Market survey on the traditional medicine of the Lijiang area in Yunnan Province, China

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Abstract

Background: Traditional markets are important trading places for medicinal plants, and researchers performing market surveys often engage in ethnobotanical research to record the herbal plants used locally and any related traditional knowledge. However, information on market-traded medicinal plants from traditional markets in the Lijiang area of Yunnan is not well documented. This research is an ethnobotanical survey focusing on medicinal plants traded in the traditional markets of the Lijiang area and contributes to the understanding of medicinal plants and related information used by the Naxi people.

Methods: Ethnobotanical surveys were performed for two years (2019–2020). Three traditional markets in the Lijiang area were investigated. The methods we used included literature research, participatory surveys and group discussions. The collected voucher specimens were identified using the botanical taxonomy method and were deposited in the herbarium. The data were analysed through the informant consensus factor and use frequency (UF). These medicinal plants were compared with the Information System of Chinese Rare and Endangered Plants from the Chinese Academy of Sciences. Those results were in turn compared with the Dongba Sutras and Yulong Ben Cao.

Results: A total of 277 species from 97 families were recorded, with Asteraceae providing the maximum numbers of medicinal plants. Among them, 248 species (89%) were wild plants and 266 species (92.39%) were from the local area. Root (40.43%) was the most common medicinal part. A total of 267 species (96.04%) had a UF value above 0.5. Eighty-three investigated human ailments were grouped into 16 categories. Diseases of the digestive system (166 mentions) were most frequently mentioned in this study. There were 19 species of nationally protected plants in China, including 2 species of first-level nationally protected plants and 17 species of second-level nationally protected plants. A total of 31 species of these medicinal plants can be found in the Dongba Sutra or Yulong Ben Cao.

Conclusion: We surveyed the herbal medicine in the markets covering the Lijiang area, analysing and revealing the resource composition and current market situations. The medicinal plants used by the Naxi people are diverse and are used to treat a wide spectrum of body disorders. There are many wild medicinal plants, and to ensure sustainable development, their natural protection should be strengthened. Knowledge of the medicinal plants recorded in Naxi medical classics has ethnobotanical value and should be further developed.

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Background
Herbal medicines have played a distinctive role from the primitive period until today in health care systems [1–3]. Approximately 80% of the global population currently uses traditional herbal medicines [4, 5]. These herbal medicines have been used for more than 5000 years in China, and their development is also highly valued there [3]. From 2011 to 2020, China implemented its Fourth National Survey of Chinese Materia Medica Resources to improve the management of these resources [6]. To tap the modern value of ethnic medicine fully and attain a sustainable use of resources, a survey of traditional knowledge related to ethnic medicine was performed [7]. The Lijiang area started the fourth survey of Chinese medicinal resources in 2011. As of June 2021, the 2060 specimens of Chinese medicinal materials had been collected and identified; among them, 85 species of herbs recorded in the Dongba Sutra had been identified [8].

In areas with abundant ethnobotanical knowledge, market surveys are an important research method for ethnobotanical research on medicinal plants [9]. Many studies of traditional herbal markets have been conducted; for example, a study of medicinal plants sold in traditional markets in southern Ecuador found 160 medicinal plants in 57 families and identified 11 culturally significant medicinal plants according to their fidelity level (FL) [10]. An ethnobotanical survey of medicinal plant species marketed in Mashhad city, north-eastern Iran was conducted to document traditional medicinal knowledge and the application of medicinal plants [11]. Market research in Yunnan Province, China, found that herbs collected at the Dragon Boat Festivals in China are considered to be of higher quality than those collected at other times [9, 12]. In China, traditional markets are considered important places for the trading of medicinal plants harvested by rural villagers, and they also play a social role in exchanging the traditional use of herbal medicine among different cultural and social groups in local areas [13].

The Naxi people are primarily distributed in Yunnan and Sichuan Provinces and the Tibet Autonomous Region. Among the total population, more than two-thirds of the Naxi live in Lijiang, Yunnan Province [14]. The Lijiang area is located in the Hengduan Mountains, and it has a fertile soil, a suitable climate, a forest coverage rate of 70% and rich resources in terms of Chinese medicinal materials; it is known as the "hometown of medicinal materials". More than 500 species of medicinal herbs grow on Yulong Snow Mountain, which is known as the "treasure house of plants" [15]. The Naxi people are a nation with a long history in China whose ancestors created the splendid Dongba culture. The Dongba Sutra involved many traditional disciplines, such as history, philosophy, religion, music, dance, etc., and it also recorded a great deal of medical knowledge, including Genesis and Chongren Pandi to Find Medicine. Naxi Dongba medicine is a traditional medicine that has been used by the Naxi people for generations to prevent and treat diseases. The Naxi ancestors accumulated a wealth of knowledge and medical literature [16].

Thus far, there has been a lack of ethnobotanical research on the traditional medicinal plant knowledge of the Naxi people in the Lijiang area. Therefore, based on the theories and methods of ethnobotany, we investigated the medicinal plants of the Naxi people in the Lijiang area to address three objectives: (1) to document traditional knowledge of ethnic medicinal plants in the Lijiang area, (2) to identify potential conservation threats and (3) to record the medicinal plants sold on the market from medical classics.

Materials and methods
Study area
The Lijiang area is located in north-western Yunnan Province and the city centre is located at E100°25′ and N26°86′, with a total area of 20,600 km² (Fig. 1). Apart from the Han nationality, there are 22 ethnic minorities living in Lijiang, among which two-thirds of the Naxi people live in Lijiang. The Lijiang area is near to the Hengduan Mountains, with alternating mountains, river valleys and tableland. The soil is fertile, there are many

Keywords: Ethnobotany, Lijiang area, Medicinal plants, Traditional knowledge, Medicinal market, Naxi, Dongba Sutra, Yulong Ben Cao
hours of sunlight and there is abundant rainfall [17]. Chinese medicinal materials are very rich in resources. Here we investigated three markets in Lijiang, namely Zhongyi Market, Xiangshan Market and Xiangjiang Market (Fig. 2).

Data collection
From August 2019 to December 2020, we completed an investigation of the three medicinal material trading markets in the Lijiang area. The methods that we adopted included literature research, participatory investigation and group discussions. We recorded and photographed the medicinal plants sold in these markets. The collected samples were identified by the taxonomists Haitao Li and Shaohua Yang, according to the Flora of China [18] and Flora Yunnanica [19], who undertook census tasks for Yunnan and Lijiang area. The samples were preserved at the Institute of Alpine Economics and Botany, Yunnan Academy of Agricultural Sciences, which is the main storage targets for the general survey of Chinese medicine resources in Lijiang (Codes of Voucher Specimens: NXYC001-NXYC277).

Eighteen folk doctors in Lijiang were interviewed to investigate the application of the medicinal materials. The uses of medicines were organized according to the International Classification of Primary Care (ICPC-2) [20]. According to the results of the fourth national survey of traditional Chinese medicine resources, whether the medicinal plants sold in the markets came from local or other places, wild or cultivated should be indicated. The Information System of Chinese Rare and Endangered Plants (ISCREP) [21] was used to check whether these medicinal plants belonged to the protected plants.

