrhosis, hepatitis, liver ascites, cough | 450332150331016LY |
| 68  | Phytolacca acinosa Roxb. | Phytolaccaceae | Phytolacca acinosa Roxb. | Herb Root | Inflammation, high fever, dispel wind and damp, bruise, hemorrhoids | 450332150401021LY |
| 69  | Achyranthes | Amaranthaceae | Achyranthes | Herb Root | Hyperostosis, | 45032150821023LY |
| No. | Scientific Name                      | Family            | Common Name 1          | Common Name 2 | Part(s)       | Indication                          | Code                  |
|-----|-------------------------------------|-------------------|------------------------|---------------|--------------|-------------------------------------|-----------------------|
| 70  | Amaranthus spinosus L.              | Amaranthaceae     | Ci xian (Dao kou cao)  | Herb          | Whole plant  | Hemorrhoids                         | 450332141114056LY     |
| 71  | Celosia argentea L.                 | Amaranthaceae     | Qing xiang (Qing xiang zi) | Herb          | Seed         | Eye inflammation                    | 450332141114004LY     |
| 72  | Celosia cristata L.                 | Amaranthaceae     | Ji guan hua            | Herb          | Flower       | Gynecological inflammation          | YY1579                |
| 73  | Anredera cordifolia (Ten.) Steenis  | Basellaceae       | Luo kui shu (Teng san qi) | Herbaceous    | Bulbil       | Infantile malnutrition              | 450332150820046LY     |
| 74  | Edgeworthia chrysanthana Lindl.     | Thymelaeaceae     | Jie xiang (Bao nuan feng) | Shrub         | Whole plant  | Postpartum persistent lochia, infertility, dispel cold | YY1580               |
| 75  | Wikstroemia indica (L.) C. A. Mey.  | Thymelaeaceae     | Liao ge wang (Di shi liu) | Shrub         | Leaf, Root   | Furuncle, snake bite                | 450332141116064LY     |
| 76  | Pittosporum pauciflorum Hook. & Am. | Pittosporaceae    | Shao hua hai tong      | Shrub         | Root         | Bruise, rheumatic bone pain, lumbar disc hemiation | 450332141116054LY     |
| 77  | Gynostemma pentaphyllum (Thunb.) Makino | Cucurbitaceae | Jiao gu lan (Pan wang cha) | Herbaceous    | Whole plant  | Stone                               | 450332141117058LY     |
| 78  | Solena heterophylla Lour.           | Cucurbitaceae     | Mao gua (Lao shu ban gua) | Herbaceous    | Whole plant  | Hyperthyroidism, undefined swelling and soreness, gynecological cyst | 45032150614032LY      |
| 79  | Begonia fimbristipula Hance         | Begoniaceae       | Zi bei tian kui        | San xue zi    | Herb         | Pyogenic infections, bruise, rheumatic bone pain | 450332150330021LY     |
| 80  | Begonia longifolia Blume            | Begoniaceae       | Cu hui quai hai tang   | Rou ban bian lian | Herb         | Sphagitis                           | 450332150412032LY     |
| 81  | Camellia sinensis (L.) O. Kuntze    | Theaceae          | Cha                    | Cha            | Shrub        | Vomiting and diarrhea               | 450332141115041LY     |
| 82  | Melastoma dodecandrum Lour.         | Melastomataceae   | Di nie (Di pu tao)     | Shrub         | Whole plant  | Infantile malnutrition, diarrhea, bone injury | 450332150820057LY     |
| 83  | Osbeckia crinita Benth. ex C.B. Clarke | Melastomataceae | Jia chao tian guan     | Tian pu tao   | Shrub         | Tooth decay, bone injury, cold, infertility, rectocele | 450332150820010LY     |
| 84  | Hypericum japonicum Thunb. ex Murray | Hypericaceae    | Di er cao (Tian ji huang) | Herb         | Whole plant  | Liver cirrhosis, typhoid, hepatitis | 450332150614003LY     |
| 85  | Hypericum sampsonii Hance           | Hypericaceae      | Yuan bao cao (Fan chuan cao) | Herb         | Whole plant  | Fallopian tube obstruction, dysmenorrhea, puerperal cold | YY1581               |
| 86  | Helicteres angustifolia L.           | Malvaceae         | Shan zhi ma (Ye you ma) | Shrub         | Root         | Influenza, typhoid, clearing summer-heat | YY1582               |
| 87  | Abelmoschus moschatus Medik.        | Malvaceae         | Huang kui (Ye mian hua, Huang shu kui) | Herb         | Seed, Root   | Stone, scald, snake bite, scabies   | 450332150823014LY     |
| 88  | Hibiscus mutabilis L.               | Malvaceae         | Mu furong (Fu rong hua) | Shrub         | Leaf         | Snake bite                          | 450332141114066LY     |
| 89  | Hibiscus syriacus L.                | Malvaceae         | Mu jin (Cha lihua)    | Shrub         | Root         | Amenorrhea, leukorrhagia, maleinfertility | 6090364             |
| 90  | Sida rhombifolia L.                 | Malvaceae         | Bai bei (Huang)       | Shrub         | Whole plant  | Furuncle                            | 450332141114057LY     |
| No. | Common Name | Family | Scientific Name | Part | Use | Effects |
|-----|-------------|--------|-----------------|------|-----|---------|
| 91  | Pterospermum heterophyllum | Malvaceae | *Pterospermum heterophyllum* Hance | Tree | Whole plant | Hemiplegia, set a broken bone, rheumatic bone pain |
| 92  | Urena lobata L. | Malvaceae | *Urena lobata* L. | Shrub | Whole plant | Dysmenorrhea, long menstrual period, amenorrhea, infertility, typhoid |
| 93  | Urena procumbens L. | Malvaceae | *Urena procumbens* L. | Shrub | Whole plant | Typhoid |
| 94  | Acalypha australis L. | Euphorbiaceae | *Acalypha australis* L. | Herb | Whole plant | Epistaxis, infantile malnutrition, dysentery |
| 95  | Croton tiglium L. | Euphorbiaceae | *Croton tiglium* L. | Leaf | Whole plant | Lower body cold, snake bite, arthritis, purgation, disperse accumulations |
| 96  | Euphorbia humifusa Willd. ex Schildl. | Euphorbiaceae | *Euphorbia humifusa* Willd. ex Schildl. | Herb | Whole plant | Infantile malnutrition, gastroenteritis, diarrhea |
| 97  | Mallotus apelta (Lour.) Müll. Arg. | Euphorbiaceae | *Mallotus apelta* (Lour.) Müll. Arg. | Shrub | Root-bark | Rectocoele, leukorrhagia |
| 98  | Ricinus communis L. | Euphorbiaceae | *Ricinus communis* L. | Seed | Whole plant | Iron injury, suppuration |
| 99  | Glochidion puberum (L.) Hutch. | Phyllanthaceae | *Glochidion puberum* (L.) Hutch. | Shrub | Seed | Fallopian tube obstruction |
| 100 | Phyllanthus urinaria L. | Phyllanthaceae | *Phyllanthus urinaria* L. | Herb | Whole plant | Hepatitis, improving eyesight, antiarthritis |
| 101 | Dichroa febrifuga Lour. | Hydrangeaceae | *Dichroa febrifuga* Lour. | Shrub | Root | Dysmenorrhea, hepatitis, rheumatic bone pain |
| 102 | Agrimonia pilosa Ledeb. | Rosaceae | *Agrimonia pilosa* Ledeb. | Herb | Whole plant | Epistaxis, stomachache, enteritis, gynecological disorders, hemorrhage, cold |
| 103 | Amygdalus persica L. | Rosaceae | *Amygdalus persica* L. | Tree | Seed | Stone, hyperostosis, stroke, bruise |
| 104 | Duchesnea indica (Andr.) Focke | Rosaceae | *Duchesnea indica* (Andr.) Focke | Root | Whole plant | Dysentery, herpes zoster, undefined swelling and soreness |
| 105 | Eriobotrya japonica (Thunb.) Lindl. | Rosaceae | *Eriobotrya japonica* (Thunb.) Lindl. | Leaf | Whole plant | Wind-heat type common cold |
| 106 | Malus doumeri (Bois) A. Chev. | Rosaceae | *Malus doumeri* (Bois) A. Chev. | Fruit | Whole plant | Diabetes |
| 107 | Potentilla fragarioides L. | Rosaceae | *Potentilla fragarioides* L. | Herb | Whole plant | Long menstrual period |
| 108 | Rosa laevigata Michx. | Rosaceae | *Rosa laevigata* Michx. | Shrub | Root, Stem | Furuncle, scald |
| 109 | Sanguisorba officinalis L. | Rosaceae | *Sanguisorba officinalis* L. | Root | Whole plant | Bruise, infantile diarrhea, scald, hemorrhoids, enteritis, |