The Dongba Sutras is a special scripture and is different from the Buddhist Sutras or other classics. The contents of the Dongba Sutras cover history, philosophy, society, religion, language and script, music, art, dance and many other traditional subjects related to Dongba culture. It is praised in academic circles as “the encyclopedia of ancient Naxi people” [22]. Naxi medical culture is an important part of Dongba culture. The Dongba Sutras contain information about the unique medical culture of the Naxi people, and they are the most important documents for studying Naxi medicine. The Yulong Ben Cao was first created during the Ming Dynasty and was written during the Qing Dynasty. It was written in Chinese by Jieshan He, a Naxi person. It was a local herbal work written under the guidance of Traditional Chinese Medicine (TCM) theory and his personal experience in applying medicines from the Naxi people. It is the product of the combination of Naxi culture and Han culture [23]. Therefore, the medicines from the markets were consulted using these works.

Data analysis
The data collected in this study were analysed and graphed by using Microsoft Office Excel (2010) and
RStudio software (4.1.1), including the informant consensus factor (ICF) and use frequency (UF). A quantitative data analysis was conducted using the ICF method and the number of citations. The ICF was calculated as the ICF = (Nur − Ni)/(Nur − 1), where Nur is the sum of plant species used by all the respondents to treat a particular disease and Ni is the number of identical plant species used by all the respondents to treat a particular disease [24]. The use frequency of medicine sold on the market was estimated with the utilization frequency [25]. The UF is calculated as UF = Nm/Ni, where Nm is the number of use reports of medicinal materials mentioned by informants, and Ni is the total number of informants. High UF values indicate that the herb is used more frequently in the region.

Results and discussion
Floristic diversity and UF
In the market, we encountered 277 species of medicinal plants whose base sources have been identified (Table 1). Among the 277 medicinal individuals, the original samples include fungi, lichens, bryophytes, ferns, gymnosperms and angiosperms, of which angiosperms were the most diverse, accounting for 91% (Fig. 3A). The plants belonged to 97 taxonomic families according to the Flora of China and the Flora Yunnanica. The dominant plant family was Asteraceae, with 31 species representing 11.12% of the total species, followed by 14 species of Rosaceae and Lamiaceae (5.05%) and 10 species of Orchidaceae and Polygonaceae (3.61%) (Fig. 3B).

Other studies on traditional markets of the Naxi people of the Lijiang area also recorded Asteraceae as the family with the highest number of medicinal plant species, and there were many varieties [26, 27]. This result indicated that the Naxi medicinal plants in Lijiang involved a wide range of families, which was consistent with the rich plant resources and biodiversity in Lijiang, indicating that the Naxi people in Lijiang had a degree of systematic and comprehensive understanding and use of these medicinal plants. Combined with the fourth national survey of traditional Chinese medicine resources, among the 277 species of medicinal plants, 133 species (48.01%) were found to be distributed in the city, 54 species (19.49%) were distributed along the Jinsha River, and 14 species (5.05%) were distributed on Yulong Snow Mountain, including Rhodiola fastigiata, Pyrola forestiana, Aconitum brachypodum, etc.

Identifying medicinal material with high UF values indicated its abundant use and widespread knowledge among the local communities [28]. In the present study, the UF ranged between 0.3 and 1 (Table 1, Table 2).

Among the samples, there were 25 species (8.99%) with a UF value of 1, such as Achyranthes bidentata, Aconitum carniichaelii, Rodgersia sambucifolia, etc., 123 species (44.24%) with a UF value above 0.8, and 267 species (96.04%) with a UF value above 0.5, which showed that most of the medicinal materials sold in the market had a high degree of identification and utilization and were also commonly used medicinal materials.

Medicinal parts
In this market survey, the types of medicinal parts included the root and rhizome, stem, bark, leaf, fruit, seed, whole plant, flower and others, all reflecting the diversity of medicinal parts of plants used by the Naxi people in Lijiang. The root and rhizome are the main organs for organic storage. There were 112 species of medicinal plants from the root, accounting for 40.43% of the total number of species investigated, followed by the whole plant, with 68 species, accounting for 24.55%; by contrast, there were relatively few leaves and seeds (Fig. 4). These data were similar to those of previous studies [29]. However, the root and whole plants from wild plants are not conducive to the sustainable development of medicinal plants, so it is necessary to promote artificial planting.

Medicinal applications and ICF
According to the ICPC-2, the herbs sold at the herbal market were used to treat 83 human ailments, which were divided into 16 categories (Table 3). This type of medicine can have multiple therapeutic uses. For example, Oxalis corniculata can be used to treat musculoskeletal system and connective tissue diseases, gynaecological system diseases and skin and subcutaneous tissue diseases. This variety shows the diversity of herbs for use by the Naxi people in the Lijiang area. Among the 16 medical categories, most medicinal materials were used to treat diseases of the digestive system (59.93%), followed by diseases of the general and unspecified system (57.04%), respiratory (46.21%), female genital (42.24%), skin (39.35%) and musculoskeletal systems (34.30%). Among the medicinal plants provided by different respondents, there are very few (only one or none) identical plants that can be used to treat the same group of diseases. This observation showed that there are many differences among the Naxi people in the methods for treating a specific disease, i.e., that they have low consensus about disease treatment methods. There are two possible reasons for this: (1) because the Naxi people live in biodiversity-rich areas, the abundant medicinal plant resources provided them with a wide choice of medicinal plants to use [30], and (2) different Naxi folk healers may have different degrees of understanding of the same disease.

The informant consensus factor (ICF) is a measure of information diversity. The higher the ICF value is,
| Voucher Specimens | Scientific name | Local name | Family name | Medicinal parts | W/C | L/E | Diseases treated (ICPC-2) | UF |
|------------------|----------------|------------|-------------|----------------|-----|-----|--------------------------|----|
| NXYC242          | Cordyceps sinensis (Berk.) Sacc | Chong cao | Clavicipitaceae | Others | W | L | Anemia B82, Impotence NOS Y07, Tuberculosis A70, Haematemesis D14 | 0.94 |
| NXYC145          | Cryptoporus volvatus (Peck) Huhhara | Se hei | Poliporaceae | Fruit Body | W | L | Asthma R96, Bronchitis R78, Hemorrhoids K96 | 0.72 |
| NXYC119          | Englemomyces goetzii Phenn | Me mu | Hypocreaceae | Fruit Body | W | L | Malignant Neoplasms Stomach D74, Upper Respiratory Infection R74, Burns/Scald S14, Laryngitis R77, Tonsillitis R76, Pain General/Multiple Sties A01, Skin Disease Other S99, Neoplasm A21, Chronic Enteritis/Ulcerative Colitis D94, Parotitis R99 | 0.89 |
| NXYC027          | Ganoderma applanatum (Pers.) | Ping gai ling zhi | Ganodermataceae | Fruit Body | W | L | Foreign Body Nose/Larynx/Bronchus R87, Laryngitis R77 | 0.72 |
| NXYC192          | Polyporus umbellatus (Pers.) Fries | Zhu ling | Poliporaceae | Sclerotium | W | L | Malaria A73, Pyelonephritis U70, Osteoporosis D80 | 0.61 |
| NXYC048          | Poria cocos (Schw.)Wolf | Tuok en lv | Poliporaceae | Sclerotium | W | L | Dyspepsia D07, Sleep Disturbance P06, Influenza R80 | 0.94 |
| NXYC115          | Thamnolia vermicularis Schaeer | Guo lei | Compositae | Whole Plant | W | L | Tuberculosis A70, Laryngitis R77, Epilepsy N88, Neurasthenia P78 | 0.89 |
| NXYC053          | Usnea longissima Ach | Ze fu | Usneaceae | Whole Plant | W | L | Tuberculosis A70, Palpitation K04, Menstruation Irregular/Frequent X07, Dysuria U01, Sleep Disturbance P06, Rheumatoid Arthritis L88, Influenza R80, Bronchitis R78, Diarrhea D11, Abdominal Pain E0402, Hemiplegia N91, Breast Symptom Female Other X21, Skin Disease Other S99 | 0.83 |
| NXYC246          | Rhodobryum roseum (Hedw.) Limpr | Nu mei li ju ru | Bryaceae | Whole Plant | W | L | Neurasthenia P78 | 0.78 |
| NXYC159          | Lycopodium japonicum Thunb. ex Murray | Yan tou zhi | Lycopodiaceae | Whole Plant | W | L | Hepatitis D71, Cholelithiasis D98, Cataract F92, Neurasthenia P78, Conjunctivitis F70, Rheumatoid Arthritis L88, Pain General/Multiple Sties A01 | 0.56 |
| NXYC034          | Selaginella pulvinata (Hook. et Grev.) Maxim | Ci lv lv ru da biao | Selaginellaceae | Whole Plant | W | L | Bleeding/Haemorrhage NOS A10, Menstruation Irregular/Frequent X07, Pain General/Multiple Sties A01, Liver Disease NOS D97, Rheumatoid Arthritis L88, Asthma R96 | 0.72 |
| NXYC004          | Botrychium lanuginosum Wall | Miao kong suo suo men | Equisetaceae | Whole Plant | W | L | Jaundice D13, Hepatitis D71, Cataract F92, Bronchitis R78, Urinary Infection U71, Urinary Calculi U95, Hemorrhoids K96, Bleeding/Haemorrhage NOS A10 | 0.89 |
| NXYC055          | Botrychium lanuginosum Wall | Bai je | Ophioglossaceae | Root | W | L | Influenza R80, Post-partum Symptom/Complaint other W18, Tuberculosis A70, Cataract F92, Sinusitis R75, Whooping Cough R71, Bronchitis R78, Skin Disease Other S99, Trauma A80 | 0.78 |
| Voucher Specimens | Scientific name | Local name | Family name | Medicinal parts | W/C  | L/E | Diseases treated (ICPC-2) | UF  |
|-------------------|-----------------|------------|-------------|-----------------|------|-----|---------------------------|-----|
| NXYC220           | Botrychium daucifolium Wall  | Mao chong lou | Ophioglossaceae | Whole plant | W   | L   | Cough R05, Skin Disease Other S99, Neoplasm A21 | 0.61 |
| NXYC084           | Cibotium barometz (L.) J.Smith | Gou ji | Cibioteae | Root | W | E | Rheumatoid Arthritis L88, Skin Disease Other S99, Pain General/Multiple Sties A01 | 0.83 |
| NXYC134           | Adiantum philippense L | Ge di li | Pteridaceae | Whole plant | W | L | Hepatitis D71, Urinary Infection U71, Pyelonephritis U70, Urinary Calculi U95, Burns/Scald S14 | 0.67 |
| NXYC127           | Hoplopterus flexuosus (Fée) E. H. Crane | Hua shi cao | Pteridaceae | Leaf | W | L | Rheumatoid Arthritis L88, Cataract F92, Pain General/Multiple Sties A01, Bleeding/Haemorrhage Nos A10 | 0.78 |
| NXYC210           | Davallia trichomanoides Blume | Run hua jin cun | Davallaceae | Rhirome | W | E | Hepatitis D71, Pyelonephritis U70, Pain General/Multiple Sties A01 | 0.5 |
| NXYC093           | Drynaria delavayi Christ | Lu ba di li | Polypodiaceae | Stem | W | L | Deafness H86, Pain General/Multiple Sties A01, Teeth/Gum Disease D82, Appendicitis D88 | 0.83 |
| NXYC128           | Lepisorus bicolor (Takeda) Ching | Liang se wa wei | Polypodiaceae | Leaf | W | L | Cough R05, Pyelonephritis U70, Burns/Scald S14 | 0.39 |
| NXYC097           | Pyrrosia davidii (Baker) Ching | Piao tan fu | Polypodiaceae | Whole plant | W | L | Skin Disease Other S99, Influenza R80, Worms/other Parasites D96, Skin Disease Other S99 | 0.61 |
| NXYC223           | Pinus yunnanensis Franch | Ge bo ha | Pinaceae | Pollen | W | L | Sleep Disturbance P06, Heart Pain K01, Constipation D12 | 0.94 |
| NXYC047           | Podycladus orientalis (L.) Franco | Bian bai | Cupressaceae | Fruit | W, C | L | Influenza R80, Pneumonia R81, Pyelonephritis U70, Bronchitis R78 | 0.83 |
| NXYC051           | Ephedra likiangensis Florin | Mei ku sa | Ephedraceae | Stem | W | L | Post-partum Symptom/Complaint other W18, Rheumatoid Arthritis L88, Menstruation Irregular/Frequent X07, Pain General/Multiple Sties A01, Abdominal Pain Epigastric D02, Chronic Ententis/Ulcereative Colitis D94 | 0.61 |
| NXYC156           | Schisandra neglecta A.C. Smith | Xiao xue teng | Schisandraceae | Root | W | L | Pain General/Multiple Sties A01, Influenza R80 | 0.72 |
| NXYC049           | Schisandra rubriflora (Franch.) Rehd.et Wils | Guo ji lv | Schisandraceae | Stem | W | L | Rheumatoid Arthritis L88, Bronchitis R78, Hepatitis D71, Neurasthenia P78 | 0.83 |
| NXYC179           | Houttuynia cordata Thunb | A ruo ken | Saururaceae | Whole plant | W, C | L | Skin Disease Other S99, Tuberculosis A70 | 0.89 |