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| No. | Scientific Name                                      | Family | Common Names                                      | Parts Used          | Conditions                                |
|-----|-----------------------------------------------------|--------|---------------------------------------------------|--------------------|-------------------------------------------|
| 110 | Abrus cantoniensis Hance                            | Fabaceae | Guangzhou xiangsi zi | Ji gu cao | Shrub, Whole plant | Hepatitis YY1586 |
| 111 | Bauhinia championii (Benth.) Benth.                 | Fabaceae | Long xu zhuang | Jiu long zhuang | Woody vine, Stem | Rheumatic bone pain, gout, set a broken bone 450332141114062LY |
| 112 | Canavalia gladiata                                 | Fabaceae | Dao dou | Dao dou jia | Herb, Legume | Costalgiya YY1587 |
| 113 | Bauhinia championii (Benth.) Benth.                 | Fabaceae | Xiang ling dou | Huang hua di ding | Herb | Whole plant Breast cancer, liver cancer 450332141117002LY |
| 114 | Flemingia prostrata                                | Fabaceae | Qian jin ba | Tao ma zhuang | Shrub, Root | Hyperostosis, rheumatic bone pain, eczema 6090270 |
| 115 | Gleditsia sinensis                               Lam. | Fabaceae | Zao jia | Zao ci | Tree, Legume, Thorn | Hemorrhoids, fallopian tube obstruction, rheumatic bone pain 371 |
| 116 | Kummerowia striata (Thunb.) Schindl.                | Fabaceae | Ji yan cao | Ren zhi cao | Herb | Whole plant Vomiting and diarrhea, dog bite, milk accumulation in infants 450332150819024LY |
| 117 | Lespedeza cuneata (Dum.-Cours.) G. Don              | Fabaceae | Jie ye tie sao zhou | Chuan yu liu | Shrub | Whole plant Lumbago, diarrhea, stone 450332141114007LY |
| 118 | Mucuna lamellata Wilmot-Dear                        | Fabaceae | Zhepi li dou | Guo shan feng | Woody vine | Root Hyperostosis YY1588 |
| 119 | Ohwia caudata (Thunb.) H. Ohashi                   | Fabaceae | Xiao hua hua | E ma huang | Shrub | Whole plant Infantile diarrhea, infantile malnutrition, infantile dyspepsia, eye inflammation 450332141117012LY |
| 120 | Phyllodium pulchellum (L.) Desv.                   | Fabaceae | Pai qian shu | Pai qian cao, Qian chuan mu | Shrub | Stem and leaf Stomachache 4503214111608YL |
| 121 | Pueraria montana var. lobata (Willd.) Maesen & S. M. Almeida ex Sanjappa & Predeep | Fabaceae | Ge | Ge geng, Wu ceng feng | Herbaceous vine, Root | Cold, hyperostosis 45033215022001LY |
| 122 | Senna occidentalis (L.) Link                        | Fabaceae | Wang jiang nan | Ye guan men | Shrub | Root Hyperthyroidism 450332141114077LY |
| 123 | Senna tora (L.) Roxb.                               | Fabaceae | Jue ming | Cao jue ming | Herb | Seed, Leaf Infantile malnutrition, stone, eye inflammation, rheumatic bone pain, scald 450332141114079LY |
| 124 | Sophora flavescens Aiton                            | Fabaceae | Ku shen | | Herb | Root Cervical erosion 450332160516005LY |
| 125 | Spatholobus suberectus Dunn                        | Fabaceae | Mi hua dou | Ji xue teng, Jiu ceng feng | Woody vine, Stem | Stroke, rheumatic bone pain 001 |
| 126 | Tadehagi triquetrum (L.) H. Ohashi                 | Fabaceae | Hu lu cha | Hu lu zuan | Shrub | Whole plant Liver cirrhosis, hepatitis 6090251 |
| 127 | Liquidambar                                       | Altingiaceae | | | Tree, Fruit Fallopian tube | 450332150411044LY |
| No. | Scientific Name                                                                 | Family               | Common Name                      | Part Used                        | Disease                                                                 | Reference Number |
|-----|--------------------------------------------------------------------------------|----------------------|----------------------------------|----------------------------------|------------------------------------------------------------------------|------------------|
| 128 | Semiliquidambar cathayensis Hung T.Chang                                         | Altingiaceae         | Ban feng he                      | Tree, Bark, Stem and leaf        | Hyperostosis, rheumatic bone pain, lumbarcral pain, stroke             | 450332160515017LY |
| 129 | Eucommia ulmoides Oliv.                                                            | Eucommiaceae         | Du zhong                         | Tree, Bark, Stem and leaf        | Rheumatic bone pain, hyperostosis, hypertension, alopecia              | 450332150907002LY |
| 130 | Castanea mollissima Blume                                                          | Fagaceae             | Li                                | Tree, Leaf                       | Tuberculosis                                                           | YY1589           |
| 131 | Ficus carica L.                                                                    | Moraceae             | Wu hua guo                       | Shrub, Root                      | Hemorrhoids                                                           | YY1590           |
| 132 | Ficus hirta Vahl                                                                   | Moraceae             | Cu ye rong                       | Shrub, Root                      | Infantile malnutrition, nephritis, abnormal leukorrhea, lack of milk after childbirth | 450332141114019LY |
| 133 | Ficus sarmentosa var. lacrymans (H. Lév.) Corner                                  | Moraceae             | Wei jian pa teng rong, Jian ye rong | Shrub, Stem and leaf             | Knife wound                                                            | 45033214117036LY |
| 134 | Morus alba L.                                                                      | Moraceae             | Sang                             | Tree, Root                       | Furuncle, hands and feet pain, gray hair                              | 450332150410018LY |
| 135 | Boehmeria nivea (L.) Gaudich.                                                      | Urticaceae           | Zhu ma                           | Shrub, Root                      | Long menstrual period, furuncle                                       | 45033214114036LY |
| 136 | Humulus scandens (Lour.) Merr.                                                     | Cannabaceae          | Lv cao                           | Herb, Whole plant                | Herpes zoster, undefined swelling and soreness, sphagitis            | 450332141118008LY |
| 137 | Ilex asprella (Hook. & Am.) Champ. ex Benth.                                      | Aquifoliaceae        | Cheng xing shu, Bai jie mu       | Shrub, Root, Leaf                | High fever, analgesia, typhoid, hepatitis, liver ascites, tuberculosis, traumatic injury | YY1591           |
| 138 | Ilex chinensis Sims                                                               | Aquifoliaceae        | Dong qing, Si ji qing             | Tree, Stem                       | Furuncle, knife wound                                               | 403083           |
| 139 | Ilex pubescens Hook. & Am.                                                         | Aquifoliaceae        | Mao dong qing, Da bai je, Bai jie dou | Shrub, Root                     | Sphagitis, hypertension, furuncle, traumatic injury                     | 45033214115122LY |
| 140 | Ilex rotunda Thunb.                                                                | Aquifoliaceae        | Tie dong qing, Jiu bi ying        | Tree, Bark                       | Breast cancer, liver cancer, infantile high fever, sphagitis         | 45033214115075LY |
| 141 | Euonymus fortunei (Turcz.) Hand.-Mazz.                                             | Celastraceae         | Fu fang teng, Guo qiang feng      | Woody vine, Whole plant           | Rectocele, enteritis, anemia, infantile malnutrition                   | 450332150330013LY |
| 142 | Mappianthus iodoides Hand.-Mazz.                                                   | Icacinaceae          | Ding xin teng, Tong zuan          | Woody vine, Stem                 | Rheumatic bone pain, stroke, acute filthy disease, cold               | YY1592           |
| 143 | Taxillus chinensis (DC.) Danser                                                    | Loranthaceae         | Guang ji sheng, Sang ji sheng     | Shrub, Stem and leaf             | Rheumatism, stone                                                   | YY1593           |
| 144 | Rhamnus crenata Sieb. et Zucc.                                                     | Rhamnaceae           | Chang ye dong lv, Ku li gen       | Shrub, Root                      | Skin diseases, furuncle                                              | 0101             |
| 145 | Ventilago leiocarpa Benth.                                                         | Rhamnaceae           | Yi he guo, Zi jiu niu             | Woody vine, Root                 | Syphilis, amenorrhea, long menstrual period, fallopian tube obstruction, breast cancer, liver | 450332160603001LY |
| No. | Species                                      | Family      | Common Names                  | Parts     | Condition                                      | Reference Numbers | Code       |
|-----|---------------------------------------------|-------------|-------------------------------|-----------|-----------------------------------------------|-------------------|------------|
| 146 | Elaeagnus glabra                            | Elaeagnaceae| Man hu ti zi                  | Shrub     | Root, Leaf                                    | Epilepsy          | 450332141117041LY |
| 147 | Ampelopsis grossedentata (Hand.-Mazz.) W. T. Wang | Vitaceae    | Xian chi she pu tao           | Woody vine| Stem and leaf                                | Hyperglycemia, hyperlipemia | 450332150619053LY |
| 148 | Ampelopsis japonica (Thunb.) Makino         | Vitaceae    | Bai lian                      | Woody vine| Root tuber                                   | Hyperthyroidism   | 450332160511015LY |
| 149 | Cayratia pseudotrifolia W.T.Wang            | Vitaceae    | Wu lianmei                    | Herbaceous| Stem and leaf                                | Cellulitis, undefined swelling and soreness | 450332141118009LY |
| 150 | Cissus assamica (M. A. Lawson) Craib        | Vitaceae    | Ku lang teng                  | Woody vine| Root                                          | Rheumatism, bruise, snake bite, furuncule, osteomyelitis | 6-5317 |
| 151 | Cissus pterocladia Hayata                  | Vitaceae    | Yi jing bai fen teng          | Herbaceous| Stem                                          | Warm limbs meridian, rheumatic bone pain, | YY1594 |
| 152 | Tetrastigma hemsleyanum Diels & Gilg       | Vitaceae    | San ye ya pa teng             | Herbaceous| Root tuber                                   | Dysmenorrhea, amenorrhea, lymphadenitis, hyperthyroidism, stone, lymphadenopathy | 450332150415018LY |
| 153 | Tetrastigma planicaule (Hook. f.) Gagnep.  | Vitaceae    | Bian dan teng                 | Woody vine| Stem                                          | Rheumatism, relaxing sinew and activating coll | 6-5242 |
| 154 | Citrus maxima (Burm.) Merr.                | Rutaceae    | You                           | Tree      | Rind                                          | Fallopian tube obstruction | YY1595 |
| 155 | Citrus reticulata Blanco                   | Rutaceae    | Gan ju                        | Tree      | Rind, Stem                                    | Hemorrhoids, cough | 45033214116034LY |
| 156 | Citrus trifoliata L.                       | Rutaceae    | Zhi                           | Tree      | Fruit                                         | Fallopian tube obstruction, stroke, bad urination and defecation | 450332150819037LY |
| 157 | Melicope ptelefolia (Champ. ex Benth.) T. G. Hartley | Rutaceae    | San ya ku                     | Tree      | Root, Leaf                                    | Typhoid           | 450332150331035LY |
| 158 | Phellodendron chinense var. glabriusculum Schneid. | Rutaceae    | Tu ye huang bo                | Tree      | Bark                                          | Snake bite, numbness and distension of feet, hemorrhoids | YY1596 |
| 159 | Tetradium ruticarpum (A. Juss.) T. G. Hartley | Rutaceae    | Wu zhu yu                    | Tree      | Leaf, Fruit                                   | Toothache, cold, typhoid | 45033214116041LY |
| 160 | Toddalia asiatica (L.) Lam.                | Rutaceae    | Fei long zhang xue            | Woody vine| Root                                          | Analgesia, rheumatism, bruise, fracture | 45033214116032LY |
| 161 | Zanthoxylum armatum DC.                    | Rutaceae    | Zhu ye hua jiao               | Shrub     | Whole plant                                   | Toothache, sciatica, hyperostosis | 45033214117043LY |
| 162 | Zanthoxylum austrosinense C. C. Huang       | Rutaceae    | Ling nan hua jiao             | Shrub     | Whole plant                                   | Hyperostosis, rheumatism, bruise | YY1597 |
| 163 | Picrasma quassioides (D. Don) Benn.         | Simaroubaceae| Ku shu                        | Tree      | Stem                                          | Tuberculosis, constipation | 6-5229 |
| 164 | Sabia japonica Maxim.                      | Sabiaceae   | Qing feng teng                | Woody vine| Stem                                          | Bruise, set a broken bone, rheumatic bone pain, hyperostosis | 450332150401047LY |
| No. | Species Name (Author) | Family | Common Name | Part | Action | Code |
|-----|----------------------|--------|-------------|------|--------|------|
| 165 | *Rhus chinensis* Mill. | Anacardiaceae | Yan fu mu | Root | Detumescence, snake bite, traumatic injury | 450332150820021LY |
| 166 | *Toxicodendron sylvestre* (Sieb. et Zucc.) Kuntze | Anacardiaceae | Mu la shu | Leaf | Knife wound, traumatic injury, epilepsy | 450332150614044LY |
| 167 | *Alangium chinense* (Lour.) Harms | Cornaceae | Ba jiao feng | Tree | Typhoid | 450332150617031LY |
| 168 | *Aralia spinifolia* Merr. | Araliaceae | Chang ci song mu | Shrub | Cold, typhoid, eczema | 450332150819036LY |
| 169 | *Eleutherococcus nodiorus* (Dunn) S. Y. Hu | Araliaceae | Xi zhu wu jia | Shrub | Rheumatic bone pain, numbness and distension of feet, red and swollen eyes, hyperostosis, detumescence, analgesia | 450332151016007LY |
| 170 | *Eleutherococcus trifoliatus* (L.) S. Y. Hu | Araliaceae | Bai le San ye wu jia | Shrub | Stone, wind-heat type common cold, dampness-heat in lower jiao, dysentery | 450332141114016LY |
| 171 | *Schefflera heptaphylla* (L.) Frodin | Araliaceae | E zhang chai Ya jiao mu | Shrub | Cold, typhoid, rheumatic bone pain, ankle pain, stroke, acute hepatitis, liver ascites, psychosis | 450332141115085LY |
| 172 | *Tetrapanax papyrifer* (Hook.) K. Koch | Araliaceae | Tong tuo mu Yao ying feng | Shrub | Costalgia | 402880 |
| 173 | *Angelica decursiva* (Miq.) Franch. & Sav. | Apiaceae | Zi hua qian hu Qian hu | Herb | Hemorrhoids, hyperthyroidism | 450332150821043LY |
| 174 | *Bupleurum marginatum* Wall. ex DC. | Apiaceae | Zhu ye chai hu Nan chai hu | Herb | Wind-heat type common cold, typhoid, hepatitis B, hemorrhoids | 450332160511014LY |
| 175 | *Centella asiatica* (L.) Urb. | Apiaceae | Ji xue cao Lei gong gen | Whole plant | Antiemetic, anti diarrheal, traumatic injury, scald by hot water and fire, stone, | YY1598 |
| 176 | *Ostericum citriodorum* (Hance) C. Q. Yuan & R. H. Shan | Apiaceae | Ge shan xiang Xiang baizhi | Herb | Hyperthyroidism, ibleus, analgesia, relieve itching | 450332150614052LY |
| 177 | *Gaultheria leucocarpa var. yunnanensis* (Franch.) T. Z. Hsu & R. C. Fang | Ericaceae | Dian bai zhu Xia shan xiang | Shrub | Bruise, rheumatic bone pain | 450332160512020LY |
| 178 | *Rhododendron molle* (Blume) G. Don | Ericaceae | Yang zhi zhu Mao lao hu, San qian san | Shrub | Rheumatism, bruise, stone, hyperostosis | YY1599 |
| 179 | *Symplocos paniculata* (Thunb.) Miq. | Symplocaceae | Bai tan | Shrub | Hepatitis, bone injury, leukorrheal diseases, knife wound | 450332150614028LY |
| 180 | *Gelsemium elegans* (Gardner & Champ.) Benth. | Gelsemiaceae | Gu wen Duan chang cao | Woody vine | Lumbago, rheumatism, set a broken bone | 450332141115030LY |
| 181 | *Jasminum lanceolaria* Roxb. | Oleaceae | Qing xiang teng Po gu feng | Woody vine | Sequela of injury, rheumatic bone pain | YY1600 |
| 182 | *Ligustrum lucidum* W. T. Aiton | Oleaceae | Nv zhen Nv zhen zi | Tree | Gray hair, alopecia | 450332150908003LY |
| 183 | *Cynanchum* Apocynaceae | Ge shan | Herbaceous | Whole plant | Enteritis | 450332141116076LY |
| No. | Name                                          | Family      | Part          | Action                                                                 | Reference         |
|-----|-----------------------------------------------|-------------|---------------|-------------------------------------------------------------------------|-------------------|
| 184 | Cynanchum paniculatum (Bunge) Kitag.          | Apocynaceae | Herb          | Whole plant                                                             | YY1601            |
| 185 | Trachelospermum jasminoides (Lindl.) Lem.     | Apocynaceae | Stem          | Whole plant                                                             | 450332141114065LY|
| 186 | Urecola huatingii (Chun & Tsiang) D. J. Middleton | Apocynaceae | Root, Bark    | Whole plant                                                             | 450332141116002LY |
| 187 | Adina pilulifera (Lam.) Franch. ex Drake     | Rubiaceae   | Whole plant   | Whole plant                                                             | 450332150331056LY |
| 188 | Damnacanthus giganteus (Makino) Nakai         | Rubiaceae   | Whole plant   | Whole plant                                                             | 450332150614027LY |
| 189 | Damnacanthus indicus C. F. Gaertn.            | Rubiaceae   | Whole plant   | Whole plant                                                             | 6-5079            |
| 190 | Gardenia jasminoides J. Ellis                 | Rubiaceae   | Fruit         | Whole plant                                                             | 4503321501021013LY|
| 191 | Hedyotis angustifolia Miq.                    | Rubiaceae   | Whole plant   | Whole plant                                                             | 450332150614053LY |
| 192 | Hedyotis caudatifolia Merr. & F. P. Metcalf   | Rubiaceae   | Whole plant   | Whole plant                                                             | 450332150331029LY |
| 193 | Hedyotis diffusa Wild.                       | Rubiaceae   | Whole plant   | Whole plant                                                             | 450332150331029LY |
| 194 | Hedyotis heterotidea (DC.) Merr.              | Rubiaceae   | Whole plant   | Whole plant                                                             | 450332141115040LY |
| 195 | Mussaenda pubescens W. T. Aiton               | Rubiaceae   | Whole plant   | Whole plant                                                             | 450332141114017LY |
| 196 | Paederia foetida L.                           | Rubiaceae   | Whole plant   | Whole plant                                                             | 450332141114070LY |
| 197 | Serissa serissoides (DC.) Druce               | Rubiaceae   | Whole plant   | Whole plant                                                             | 240               |
| 198 | Uncaria rhynchophylla (Miq.) Miq. ex Havil.   | Rubiaceae   | Whole plant   | Whole plant                                                             | 450332150331009LY |
| 199 | Lonicer a hypoglauca Miq.                    | Caprifoliaceae | Whole plant | Whole plant                                                             | 450332151014022LY |
| 200 | Artemisia anomala S. Moore                    | Asteraceae  | Whole plant   | Whole plant                                                             | 450332151014022LY |
| No. | Scientific Name                      | Family    | English Name | Part     | Uses                                                                 | GTIN          |
|-----|-------------------------------------|-----------|--------------|----------|----------------------------------------------------------------------|---------------|
| 201 | Artemisia argyi H. Lév. & Vaniot    | Asteraceae| Ai           | Herb     | Whole plant: Rheumatic bone pain, infertility, gynecological disorders | 450332141114046LY |
| 202 | Artemisia annua L.                  | Asteraceae| Huang hua hao| Herb     | Whole plant: Cold, typhoid, hepatitis                                  | 450332150615031LY |
| 203 | Aster scaber Thunb.                | Asteraceae| Dong feng cai| Herb     | Root: Anesthetic, snake bite, bruise, undefined swelling and soreness  | YY1602        |
| 204 | Bidens pilosa L.                    | Asteraceae| Gui zhen cao | Herb     | Whole plant: Cold, high fever, typhoid                                | 450332141117006LY |
| 205 | Carpesium abrotanoides L.           | Asteraceae| Tian ming jing| Herb     | Whole plant: Typhoid, psychosis                                        | 6-5036        |
| 206 | Centipeda minima (L.) A. Braun & Asch.| Asteraceae| Shi hu sui    | Herb     | Whole plant: Infantile abdominal distention, high fever, cold, infantile malnutrition, rhinitis, bruise, snake bite | 450332150331048LY |