| NXYC256           | Peperomia dindygulensis Miq | Chi e a men | Piperaceae | Flower | W | L | Pyelonephritis U70, Skin Disease Other S99, Pain General/Multiple Sties A01, Cough R05, Rash Localized S07, Neoplasm A21 | 0.56 |
| NXYC082           | Asarum himalaicum Hook.f.et Thoms.ex Klotzch | A ruo ken | Aristolochiaceae | Whole plant | W | L | Influenza R80 | 0.72 |
| Voucher Specimens | Scientific name                     | Local name   | Family name | Medicinal parts | W/C | L/E | Diseases treated (ICPC-2)                          | UF |
|-------------------|-------------------------------------|--------------|-------------|-----------------|-----|-----|---------------------------------------------------|----|
| NXYC107           | Magnolia delavayi Franch            | Ye he        | Magnoliaceae| Flower, Bark    | W   | L   | Bronchitis R78, Sinusitis R75                      | 0.94 |
| NXYC203           | Cinnamomum cassia Presl             | Se bi        | Lauraceae   | Bark            | C   | E   | Menstruation Irregular/Frequent X07, Impotence NOS Y07, Palpitation K04, Abdominal Pain Epigastric D02, Abdominal Hernia other D91, Heart Pain K01 | 0.89 |
| NXYC088           | Cinnamomum tamala (Buch.-Ham.) Nees et Eberm | Se bi        | Lauraceae   | Bark            | W   | L   | Diarrhea D11, Menstruation Irregular/Frequent X07, Rheumatoid Arthritis L88, Pain General/Multiple Sties A01, Skin Disease Other S99, Bleeding/Haemorrhage Nos A10 | 1 |
| NXYC002           | Acorus calamus L                    | Chong beng   | Acoraceae   | Root            | W   | L   | Epilepsy N88, Deafness H86, Rheumatoid Arthritis L88, Dementia P70 | 0.94 |
| NXYC036           | Acorus gramineus Soland            | Lu chong ben | Acoraceae   | Root            | W   | L   | Epilepsy N88, Dementia P70, Deafness H86, Rheumatoid Arthritis L88, Asthma R96, Pain General/Multiple Sties A01, Skin Disease Other S99, Peptic Ulcer D86, Diarrhea D11 | 0.94 |
| NXYC255           | Acorus tatarinowii                  | Lu chong ben | Acoraceae   | Rhizome         | W   | L   | Epilepsy N88, Sleep Disturbance P06, Abdominal Pain Epigastric D02, Influenza R80, Skin Disease Other S99, Pain General/Multiple Sties A01, Stroke K90 | 0.67 |
| NXYC064           | Pinellia ternata (Thunb.) Breit     | Ri ha        | Araceae     | Root, Fruit     | W   | L   | Neoplasm A21, Breast Symptom Female other X21, Influenza R80, Skin Disease Other S99, Stroke K90 | 0.89 |
| NXYC199           | Pinellia ternata (Thunb.) Breitenb  | Ri han       | Araceae     | Tuber           | W   | L   | Carbuncle S10, Epilepsy N88, Neoplasm A21, Stroke K90, Trauma A80, Tetanus N72 | 0.94 |
| NXYC264           | Typhonium divaricatum (L.) Decaisne | Gou ban xia  | Araceae     | Tuber           | W   | L   | Boil Carbuncle S10, Pain General/Multiple Sties A01, Neoplasm A21, Skin Disease Other S99, Trauma A80 | 0.78 |
| NXYC219           | Paris polyphylla Smith var. yunnanensis (Franch.) Hand.-Mazz | Yu ma pu   | Melanthiaceae | Rhizome       | W,C | L   | Tonsillitis R76, Abdominal Pain Epigastric D02, Tuberculosis A70, Breast Symptom Female other X21, Trauma A80, Skin Disease Other S99 | 0.78 |
| NXYC110           | Paris polyphylla var. yunnanensis (Franch.) Hand.-Mazz | Sao xiu     | Melanthiaceae | Root          | W,C | L   | Laryngitis R77, Stroke K90, Migraine N89, Trauma A80, Pain General/Multiple Sties A01, Skin Disease Other S99 | 0.78 |
| NXYC267           | Veratrum nigrum L                  | Ji ceng dao  | Melanthiaceae | Root          | W   | L   | Malaria A73, Epilepsy N88,Boil Carbuncle S10, Stroke K90 | 0.61 |
| NXYC266           | Iphigenia indica (L.) Kunth         | Yi p i jian  | Colchicaceae | Bulb           | W   | L   | Foreign Body Nose/Larynx/Bronchus R87, Asthma R96, Bronchitis R78, Breast Lump/ Mass Female X19 | 0.72 |
| Voucher Specimens | Scientific name                  | Local name      | Family name      | Medicinal parts | W/C | L/E | Diseases treated (ICPC-2)                      | UF  |
|-------------------|----------------------------------|-----------------|------------------|-----------------|-----|-----|------------------------------------------------|-----|
| NXYC095           | Smilax glabra Roxb               | Chong ma        | Smilacaceae      | Root            | W   | L   | Syphilis Y70, Skin Disease Other S99, Hemorrhoids K96, Prostatitis Y73, Rheumatoid Arthritis L88, Mennstruation Irregular/Frequent X07, Neoplasm A21 | 0.89|
| NXYC120           | Smilax menispermoidea A. DC      | Lao ci          | Smilacaceae      | Stem            | W   | L   | Rheumatoid Arthritis L88, Bronchitis R78, Skin Disease Other S99, Neoplasm A21, Syphilis Y70 | 0.67|
| NXYC218           | Fritillaria thunbergii Miq       | Bei mu          | Liliaceae        | Bulb            | C   | E   | Upper Respiratory Infection R74, Goitre T81, Peptic Ulcer D86, Tuberculosis A70 | 0.61|
| NXYC224           | Bletilla striata (Thunb.) Rchb. f | Gong ben ya de  | Orchidaceae      | Root            | W   | L   | Tuberculosis A70, Whooping Cough R71, Bleeding/Haemorrhage Nos A10, Bronchitis R78, Skin Disease Other S99, Burns/Scald S14 | 0.94|
| NXYC043           | Bulbophyllum odoratissimum (Smith) Lindl | Lv ji piao  | Orchidaceae      | Whole plant     | W   | L   | Tuberculosis A70, Laryngitis R77, Pain General/Multiple Sties A01, Rheumatoid Arthritis L88 | 0.5 |
| NXYC140           | Calanthe tricanata Lindl.ex Wall | A dong ming     | Orchidaceae      | Root, Fruit     | W   | L   | Rheumatoid Arthritis L88, Abdominal Pain Epigastric D02, Pain General/Multiple Sties A01 | 0.39|
| NXYC175           | Dendrobium officinale Kimura et Migo | Aishi ban mi ba | Orchidaceae      | Stem            | W   | L   | Diabetes Mellitus T90 | 0.78|
| NXYC177           | Gastrodia elata Blume            | Lei ke          | Orchidaceae      | Tuber           | W,C | L   | Hypertension K25, Epilepsy N88, Stroke K90 | 0.89|
| NXYC162           | Goodyera repens (L.) R. Br       | Xiao ban ye lan | Orchidaceae      | Whole plant     | W   | L   | Skin Disease Other S99, Tuberculosis A70, Influenza R80, Pain General/Multiple Sties A01, Trauma A80 | 0.61|
| NXYC236           | Gymnadenia conopsea (L.) R. Br   | A yu la ba      | Orchidaceae      | Tuber           | W   | L   | Hepatitis D71, Tuberculosis A70, Cough R05, Post-partum Symptom/Complaint other W18, Abortion Spontaneous W82, Impotence NOS Y07, Mennstruation Irregular/Frequent X07, Pain General/Multiple Sties A01, Diarrhea D11 | 0.67|