| 207 | Chrysanthemum indicum L.            | Asteraceae| Ye ju Ye ju hua | Herb   | Whole plant: Burn and scald, snake bite, conjunctivitis, furuncle, nephritis edema | 450332141114047LY |
| 208 | Cirsium japonicum DC.               | Asteraceae| Da ji         | Herb     | Whole plant: Breast cancer, liver cancer, bruise                       | 450332160512013LY |
| 209 | Eclipta prostrata (L.) L.           | Asteraceae| Li chang Han lian cao, Mo han lian | Herb | Whole plant: Long menstrual period, dysentery, epistaxis, enteritis, furuncle                                                | 450332150821016LY |
| 210 | Elephantopus scaber L.              | Asteraceae| Di dan cao    | Herb     | Whole plant: Hemorrhoids, knife wound, toothache, diabetes, stomachache | 45032141115033LY |
| 211 | Emilia sonchifolia (L.) DC.         | Asteraceae| Yi dian hong  | Herb     | Whole plant: Amenorrhea, posttraumatic ulcer, inguinal lymphadenopathy, hepatitis, improving eyesight, pneumonia            | 450332150614045LY |
| 212 | Eupatorium fortunei Turcz.          | Asteraceae| Pei lan       | Herb     | Whole plant: Set a broken bone                                         | YY1603        |
| 213 | Gynura japonica (Thunb.) Juel       | Asteraceae| Ju san qi     | Herb     | Whole plant: Stop bleeding, promote tissue regeneration, metrorrhagia, set a broken bone                                | 450332151020003LY |
| 214 | Inula japonica Thunb.               | Asteraceae| Xuan fu hua   | Herb     | Whole plant: Eye inflammation                                          | YY1604        |
| 215 | Kalimeris indica (L.) Sch. Bip.     | Asteraceae| Ma lan        | Herb     | Whole plant: Furuncle, typhoid                                         | 450332141114032LY |
| 216 | Laggera alata (D. Don) Sch.-Bip. ex Oliv. | Asteraceae| Liu leng ju   | Herb     | Whole plant: Stimulate the menstrual flow, rheumatism                    | 450332150620006LY |
| 217 | Ligularia japonica (Thunb.) Less.    | Asteraceae| Da tou tuo wu  | Root     | Whole plant: Traumatic injury, lumbocural pain, undefined swelling and soreness | YY1605        |
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|---|
| 218 | Senecio scandens Buch.-Ham. ex D. Don | Asteraceae | Qian li guang | Jiu li guang | Herb | Whole plant | Psoriasis, furuncle, insecticide, relieve itching | 450332141114025LY |
| 219 | Siegesbeckia orientalis L. | Asteraceae | Xi xian | | Herb | Whole plant | Sciatica | YY1606 |
| 220 | Solidago decurrens Lour. | Asteraceae | Yi zhi huang hua | She tou wang | Herb | Whole plant | Snake bite, typhoid | 450332151014021LY |
| 221 | Acmeila paniculata (Wallich ex Candolle) R. K. Jansen | Asteraceae | Jin niu kou | Long zhu cao | Herb | Whole plant | Stomach ache and acid regurgitation, toothache | 450332151019003LY |
| 222 | Vernonia patula (Aiton) Merr. | Asteraceae | Xian xia hua | Huang gua xiang | Herb | Whole plant | Typhoid, diarrhea | 450332141114081LY |
| 223 | Acmella paniculata (Wallich ex Candolle) R. K. Jansen | Asteraceae | Jin niu kou | Long zhu cao | Herb | Whole plant | Stomach ache and acid regurgitation, toothache | 450332151019003LY |
| 224 | Xanthium strumarium L. | Asteraceae | Cang er | | | | Rhinitis, typhoid, prostatitis | 381 |
| 225 | Youngia japonica (L.) DC. | Asteraceae | Huang an cai | Huang gua xiang | | | | |
| 226 | Ardisia crenata Sims | Primulaceae | Zhu sha gen | Tie liang san | Shrub | Root | Set a broken bone, bruise, costalgia, scabies | 450332141114015LY |
| 227 | Ardisia gigantifolia Stapf | Primulaceae | Zou ma tai | Xue feng | Shrub | Root | Gout, gynecological inflammation, pain, rheumatism | YY1608 |
| 228 | Ardisia japonica (Thunb.) Blume | Primulaceae | Zi jin niu | Bu chu lin, Ai po cha | Shrub | Whole plant | Cough, pharyngitis | 450332141116052LY |
| 229 | Ardisia mamillata Hance | Primulaceae | Hu she hong | Hong mao zhan | Shrub | Whole plant | Rheumatic bone pain, stop bleeding | 450332141116052LY |
| 230 | Lysimachia christiniae Hance | Primulaceae | Guo lu huang | | Herb | Whole plant | Stone | 450332150620002LY |
| 231 | Lysimachia congestiflora Hemsl. | Primulaceae | Lin shi jiu | Guo lu huang | Herb | Whole plant | Bruise, analgesia, cholagogic | 450332160515014LY |
| 232 | Plantago asiatica L. | Plantaginaceae | Bai hua dan | Po gu dan, Meng lao hu | Herb | Leaf | Infantile malnutrition | 450332141115014LY |
| 233 | Plantago asiatica L. | Plantaginaceae | Che qian | Fan shao cao, Ma guai cao | Herb | Whole plant | Stone, electric ophthalmia, bruise, furuncle, diarrhea, dysentery, nephritis edema, typhoid | 450332150331018LY |
| 234 | Campanumoea javanica Blume | Campanulaceae | Jin qian bao | Tu dang shen | Herbaceous vine | Root | Leukemia, alopecia, woman lack of milk after childbirth, fatigue | 450332150821021LY |
| 235 | Codonopsis lanceolata (Siebold & Zucc.) Trautv. | Campanulaceae | Yang ru | Shan hai luo | Herbaceous vine | Root tuber | Woman lack of milk after childbirth | 450332150821013LY |
| 236 | Lobelia chinensis Lour. | Campanulaceae | Ban bian lian | | Herb | Whole plant | Snake bite, stone, set a broken bone | 450332150615011LY |
| 237 | Lobelia angulata G. Forst. | Campanulaceae | Tong chui yu dai cao | Fu ming cao, Di yang mei | Herb | Whole plant | Eye disease, unclear vision | 45032141115070LY |
| 238 | Platycodon | Campanulaceae | Jie | | Herb | Root | Rheumatic bone | 6-5312 |
| No. | Name                                                                 | Family     | Genus                                                                 | Species                                                                 | Part                  | Disease                                                                                     | Code               |
|-----|----------------------------------------------------------------------|------------|----------------------------------------------------------------------|------------------------------------------------------------------------|-----------------------|--------------------------------------------------------------------------------------------|--------------------|
| 239 | Lycianthes biflora (Jacq.) A. DC                                   | Solanaceae | Solanaceae                                                            | Hong si xian                                                           | Herb                  | Snake bite, hypertension                                                                     | 45033214115043LY   |
| 240 | Lycium chinense Mill.                                                | Solanaceae | Solanaceae                                                            | GouQi                                                                 | Root-bark             | Hyperostosis, fallopian tube obstruction, gray hair                                          | 45033214115027LY   |
| 241 | Physalis angulata L.                                                 | Solanaceae | Solanaceae                                                            | Ku zhi                                                                 | Herb                  | Sphagitis, typhoid, enteropositis                                                           | 45033214115011LY   |
| 242 | Solanum lyratum Thunb.                                               | Solanaceae | Solanaceae                                                            | Bai ying                                                               | Herbaceous vine       | Bad urination and defecation, cold, high fever, gastric perforation, inflammation, bleeding wound, rheumatic bone pain | 45033214114010LY   |
| 243 | Cuscuta australis R. Br.                                             | Convolvulaceae | Convolvulaceae                                                        | Nan fang tusi zi                                                       | Herb                  | Stone, infantile malnutrition                                                                | 450332150617013LY  |
| 244 | Dichondra repens Forst.                                              | Convolvulaceae | Convolvulaceae                                                        | Ma ti jin                                                             | Herb                  | Enteritis, hepatitis, gastric hemorrhage, stone, cholecytitis, oral ulcer, infantile malnutrition, traumatic injury | YY1609             |
| 245 | Buddleja asiatica Lou.                                               | Scrophulariaceae | Scrophulariaceae                                                      | Bai bei feng                                                          | Shrub                 | Typhoid                                                                                     | 45033214118007LY   |
| 246 | Buddleja lindleyana Fortune                                          | Scrophulariaceae | Scrophulariaceae                                                      | Zui yu cao                                                           | Shrub                 | Toothache, typhoid, insecticide, summer damp stomachache, abnormal leukorrhea, hemorrhoids   | 450332150617014LY  |
| 247 | Paulownia fortunei (Seem.) Hemsl.                                    | Paulowniaceae | Paulowniaceae                                                         | Bai hua pao tong                                                      | Tree                  | Detumescence, analgesia                                                                      | 233                |
| 248 | Siphonostegia chinensis Benth.                                        | Orobanchaceae | Orobanchaceae                                                         | Yin xing cao                                                          | Herb                  | Neonatal jaundice                                                                           | 450332150618002LY  |
| 249 | Striga asiatica (L.) Kuntze                                          | Orobanchaceae | Orobanchaceae                                                         | Du jiao jin                                                          | Herb                  | Infantile malnutrition                                                                     | 6-5090             |
| 250 | Primulina eburnea (Hance) Yin Z. Wang                                 | Gesneriaceae | Gesneriaceae                                                          | Niu er duo                                                            | Herb                  | Dysentery, hyperostosis, gastritis, gastric perforation, metrorrhagia                       | 45033214117064LY   |
| 251 | Primulina fimbrisepala (Hand.-Mazz.) Yin Z. Wang                      | Gesneriaceae | Gesneriaceae                                                          | Ma huang qi                                                           | Herb                  | Hyperostosis, rheumatism, bruise, enrich the blood, cooling blood, infantile malnutrition, bee sting, stomachache | 45032150331013LY   |
| 252 | Campsis grandiflora (Thunb.) K. Schum.                               | Bignoniaceae | Bignoniaceae                                                          | Ling xiao                                                             | Woody vine            | Rheumatic bone pain, traumatic injury, amenorrhea, hemorrhoids, enteritis                  | 450332150618016LY  |
| 253 | Rademachera sinica (Hance) Hemsl.                                    | Bignoniaceae | Bignoniaceae                                                          | Cai dou shu                                                           | Tree                  | Internal injury, liver cirrhosis, traumatic injury, lumbar disease                          | 45033214117056LY   |
| 254 | Dicliptera chinensis (L.) Juss.                                       | Acanthaceae | Acanthaceae                                                           | Gou gan cai                                                           | Herb                  | Infantile malnutrition                                                                     | YY1610             |
| No. | Common Name                | Family        | Latin Names                                      | Chinese Names                  | Category          | Medical Uses                                                                 | Reference | Period |
|-----|----------------------------|---------------|--------------------------------------------------|-------------------------------|-------------------|-----------------------------------------------------------------------------|-----------|--------|
| 255 | Justicia ventricosa        | Acanthaceae   | Wall. ex Hook. f.                                | Hei ye xiao bo gu Da bo gu    | Shrub Whole plant   | Rheumatic bone pain                                                        | YY1611    |        |
| 256 | Strobilanthes cusia        | Acanthaceae   | (Nees) Kuntze                                    | Ban lan Ban lan gen Ma lan    | Shrub Whole plant   | Inguinal lymphadenopathy                                                    | YY1612    |        |
| 257 | Verbena officinalis L.     | Verbenaceae   |                                             | Ma bian cao Shun ci cao       | Herb Whole plant    | Stone, cirrhosis ascites                                                   | 450332160511008LY |        |
| 258 | Glechoma longituba (Nakai) | Lamiaceae     | Kupr.                                           | Huo xue dan Zuan di feng Tai gu xiao | Herb Whole plant   | Stone, detumesence, analgesia, hyperostosis, eczema, mastitis              | 450332150330023LY |        |
| 259 | Clerodendrum bungei Steud. | Lamiaceae     |                                             | Chou mu dan                   | Shrub Root          | Arthralgia, hypertension, hemorrhoids, rectocele, sciatica, amenorrhea, gynecological disorders | YY1613    |        |
| 260 | Leonurus japonicus Houtt.  | Lamiaceae     |                                             | Yi mu cao                     | Herb Whole plant    | Fallopian tube obstruction, dysmenorrhea, infertility, amenorrhea          | 450332141115010LY |        |
| 261 | Mentha canadensis L.       | Lamiaceae     |                                             | Bo he Ye bao he               | Herb Whole plant    | Neonatal cough, infantile high fever                                       | 450332141114045LY |        |
| 262 | Perilla frutescens         | Lamiaceae     | (L.) Britton                                    | Zi su                         | Herb Whole plant    | Wind-heat type common cold, typhoid, measles syndrome                      | 450332141114058LY |        |
| 263 | Prunella vulgaris L.       | Lamiaceae     |                                             | Xia ku cao                    | Herb Whole plant    | Psychosis, conjunctivitis, tumor, herpes zoster, hepatitis                 | 450332150413012LY |        |
| 264 | Scutellaria barbata        | Lamiaceae     | D. Don                                          | Ban zhi lian Ya shua cao      | Herb Whole plant    | Nasal polyps, snake bite, hepatitis B, hepatitis, knife wound              | 450332150401038LY |        |
| 265 | Stachys geobombycis        | Lamiaceae     | C. Y. Wu                                        | Di can Bai chong cao          | Herb Whole plant    | Tuberculosis, tracheitis, pneumonia                                        | YY1614    |        |
| 266 | Sagittaria trifolia L.     | Alismataceae   |                                             | Ye ci gu Jian dao cao         | Herb Root tuber     | Furuncle, bruise, sphagitis                                                | YY1615    |        |
| 267 | Eriocaulon buergerianum    | Eriocaulaceae | Körn.                                           | Gu jing cao                   | Herb Inflorescence    | Stone                                                                        | YY1616    |        |
| 268 | Alpinia sichuanensis       | Zingiberaceae | Z. Y. Zhu                                       | Jian gan feng                 | Herb Rhizome        | Heatstroke, rheumatic bone pain                                            | 450332141115125LY |        |
| 269 | Curcuma aromatica Salisb. | Zingiberaceae |                                             | Yu jin Mao jiang huang        | Herb Rhizome        | Acute hepatitis, liver ascites                                             | YY1617    |        |
| 270 | Curcuma longa L.           | Zingiberaceae |                                             | Jiang huang Huang jiang       | Herb Rhizome        | Stone, cyst, mastopathy, bruise, rheumatic bone pain                      | YY1618    |        |
| 271 | Curcuma phaeocaulis        | Zingiberaceae | Valeton                                         | E zhu Wu xin jiang, Hei xin jiang, Wu qi | Herb Rhizome        | Traumatic injury, hyperostosis, irregular menstruation                   | YY1619    |        |
| 272 | Zingiber officinale        | Zingiberaceae | Roscoe                                          | Jiang Sheng jiang             | Herb Rhizome        | Long menstrual period, infantile diarrhea, wind-heat type common cold, vomiting, high | YY1620    |        |
| No. | Species Name                                      | Family       | Common Names                                      | Part Used | Medical Uses                                | Code       |
|-----|--------------------------------------------------|--------------|---------------------------------------------------|-----------|---------------------------------------------|------------|
| 273 | Aletris spicata (Thunb.) Franch.                 | Nartheciaceae| Fen tiao er cai                                    | Herb      | Root syphilis                               | YY1621     |
| 274 | Asparagus cochinchinensis (Lour.) Merr.          | Asparagaceae | Tian men dong                                      | Herb      | Root tuber scabies                         | 450332150329006LY |
| 275 | Hosta ventricosa (Salisb.) Stearn               | Asparagaceae | Zi e                                               | Whole plant, Root | Undefined swelling and soreness, bone sticking throat, carbuncle | 450332150617022LY |
| 276 | Ophiopogon japonicus (L. f.) Ker Gawl.          | Asparagaceae | Mai dong                                           | Herb      | Root tuber the first bite of food for a newborn, constipation, cough, hepatitis | 42858      |
| 277 | Polygonatum cyrtomema Hua                       | Asparagaceae | Duo hua huang jing                                 | Herb      | Rhizome diabetes, infertility, hyperglycemia | 450332150411039LY |
| 278 | Reineckea cunea (Andrews) Kunth                 | Asparagaceae | Ji xiang cao                                       | Herb      | Whole plant infantile malnutrition, hepatitis | YY1622     |
| 279 | Paris polyphylla Sm.                            | Melanthiaceae| Qi ye yi zhi hua                                   | Herb      | Rhizome snake bite, hepatisis B, numbness of hands and feet, undefined swelling and soreness, lymphadenopathy | YY1623     |
| 280 | Smilax china L.                                 | Smilacaceae  | Ba qia                                             | Shrub     | Rhizome arthritis, rheumatism               | 450332150819015LY |
| 281 | Smilax glabra Roxb.                             | Smilacaceae  | Tu fu ling                                         | Shrub     | Rhizome abnormal leukorrhea, eczema          | 450332151023004LY |
| 282 | Smilax riparia A. DC.                           | Smilacaceae  | Niu wei cai                                       | Herb      | Herbaceous vine root acute hepatitis, liver ascites | 450332150412019LY |
| 283 | Acorus calamus L.                               | Acoraceae    | Chang pu                                           | Herb      | Whole plant long menstrual period, moist heat | YY1624     |
| 284 | Acorus tatarinowii Schott                      | Acoraceae    | Shi chang pu                                       | Herb      | Root uterine cold stomachache, sciatica, tinnitus, rheumatic bone pain | 450332160512008LY |
| 285 | Alocasia cucullata (Lour.) G. Don               | Araceae      | Jian wei yu                                        | Herb      | Root tuber bruise                          | YY1625     |
| 286 | Amydrum hainanense (K. C. Ting & T. L. Wu ex H. Li, Y. Shiao & S. L. Tseng) H. Li | Araceae | Chuan xin teng                                      | Herbaceous vine Stem and Leaf | Hepatitis, nephritis edema, gastritis, stomachache stewing with pig's stomach | 450332150630001LY |
| 287 | Arisaema erubescens (Wall.) Schott              | Araceae      | Yi ba san nan xing                                 | Herb      | Tuber snake bite                            | 450332151015052LY |
| 288 | Pinellia ternata (Thunb.) Breitenb.             | Araceae      | Ban xia                                           | Herb      | Tuber headache, vomiting of pregnancy, hyperthyroidism | 450332150821055LY |
| 289 | Lycoris radiata (L'Hér.) Herb.                 | Amaryllidaceae| Shi suan                                           | Herb      | Bulb acute mastitis, undefined swelling and soreness | YY1626     |
| 290 | Belamcanda chinensis (L.)                       | Iridaceae    | She gan                                           | Herb      | Rhizome sore throat, hepatitis              | 383        |
### Diversity of medicinal plants used in the study area