| NXYC237           | Gymnadenia orchidis Lindl        | Xi nan shou shen | Orchidaceae      | Tuber           | W   | L   | Impotence NOS Y07, Mennstruation Irregular/Frequent X07, Post-partum Symptom/Complaint other W18, Tuberculosis A70 | 0.61|
| NXYC225           | Pleione bulbocodioides (Franch.) Rolfe | Gong ben ya ji  | Orchidaceae      | Bulb            | W   | L   | Skin Disease Other S99, Neoplasm A21, Trauma A80 | 0.89|
| NXYC247           | Spiranthes sinensis (Pers) Ames  | Lu bu gei       | Orchidaceae      | Flower          | W   | L   | Herpes Zoster S70, Tuberculosis A70, Diabetes Mellitus T90, Haematemesis D14, Hypertension K25, Tonsillitis R76, Skin Disease Other S99, Vaginal Discharge X14 | 0.56|
| NXYC02           | Belamcanda chinensis (L.) Redoute | Beng de piao ba | Iridaceae        | Root            | W   | L   | Cough R05, Urinary Calculi U95, Mennstruation Irregular/Frequent X07, Hepatitis D71 | 0.83|
| Voucher Specimens | Scientific name | Local name | Family name | Medicinal parts | W/C | L/E | Diseases treated (ICPC-2) | UF  |
|-------------------|----------------|------------|-------------|----------------|-----|-----|---------------------------|-----|
| NXYC241           | Crocus sativus L | Zang hong hua | Iridaceae   | Flower         | W   | L   | headache N01, Bleeding/Haemorrhage Nos A10, Menstruation Irregular/Frequent X07, Pain General/Multiple Sties A01, Liver Disease NOS D97 | 0.83 |
| NXYC033           | Asparagus filicinus Ham. ex D. Don | Sui ben mei jiu | Asparagaceae | Root           | W   | L   | Tuberculosis A70, Whooping Cough R71, Asthma R96, Laryngitis R77, Rheumatoid Arthritis L88, Boil Carbuncle S10 | 0.94 |
| NXYC232           | Ophiopogon japonicus (Thunb.) Ker Gawl | Mai dong | Asparagaceae | Tuber          | W   | L   | Cough R05, Tuberculosis A70 | 0.61 |
| NXYC235           | Polygonatum cirtifolium (Wall.) Royle | Mei zi na wang bo | Asparagaceae | Rhizome        | W   | L   | Cough R05, Diabetes Mellitus T90, Impotence NOS Y07, Menstruation Irregular/Frequent X07, Laryngitis R77, Dyspepsia D07, Neoplasm A21, Vaginal Discharge X14 | 0.78 |
| NXYC015           | Polygonatum kingianum Coll. et Hemsl | Mei zi na wang bo | Asparagaceae | Root           | W   | L   | Hepatitis D71, Tuberculosis A70, Cough R05 | 0.83 |
| NXYC117           | Reineckea carnea (Andrews) Kunth | Jiu jie ling | Asparagaceae | Root           | W   | L   | Cough R05, Pylonephritis U70, Tuberculosis A70, Bronchitis R78, Whooping Cough R71, Trauma A80, Breast Symptom Female other X21, Rheumatoid Arthritis L88, Menstruation Irregular/Frequent X07, Cystitis U71, Chronic Enteritis/Ulcerative Colitis D94, Pain General/Multiple Sties A01 | 0.72 |
| NXYC151           | Trachycarpus fortunei (Hook.) H. Wendl | Ji ce lv | Arecaceae   | Fruit          | W   | L   | Bleeding/Haemorrhage Nos A10, Rheumatoid Arthritis L88, Pain General/Multiple Sties A01, Boil Carbuncle S10, Vaginal Discharge X14 | 0.56 |
| NXYC250           | Cyanotis arachnoidea C. B. Clarke | Lu shui cao | Commelinaeae | Flower         | W   | L   | Dysuria U01, Skin Disease Other S99, Rheumatoid Arthritis L88 | 0.44 |
| NXYC007           | Alpinia officinarum Hance | Gu shu | Zingiberaceae | Root           | W   | L   | Vomiting D10, Dyspepsia D07, Malaria A73, Chronic Enteritis/Ulcerative Colitis D94 | 0.89 |
| NXYC041           | Alpinia zerumbet (Pers.) Burtt. et Smith | Zingiberaceae | Fruit       | W   | E   | Chronic Enteritis/Ulcerative Colitis D94 | 0.78 |
| NXYC100           | Hedychium spicatum Buch.-Ham. ex Smith | Gu luo | Zingiberaceae | Rhizome        | W   | L   | Cough R05, Dyspepsia D07, Pain General/Multiple Sties A01, Question of Pregnancy W01, Abdominal Pain Epigastric D02, Rheumatoid Arthritis L88 | 0.94 |
| NXYC013           | Zingiber officinal Rosc | Gu bu | Zingiberaceae | Root           | C   | L   | Influenza R80, Vomiting D10, Rheumatoid Arthritis L88, Menstruation Irregular/Frequent X07, Cough R05, Diarrhea D11, Pain General/Multiple Sties A01, Poisoning by Medical Agent A84 | 1   |
| Voucher Specimens | Scientific name             | Local name     | Family name | Medicinal parts | W/C | L/E | Diseases treated (ICPC-2)                  | UF  |
|-------------------|-----------------------------|----------------|-------------|-----------------|-----|-----|-------------------------------------------|-----|
| NXYC094           | Juncus effusus L            | Ji beng ken    | Juncaceae   | Whole plant     | W   | L   | Influenza R80, Urticaria S98, Syphilis Y70, Jaundice D13, Pyelonephritis U70, Prostatitis Y73, Dysuria U01, Burns/Scald S14, Pneumonia R81, Malaria A73 | 0.94 |
| NXYC08            | Cyperus rotundus L          | Si gua ri      | Cyperaceae   | Root            | W   | L   | Heart Pain K01, Menstrual Pain X02, Dyspepsia D07, Cough R05 | 0.94 |
| NXYC124           | Cymbopogon distans (Nees ex Steud.) Wats | Xiang mao cao | Poaceae      | Leaf            | W   | L   | Cough R05, Asthma R96, Rheumatoid Arthritis L88, Dysuria R80, Vaginal Discharge X14 | 0.61 |
| NXYC121           | Oryza sativa var glutinosa Matsum | Nuoxi ken     | Poaceae      | Root            | C   | L   | Dysuria U01                                      | 0.78 |
| NXYC265           | Dactylicapnos scandens (D. Don) Hutch | Ba shi niu niu | Papaveraceae | Root            | W   | L   | Pain General/Multiple Sties A01, Hypertension K25, Abdominal Pain Epigastric D02 | 0.72 |
| NXYC201           | Meconopsis racemosa Maxim   | Tiao shen      | Papaveraceae | Root            | W   | L   | Hepatitis D71, headache N01, Pain General/Multiple Sties A01 | 0.5  |
| NXYC181           | Holboellia fargesii Reaub   | Yi zhi         | Lardizabalaceae | Fruit, Stem    | W   | L   | Pyelonephritis U70, Bronchitis R78, Chronic Enteritis/Ulcerative Colitis D94 | 0.61 |
| NXYC248           | Sargentodaxa cuneata (Oliv.) Rehd. et Wils | Ji xue teng   | Lardizabalaceae | Root, Stem     | W   | L   | Rheumatoid Arthritis L88, Appendicitis D88, Menstruation Irregular/Frequent X07 | 0.72 |