In this investigation, 306 medicinal plant species were identified in 248 prescriptions of local healers in Gongcheng, belonging to 116 families and 255 genera. The results provided each species information, including scientific name, family, Chinese name, local name, habit, medicinal part, usage, and voucher specimen number (Table 4). The statistical analysis of families, genera, and species is shown in Table 5. At the family level, Asteraceae contained...
the most genera and species (23 genera, 25 species), followed by the Fabaceae (16, 17), Rubiaceae (8, 12), Rutaceae (6, 9), Rosaceae (8, 8), Lamiaceae (8, 8), Malvaceae (6, 8), Polygonaceae (5, 8), Vitaceae (4, 7), and Primulaceae (2, 6). Similar results have been shown in other areas of China, where many species belonged to these families [7, 27, 36, 37, 45–47]. These ten families accounted for 8.62% of the total number of families, but the number of species and genera included accounted for 35.29% and 33.73% of the total number of species and genera, respectively. Although there were many medicinal plants commonly used by local healers in different families, only a few families were highlighted. There were 49 families with 2–5 species, accounting for 42.24% of all families; the remaining 57 families contained only one species.

In general, the distribution of medicinal plant species in various families and genera was relatively scattered, and the selection of medicinal plants by local healers was highly diverse, indicating that local healers were competent at using a variety of medicinal plants to treat various diseases. Hence, the mountains with ideal habitat and high biodiversity are called the "Yao mountains" (Fig. 1), and the Yao people have a traditional custom of collecting herbs from the "Yao mountains".