| NXYC198           | Stephania epigaea H. S. Lo  | Wu mu jì du    | Menispermae  | Earthnut        | W   | L   | Abdominal Pain Epigastric D02, Abdominal Pain D01, Rheumatoid Arthritis L88, Liver Disease NOS D97, Peptic Ulcer D86, Skin Disease Other S99 | 0.5  |
| NXYC054           | Dysosma versipellis (Hance) M.Cheng ex Ying | Ke ba guo lian | Berberidaeae | Root            | W   | L   | Skin Disease Other S99, Bronchitis R78, Pain General/Multiple Sties A01 | 0.67 |
| NXYC249           | Epimedium davidii Franch    | Zai piao qi    | Berberidaeae | Flower          | W   | E   | Rheumatoid Arthritis L88, Impotence NOS Y07, Cough R05 | 0.94 |
| NXYC045           | Mahonia bracteolata Takeda  | Xing dou han   | Berberidaeae | Stem            | W   | L   | Hepatitis D71, Burns/Scald S14, Chronic Enteritis/Ulcerative Colitis D94, Conjunctivitis F70, Diarrhea D11 | 0.83 |
| NXYC263           | Aconitum brachypodium Diels | Du pei         | Ranunculaceae | Root            | W   | L   | Pain General/Multiple Sties A01, Rheumatoid Arthritis L88, Teeth/Gum Disease D82 | 0.89 |
| NXYC067           | Aconitum carmichaelii Debx  | Du la          | Ranunculaceae | Root            | W   | L   | Rheumatoid Arthritis L88, Abdominal Pain Epigastric D02, Pain General/Multiple Sties A01, Stroke K90 | 1    |
| NXYC065           | Anemone vitifolia Buch. Ham. ex DC | Ban ji shu    | Ranunculaceae | Root            | W   | L   | Rheumatoid Arthritis L88, Worms/other Parasites D96 | 0.61 |
| NXYC066           | Beesia calthaeefolia (Maxim.) Ulbr | Ju nu         | Ranunculaceae | Whole plant     | W   | L   | Rheumatoid Arthritis L88, Influenza R8, Boil Carbuncle S10 | 0.83 |
| Voucher Specimens | Scientific name | Local name | Family name | Medicinal parts | W/C | L/E | Diseases treated (ICPC-2) | UF |
|-------------------|-----------------|------------|-------------|----------------|-----|-----|--------------------------|----|
| NXYC089           | Clematis argentilucida (Levl. et Van.) W.T.Wang | Bai tou gong gong | Ranunculaceae | Stem | W   | L   | Post-partum Symptom/Complaint other W18, Dysuria U01, Urinary Infection U71, Pyelonephritis U70 | 0.94 |
| NXYC001           | Clematis gouriana Roxb. ex DC | Er len li hai gou ze | Ranunculaceae | Stem | W   | L   | Rheumatoid Arthritis L88, Pain General/Multiple Sties A01, Dysuria U01 | 1   |
| NXYC023           | Clematis montana Buch.-Ham. ex DC | Ze diu ba | Ranunculaceae | Stem | W   | L   | Pyelonephritis U70, Urinary Infection U71, Urinary Calculi U95, Menstruation Irregular/Frequent X07, Breast/Lactation Symptom W19, Prostatitis Y73, Sleep Disturbance P06 | 0.94 |
| NXYC268           | Clematis peterae Hand.-Mazz | Mu tong | Ranunculaceae | Stem | W   | L   | Urinary Calculi U95, Urinary Infection U71, Pyelonephritis U70, Rheumatoid Arthritis L88, Sinusitis R75, Conjunctivitis F70, Menstruation Irregular/Frequent X07, Scabies S72 | 0.67 |
| NXYC191           | Paeonia delavayi Franch | Mudan shou e | Paeoniaceae | Root | W   | L   | Hepatitis D71, Bleeding/Haemorrhage Nos A10, Pain General/Multiple Sties A01, Diarrhea D11 | 0.83 |
| NXYC059           | Paeonia lactiflora Pall | Mudan shou | Paeoniaceae | Root | W   | L   | Menstruation Irregular/Frequent X07, Skin Disease Other S99, Pain General/Multiple Sties A01 | 0.89 |
| NXYC103           | Liquidambar formosana Hance | Lu lu tong | Altingiaceae | Fruit | W   | E   | Pyelonephritis U70, Rheumatoid Arthritis L88, Breast/Lactation Symptom W19, Menstruation Irregular/Frequent X07 | 1   |
| NXYC037           | Bergenia purpurascens (Hook.f.et Thom.) Engler | Guo chong ben | Saxifragaceae | Root | W   | L   | Influenza R80, Tuberculosis A70, Bleeding/Haemorrhage Nos A10, Rheumatoid Arthritis L88, Dyspepsia D07, Pain General/Multiple Sties A01, Pyelonephritis U70, Diarrhea D11 | 0.94 |
| NXYC052           | Rodgersia sambucifolia Hemsl | Yan tuo | Saxifragaceae | Root | W   | L   | Pain General/Multiple Sties A01, Menstruation Irregular/Frequent X07, Hematochezia D16, Rheumatoid Arthritis L88, Haematemesis D14, Influenza R80, Chronic Enteritis/Ulcerative Colitis D94 | 1   |
| NXYC024           | Rhodiola fastigiata (Hook. f. et Thoms.) S. H. Fu | Me ji xu | Crassulaceae | Root | W   | L   | Teeth/Gum Disease D82, Conjunctivitis F70, Heart Pain K01, Skin Disease Other S99 | 0.78 |
| NXYC245           | Rhodiola crenulata (Hook. f. et Thoms.) H. Ohba | Wu lu me ji xu | Crassulaceae | Stem, Root | W   | L   | Rheumatoid Arthritis L88, Pain General/Multiple Sties A01 | 0.61 |
| NXYC150           | Rhodiola yunnanensis Franch | Da du wu | Crassulaceae | Root | W   | L   | Rheumatoid Arthritis L88, Pain General/Multiple Sties A01, Breast Symptom Female other Y21 | 0.67 |
| NXYC176           | Cynomorium songaricum Rupr | Suo yang | Cynomoriaceae | Stem | W   | L   | Impotence NOS Y07, Constipation D12 | 0.72 |
| Voucher Specimens | Scientific name                      | Local name       | Family name | Medicinal parts | W/C | L/E | Diseases treated (ICPC-2)                                                                 | UF  |
|-------------------|--------------------------------------|------------------|-------------|-----------------|-----|-----|------------------------------------------------------------------------------------------|-----|
| NXYC272           | *Tetrastigma hypoglauum* Planch. ex Franch | Rou xue teng     | Vitaceae    | Root            | W   | E   | Rheumatoid Arthritis L88, Pain General/Multiple Sties A01, Burns/Scald S14, Skin Disease Other S99 | 0.78|
| NXYC153           | *Tetrastigma hypoglauum* Planch. ex Franch | Tong si ban      | Vitaceae    | Root            | W   | L   | Pain General/Multiple Sties A01, Rheumatoid Arthritis L88, Burns/Scald S14, Skin Disease Other S99 | 0.56|
| NXYC116           | *Tetrastigma obtectum* (Wall) Planch | A dong ming      | Vitaceae    | Root            | W   | L   | Skin Disease Other S99, Rheumatoid Arthritis L88                                         | 0.78|
| NXYC061           | *Campylostropis hirtella* (Franch.) Schindl | Ju nu gou        | Fabaceae    | Root            | W   | L   | Abdominal Pain Epigastric D02, Burns/Scald S14, Menstruation Irregular/Frequent X07, Peptic Ulcer D66 | 0.78|
| NXYC165           | *Crotalaria ferruginea* Grah. ex Benth | Zhu shi dou      | Fabaceae    | Whole plant     | W   | L   | Pyelonephritis U70, Cystitis U71, Urinary Infection U71, Influenza R80, Vaginal Discharge X14 | 0.61|