Table 5 The diversity of medicinal plants used by local healers in Gongcheng

| Family          | Number of species | Percentage of species (%) | Number of genera | Percentage of genus (%) |
|-----------------|-------------------|----------------------------|------------------|-------------------------|
| Asteraceae      | 25                | 8.17                       | 23               | 9.02                    |
| Fabaceae        | 17                | 5.56                       | 16               | 6.27                    |
| Rubiaceae       | 12                | 3.92                       | 8                | 3.14                    |
| Rutaceae        | 9                 | 2.94                       | 6                | 2.35                    |
| Rosaceae        | 8                 | 2.61                       | 8                | 3.14                    |
| Lamiaceae       | 8                 | 2.61                       | 8                | 3.14                    |
| Malvaceae       | 8                 | 2.61                       | 6                | 2.35                    |
| Polygonaceae    | 8                 | 2.61                       | 5                | 1.96                    |
| Vitaceae        | 7                 | 2.29                       | 4                | 1.57                    |
| Primulaceae     | 6                 | 1.96                       | 2                | 0.78                    |
| Pooaceae        | 5                 | 1.63                       | 5                | 1.96                    |
| Euphorbiaceae   | 5                 | 1.63                       | 5                | 1.96                    |
| Asparagaceae    | 5                 | 1.63                       | 5                | 1.96                    |
| Campanulaceae   | 5                 | 1.63                       | 4                | 1.57                    |
| Araliaceae      | 5                 | 1.63                       | 4                | 1.57                    |
| Zingiberaceae   | 5                 | 1.63                       | 3                | 1.18                    |
| Solanaceae      | 4                 | 1.31                       | 4                | 1.57                    |
| Polypodiaceae   | 4                 | 1.31                       | 4                | 1.57                    |
| Araceae         | 4                 | 1.31                       | 4                | 1.57                    |
| Apiaceae        | 4                 | 1.31                       | 4                | 1.57                    |
| Apocynaceae     | 4                 | 1.31                       | 3                | 1.18                    |
| Amaranthaceae   | 4                 | 1.31                       | 3                | 1.18                    |
| Moraceae        | 4                 | 1.31                       | 2                | 0.78                    |
| Aristolochiaceae| 4                 | 1.31                       | 2                | 0.78                    |
| Schisandraceae  | 4                 | 1.31                       | 1                | 0.39                    |
| Aquifoliaceae   | 4                 | 1.31                       | 1                | 0.39                    |
| Ranunculaceae   | 3                 | 0.98                       | 3                | 1.18                    |
| Acanthaceae     | 3                 | 0.98                       | 3                | 1.18                    |
| Menispermaceae  | 3                 | 0.98                       | 2                | 0.78                    |
| Lauraceae       | 3                 | 0.98                       | 2                | 0.78                    |
| Smilacaceae     | 3                 | 0.98                       | 1                | 0.39                    |
| Others          | 113               | 37.01                      | 104              | 40.56                   |
| Total           | 306               | 100.00                     | 255              | 100.00                   |
The medicinal plants observed in this study were classified into 152 species of herb (49.67%), 68 species of shrub (22.22%), 32 species of tree (10.46%), 29 species of the woody vine (9.48%), and 25 species of the herbaceous vine (8.17%) (Fig. 6). Herbs were most numerous and accounted for around half of the total species, because most herbs are easy to pick, cultivate and reproduce, and are convenient for use. These results are consistent with other research [45, 47–50]. In addition, the medicinal plants used by local healers fell into various life forms, which demonstrated that local healers had experimented with the use of an extensive range of plants over hundreds of years and had finally amassed the unique knowledge and experience of Yao medicine as we find it today.

The efficacy of medicinal plants is closely related to the medicinal part used. Different medicinal parts of the same plant may have different efficacy, and the same medicinal part may have different efficacy in different prescriptions. There were 330 medicinal parts belonging to 306 medicinal plants in Gongcheng, which were treated as 330 medicinal species. Among them, whole plants were the greatest in number (125 species), accounting for 37.88% of the total species, followed by roots (20.30%), rhizomes (7.27%), stems (7.27%), root tubers (4.55%), leaves (4.24%), stem and leaves (4.24%), barks (including root-barks) (3.94%), fruits (including legume and rinds) (3.64%), seeds (2.12%), flowers (including inflorescence) (1.82%), and others (including bulbs, bulbils, corms, tuber, stem pith, and thorns) (2.73%) (Table 6). Among the 330 medicinal parts used by the local healers in Gongcheng, there were two main categories of whole plants and roots, in a total of 192 species, that accounted for 62.75% of the total species. Similar results have been found in some minority communities of Guangxi [7, 8, 27, 37, 51]. The local healers generally believe that roots are where the plant's medicinal powers converge, and their efficacy is optimal. Among whole plants, most are herbs, because herbs are easy to pick, and their habitats are diverse.

| Medicinal parts | Species | Percentage (%) | Medicinal parts | Species | Percentage (%) |
|----------------|---------|----------------|----------------|---------|----------------|
| Whole plants   | 125     | 37.88          | Stem and leaves | 14      | 4.24           |
| Roots          | 67      | 20.30          | Barks          | 13      | 3.94           |
| Rhizomes       | 24      | 7.27           | Fruits         | 12      | 3.64           |
| Stems          | 24      | 7.27           | Seeds          | 7       | 2.12           |
| Root tuber     | 15      | 4.55           | Flowers        | 6       | 1.82           |
| Leaves         | 14      | 4.24           | Others         | 9       | 2.73           |

Relative frequency of citation

The RFC evaluates important plant species used by local healers to treat various diseases. From the 248 prescriptions investigated, the number of prescriptions mentioning plant species (FC) used ranged from one to 14. Calculations showed that 33 medicinal plant species had an FC >5 (Table 7). The RFC value calculated for these 33 medicinal plant species ranged from 0.024 to 0.056. The higher RFC values included *Kadsura longipedunculata*, *Schefflera heptaphylla*, and *Plantago asiatica*.