| NXYC090           | *Flemingia macrophylla* (Willd.) Merr | Qian jin ba      | Fabaceae    | Stem            | W   | L   | Rheumatoid Arthritis L88, Impotence Y07, Peptic Ulcer D66, Influenza R80, Vaginal Discharge X14 | 0.78|
| NXYC096           | *Gleditsia sinensis* Lam              | Zhu ya zao       | Fabaceae    | Stem            | W   | L   | Post-partum Symptom/Complaint other W18, Breast Symptom Female other X21, Question of Pregnancy W01, Skin Disease Other S99, Cough R05, Stroke K90 | 0.72|
| NXYC085           | *Glycyrrhiza uralensis* Fisch         | Fen cao          | Fabaceae    | Root            | C   | E   | Poisoning by Medical Agent A84, Jaundice D13, Peptic Ulcer D86, Menstruation Irregular/Frequent X07, Laryngitis R77 | 1   |
| NXYC020           | *Pueraria lobata* (Willd.) Ohwi       | Gan gan er       | Fabaceae    | Root            | W, C| L   | Influenza R80, Rash Localized S07, Infectious Disease A78, Heart Pain K01, Chronic Enteritis/Ulcerative Colitis D94 | 0.83|
| NXYC137           | *Pueraria montana* var. thomsonii    | Zi ge            | Fabaceae    | Flower          | W   | L   | Rash Localized S07, Diabetes Mellitus T90, Hypertension K25                               | 0.67|
| NXYC207           | *Sophora flavescens* Aiton            | Bai jing di gu   | Fabaceae    | Root            | W   | L   | Skin Disease Other S99, Hemorrhoids K96, Vaginal Discharge X14, Syphilis Y70, Skin Disease Other S99, Vaginal Discharge X14, Diarrhea D11 | 0.89|
| NXYC228           | *Sophora japonica* L                  | Huai mi          | Fabaceae    | Pistil          | W, C| E, L| Hemorrhoids K96, Menstruation Irregular/Frequent X07, Diarrhea D11, Vaginal Discharge X14 | 0.78|
| NXYC164           | *Spatholobus suberectus* Dunn         | Ma lu hua        | Fabaceae    | Stem            | W   | L   | Rheumatoid Arthritis L88, Menstruation Irregular/Frequent X07, Impotence NOS Y07          | 0.94|
| Voucher Specimens | Scientific name | Local name | Family name | Medicinal parts | W/C | L/E | Diseases treated (ICPC-2) | UF |
|------------------|----------------|------------|-------------|-----------------|-----|-----|---------------------------|----|
| NXYC025          | Polygala arillata Buch.-Ham. ex D. Don | You mei hen ku | Polygalaceae | Root           | W   | L   | Pyelonephritis U70, Pneumonia R81, Whooping Cough R71, Rheumatoid Arthritis L88, Tuberculosis A70, Pain General/Multiple Sties A01, Urinary Infection U71 | 0.78 |
| NXYC098          | Polygala japonica Houtt | Xiao yuan zhi | Polygalaceae | Whole plant     | W   | L   | Hepatitis D71, Burns/Scald S14, Tonsillitis R76, Influenza R80, Abdominal Pain Epigastric D02, Rheumatoid Arthritis L88, Breast Symptom Female other X21, Trauma A80, Haematemesis D14, Urinary Calculi U95, Pneumonia R81 | 0.78 |
| NXYC189          | Agrimonia pilosa Ledeb | Guoye | Rosaceae | Whole plant     | W   | L   | Skin Disease Other S99, Abdominal Pain Epigastric D02, Abdominal Hernia other D91, Jaundice D13, Bleeding/Haemorrhage Nos A10, Vaginal Discharge X14, Pain General/Multiple Sties A01, Anemia B82, Influenza R80 | 1 |
| NXYC131          | Prunus persica L | Bu zhu e | Rosaceae | Bark            | W   | L   | Burns/Scald S14, Boil Carbuncle S10 | 0.44 |
| NXYC226          | Prunus armeniaca L | Ai beng | Rosaceae | Seed            | W   | L   | Cough R05, Constipation D12 | 0.89 |
| NXYC104          | Eriobotrya japonica (Thunb.) Lindl | Pi pa piao | Rosaceae | Leaf            | W   | L   | Cough R05, Pyelonephritis U70, Cystitis U71, Bronchitis R78, Teeth/Gum Disease D82, Menstruation Irregular/Frequent X07, Urinary Infection U71 | 0.83 |
| NXYC019          | Geum aleppicum Jacq | Ji leng bu | Rosaceae | Whole plant     | W, C | L   | Hypertension K25, Menstruation Irregular/Frequent X07, Cough R05, Anemia B82 | 0.83 |
| NXYC204          | Malus prunifolia (Wild.) Borkh | Duo le lv | Rosaceae | Fruit           | C   | L   | Diabetes Mellitus T90, Dyspepsia D07 | 0.78 |
| NXYC184          | Potentilla fulgens Wall. ex Hook | Yu lei yu mei guo ke n | Rosaceae | Root            | W   | L   | Dyspepsia D07, Burns/Scald S14, Bleeding/Haemorrhage Nos A10, Menstruation Irregular/Frequent X07, Vaginal Discharge X14 | 0.72 |
| NXYC125          | Prunus domestica L | Shu da gu de | Rosaceae | Stem            | W   | L   | Breast Lump/Mass Female X19, Hemorrhoids K96, Rheumatoid Arthritis L88, Pain General/Multiple Sties A01, Dyspepsia D07, Anemia B82, Trauma A80, Skin Disease Other S99, Parotitis R99 | 0.94 |
| NXYC170          | Pyracantha fortuneana (Maxim.) Li | Huo ba guo | Rosaceae | Fruit           | W   | L   | Hepatitis D71, Dyspepsia D07 | 0.67 |
| NXYC202          | Rosa laevigata Mich | Jin ying zi | Rosaceae | Fruit           | W   | L   | Pyelonephritis U70, Menstruation Irregular/Frequent X07, Pain General/Multiple Sties A01 | 0.67 |
| NXYC147          | Rosa spinosissima Rolfe | Zai yang guo | Rosaceae | Fruit           | W   | L   | Worms/other Parasites D96, Bleeding/Haemorrhage Nos A10, Chronic Enteritis/Ulcerative Colitis D94, Vaginal Discharge X14 | 0.44 |
| Voucher Specimens | Scientific name                        | Local name      | Family name | Medicinal parts | W/C | L/E | Diseases treated (ICPC-2) | UF  |
|-------------------|---------------------------------------|-----------------|-------------|-----------------|-----|-----|---------------------------|-----|
| NXYC190           | Rubus delavayi Franch                | Xiao ci guo     | Rosaceae    | Whole plant     | W   | L   | Skin Disease Other S99, Tonsillitis R76, Worms/other Parasites D96, Vaginal Discharge X14 | 0.39 |
| NXYC231           | Sanguisorba filiformis (Hook.f) Hand-Mazz | Wu mu na ba     | Rosaceae    | Root            | W   | L   | Menstruation Irregular/Frequent X07, Infertility Female W15 | 0.56 |
| NXYC183           | Sanguisorba officinalis L             | Di yu           | Rosaceae    | Root            | W   | L   | Dyspepsia D07, Hemorrhoids K96, Menstruation Irregular/Frequent X07, Bleeding/Haemorrhage Nos A10 | 0.83 |
| NXYC118           | Morus alba L                         | Qizi            | Moraceae    | Stem            | W   | L   | Deafness H26, Dizziness N17 | 0.94 |