The higher the RFC value, the more familiar was the local healers with the species; furthermore, and of great importance, the species were abundant and easy to obtain locally. Ten of these 33 medicinal plant species were traditional Laoban medicines, indicating that the local healers were good at using traditional Laoban medicines to treat diseases, especially *Kadsura longipedunculata* (the Laoban medicine name is *xiao zuan*) in the treatment of rheumatism. It also showed that local healers had a long history of using Laoban medicines, including *Achyranthes aspera* (the Laoban medicine name is *niu xi feng*) for the treatment of hyperostosis and rheumatic bone pain, *Uncaria rhynchophylla* (the Laoban medicine name is *ying zhua feng*) treatment for hyperostosis, lumbocrural pain, rheumatic bone pain, and others [26, 27]. These were all traditional and common usages in the local area.

Table 7 Relative frequency of citation (RFC) of plant species mentioned in prescriptions
both these factors can traditional medicinal knowledge be effectively inherited and developed. While attempting to rescue the local traditional medicinal knowledge, great attention should also be paid to biodiversity conservation. Only by addressing the above issues can traditional medicinal knowledge be effectively inherited and developed in local areas.

Gongcheng, which reflects their profound wisdom. The local healers' rich knowledge of traditional medicine and unique remedies make the treatments popular and convenient and efficient, and they have strong regional characteristics.

In this study, we analyzed the data collected from 352 local healers in nine townships of Gongcheng, the Guanyin and Sanjiang townships had the highest distribution of per capita healers, so these two townships were key areas for the protection inheritance of traditional medicinal knowledge. Our investigation recorded 306 medicinal plant species (belonging to 116 families and 255 genera). Most local healers are good at treating traumatic injury and orthopedics, digestive system, skin disease and rheumatic disease. Herbal plants were most commonly used among the medicinal plant species, with whole plants and roots being favored. The most commonly used medicinal method was decoction, and the use of plasters, creams, and some form of moxibustion and cupping skills also showed local practice.

| Scientific name               | FC  | RFC  | Scientific name               | FC  | RFC  |
|-------------------------------|-----|------|-------------------------------|-----|------|
| Kadsura longipedunculata      | 14  | 0.056| Equisetum ramosissimum        | 7   | 0.028|
| Schefflera heptaphylla        | 14  | 0.056| Dryaria roosii                | 7   | 0.028|
| Plantago asiatica             | 13  | 0.052| Clematis chinensis            | 7   | 0.028|
| Achyranthes aspera            | 12  | 0.048| Senna tora                   | 7   | 0.028|
| Sanguisorba officinalis       | 12  | 0.048| Ventilago leiocarpa           | 7   | 0.028|
| Flemingia prostrata           | 12  | 0.048| Sabia japonica                | 7   | 0.028|
| Aconitum carmichaeli          | 10  | 0.040| Eleutherococcus nodiflorus    | 7   | 0.028|
| Tetrastigma hemsleyanum       | 10  | 0.040| Cynanchum paniculatum        | 7   | 0.028|
| Uncaria rhynchophylla         | 10  | 0.040| Scutellaria barbata           | 7   | 0.028|
| Zingiber officinale           | 10  | 0.040| Urena lobata                  | 6   | 0.024|
| Bupleurum marginatum          | 9   | 0.036| Semiliquidambar cathayensis  | 6   | 0.024|
| Imperata cylindrica var. major| 9   | 0.036| Eucommia ulmoides            | 6   | 0.024|
| Akebia trifoliata             | 8   | 0.032| Emilia sonchifolia           | 6   | 0.024|
| Polygala falax                | 8   | 0.032| Solanum lyratum              | 6   | 0.024|
| Urceola huaitingii            | 8   | 0.032| Coix lacryma-jobi             | 6   | 0.024|
| Eclipta prostrata             | 8   | 0.032| Phragmites karka              | 6   | 0.024|
| Ardisia crenata               | 8   | 0.032|                                |     |      |

Protect Yao traditional medicinal knowledge and medicinal plants

As for the protection of Gongcheng Yao traditional medicinal knowledge, the local government should provide a better environment for Yao healers, consider the legality of medical practice for Yao healers and give appropriate advertisements for those Yao healers. The local government also may pay more attention to the inheritance of Yao traditional medicinal knowledge, and set up training course for young people. We firmly believe that the training of young personnel will strongly support the sustainable development of Yao medicine [36], and also is a very important approach for the conservation of Yao traditional medicinal knowledge.

Based on the demographic investigation, the Yao healers in Gongcheng aged over 60 more than half, some Yao healers are dying out, but their traditional medicinal knowledge was not be documented, so the further survey and record of Yao traditional medicinal knowledge is imperative [52], especial Sanjiang and Guanying townships in Gongcheng. Books and scientific reports about medicinal plants and Yao traditional medicinal knowledge should be published [8, 53].

In order to enhance the public understanding and confidence, as well as the safety of Yao traditional medicines, the advanced theories and methods of pharmacology, phytochemistry, and molecular pharmacognosy should be applied to study the Yao traditional medicines and traditional medicinal knowledge [8, 53]. And also in order to conserve local medicinal plant resources, the local government should encourage Yao people to plant preferred or rare medicinal plants in their farmlands [8, 36, 52, 53], which also in line with the strategy of rural revitalization.

**Conclusion**

In this study, we analyzed the data collected from 352 local healers in nine townships of Gongcheng, the Guanyin and Sanjiang townships had the highest distribution of per capita healers, so these two townships were key areas for the protection inheritance of traditional medicinal knowledge. Our investigation recorded 306 medicinal plant species (belonging to 116 families and 255 genera). Most local healers are good at treating traumatic injury and orthopedics, digestive system, skin disease and rheumatic disease. Herbal plants were most commonly used among the medicinal plant species, with whole plants and roots being favored. The most commonly used medicinal method was decoction, and the use of plasters, creams, and some form of moxibustion and cupping skills also showed local practice.

The demographics of local healers in Gongcheng demonstrate a decreasing number of local healers, aging of healers, lack of successors, and the loss of Yao traditional medicinal knowledge. These are affected by modern medicine, urbanization and economic development, and the conservative manner and oral mode of transmitting medicinal knowledge to the next generation. The Yao people excel at using rich medicinal plants to treat various diseases in Gongcheng, which reflects their profound wisdom. The local healers' rich knowledge of traditional medicine and unique remedies make the treatments convenient and efficient, and they have strong regional characteristics. Based on the profound local Yao medicinal knowledge, Gongcheng is currently building the Panwang Medicinal Valley, Yao-Han Health Center and Yao Medical Hospital, for which the current study also provides preliminary data and guidelines. The inheritance of Yao traditional medicinal knowledge is inseparable from the rich medicinal plant resources in the "Yao mountains". Therefore, while attempting to rescue the local traditional medicinal knowledge, great attention should also be paid to biodiversity conservation. Only by addressing both these factors can traditional medicinal knowledge be effectively inherited and developed.
Declarations

Acknowledgments

We are grateful to all the local healers and local people of the study area for sharing their knowledge, cooperation, and hospitality. The authors would like to thank Changjiang Zheng, Guobin Lan, and Xianlin Rong for participating in this survey. We also thank Renchuan Hu for his valuable suggestions on the improvement of the first draft.

Funding

This study was supported by the National Natural Science Foundation of China (31560088) and Basic research fund of Guangxi Academy of Sciences (No. CQZ-D-1906).

Authors’ contributions

CRL and WBX designed the study and revised and finalized the manuscript. ZCL conducted data collection, analyzed the data, and drafted the manuscript. GO and JSL performed data collection. HLC contributed to the preparation of the manuscript. All authors participated in the field surveys. All authors have read and approved the final manuscript.

Availability of data and materials

All data generated or analyzed during this study are included in this published article.

Ethics approval and consent to participate

Permission was provided by all participants in this study, including the Yao healers and local people. Consent was obtained from the local communities prior to the field investigations. The authors hold all copyrights.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

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**Figures**

![Figure 1](image1.jpg)

(a) and (b): Yao mountains; (c) and (d): Yao villages and the surrounding farming fields
Figure 2

A sketch map of the study area
Figure 3

(a): The distribution of "Pch" in the townships of Gongcheng; (b): The topographic map of Gongcheng

Figure 4

The demographics of local healers in Gongcheng
Figure 5
Treatment methods used by local healers in Gongcheng

Figure 6
Life forms of medicinal plants in the study area