| NXYC197           | Laportea cuspidate (Wedd.) Friis     | Me pei xu ken   | Urticaceae  | Root            | W   | L   | Pyelonephritis U70, Liver Disease NOS D97, Rheumatoid Arthritis L88 | 0.61 |
| NXYC032           | Alnus nepalensis D. Don              | Ji nong e       | Betulaceae  | Bark            | W   | L   | Poisoning by Medical Agent A84, Rheumatoid Arthritis L88, Pain General/Multiple Sties A01, Diarrhea D11 | 0.78 |
| NXYC155           | Benincasa hispida (Thunb.) Cogn      | Dong gua zi     | Cucurbitaceae | Seed           | W   | L   | Diabetes Mellitus T90, Skin Disease Other S99, Influenza R80, Vaginal Discharge X14, Tetanus N72 | 0.78 |
| NXYC091           | Euonymus alatus (Thunb.) Sieb       | Gui jian yu     | Celastraceae | Stem            | W   | L   | Menstruation Irregular/Frequent X07, Rheumatoid Arthritis L88 | 0.78 |
| NXYC099           | Euonymus grandiflorus Wall          | Shi xiao dou    | Celastraceae | Bark            | W   | L   | Menstruation Irregular/Frequent X07, Rheumatoid Arthritis L88, Pain General/Multiple Sties A01, Diarrhea D11 | 0.94 |
| NXYC077           | Oxalis corniculata L                 | Leng gan se j i | Oxalidaceae | Whole plant     | W   | L   | Jaundice D13, Hemorrhoids K96, Menstruation Irregular/Frequent X07, Influenza R80, Vaginal Discharge X14 | 0.67 |
| NXYC038           | Hypericum hookerianum Wight &Arnott | Ni mei hei tu ba | Hypericaceae | Whole plant     | W   | L   | Hepatitis D71, Pyelonephritis U70, Chronic Enteritis/Ulcerative Colitis D94, Cystitis U71, Pruritus S02, Menstruation Irregular/Frequent X07, Diarrhea D11 | 0.78 |
| NXYC025           | Euphorbia jolkinii Boiss             | Qiong du de     | Euphorbiaceae | Root            | W   | L   | Scabies S72, Pain General/Multiple Sties A01, Neoplasm A21 | 0.67 |
| NXYC029           | Geranium strictipes R.Knuth          | Qie san che e   | Geraniaceae  | Root            | W   | L   | Dyspepsia D07, Chronic Enteritis/Ulcerative Colitis D94, Hematochezia D16, Diarrhea D11 | 0.89 |
| NXYC252           | Geranium wallichianum D. Don ex Sweet | Qie san che e pei | Geraniaceae  | Root            | W   | L   | Abdominal Pain Epigastric D02, Dyspepsia D07, Diarrhea D11, Rheumatoid Arthritis L88 | 0.89 |
| NXYC133           | Dobinea delavayi Baill              | Jiu zi bu li mu | Anacardiaceae | Root            | W   | L   | Breast Lump/Mass Female X19, Pain General/Multiple Sties A01, Skin Disease Other S99, Parotitis R99 | 0.72 |
| Voucher Specimens | Scientific name | Local name | Family name | Medicinal parts | W/C | L/E | Diseases treated (ICPC-2) | UF |
|-------------------|-----------------|------------|-------------|-----------------|-----|-----|----------------------------|----|
| NXYC106           | Rhus chinensis Mill | Mei piao hua | Anacardiaceae | Others | W | L | Cough R05, Diabetes Mellitus T90, Hematochezia D16 | 0.94 |
| NXYC277           | Rhus potaninni Maxim | Mei piao lv | Anacardiaceae | Others | W | L | Hemorrhoids K96, Menstruation Irregular/Frequent X07, Cough R05, Burns/Scald S14, Diarrhea D11, Pain General/Multiple Sties A01, Skin Disease Other S99 | 0.83 |
| NXYC074           | Boeninghhausenia sessilicarpa Lev | She pi cao | Rutaceae | Whole plant | W | L | Tonsillitis R76, Dysuria U01, Skin Disease Other S99, Abdominal Pain Epigastric D02, Influenza R80, Malaria A73, Bleeding/Haemorrhage Nos A10, Parotitis R99, Diarrhea D11 | 0.78 |
| NXYC087           | Melicope ptelefolia (Champion ex Bentham) T. G. Hartley | Xiao huang san | Rutaceae | Stem | W | E | Hepatitis D71, Rheumatoid Arthritis L88, Pain General/Multiple Sties A01, Upper Respiratory Infection R74, Skin Disease Other S99, Trauma A80, Jaundice D13, Pneumonia R81 | 0.72 |
| NXYC270           | Toddalia asiatica (L.) Lam | Fei long zhang xue | Rutaceae | Root, Stem | W | L | Rheumatoid Arthritis L88, Pain General/Multiple Sties A01, Menstruation Irregular/Frequent X07, Abdominal Pain Epigastric D02, Haematomesis D14, Skin Disease Other S99 | 0.61 |
| NXYC214           | Zanthoxylum bungeanum Maxim | Zui cai | Rutaceae | Others | W | L | Other Parasites D96, Dermatitis S87, Abdominal Pain D01 | 0.67 |
| NXYC003           | Melia azedarach L | Da lv lv | Meliaceae | Fruit | W | L | Menstruation Irregular/Frequent X07, Worms/other Parasites D96, Abdominal Hernia other D91, Boil Carbuncle S10, Pain General/Multiple Sties A01 | 0.89 |
| NXYC227           | Isatis tinctoria L | Ban lan gen | Brassicaceae | Root | W, C | E, L | Hepatitis D71, Influenza R80, Skin Disease Other S99, Tuberculosis A70, Parotitis R99 | 0.94 |
| NXYC174           | Balanophora involucrata Hook. f | Di chang | Balanophoraceae | Whole plant | W | L | Impotence NOS Y07, Menstruation Irregular/Frequent X07, Pain General/Multiple Sties A01, Influenza R80, Hepatitis D71 | 0.67 |
| NXYC171           | Arceuthobium pinii Hawksw. et Wiens | Tuoxiu | Santalaceae | Stem | W | L | Rheumatoid Arthritis L88, Diarrhea D11, Pain General/Multiple Sties A01 | 0.56 |
| NXYC081           | Taxillus delavoyi (Van Tiegh.) Danser | Ge zi chang | Loranthaceae | Whole plant | W | L | Abortion Spontaneous W82, Rheumatoid Arthritis L88 | 0.83 |
| NXYC208           | Fagopyrum dibotrys (D. Don) Hara | Ruo a kao ken | Polygonaceae | Root | W | L | Dyspepsia D07, Menstruation Irregular/Frequent X07, Abdominal Pain Epigastric D02, Post-partum Symptom/Complaint other W18 | 0.72 |
| NXYC148           | Polygonum amplexicaule D. Don | Ai ji ken | Polygonaceae | Root | W | L | Pain General/Multiple Sties A01, Rheumatoid Arthritis L88, Abdominal Pain D01, Diarrhea D11 | 0.61 |
| Voucher Specimens | Scientific name               | Local name | Family name   | Medicinal parts | W/C | L/E | Diseases treated (ICPC-2)                                                                 | UF  |
|-------------------|-------------------------------|------------|---------------|-----------------|-----|-----|------------------------------------------------------------------------------------------|-----|
| NXYC129           | Polygonum aviculare L         | Bian xu    | Polygonaceae  | Whole plant     | W   | L   | Skin Disease Other S99, Jaundice D13, Pyelonephritis U70, Vaginal Discharge X14           | 0.78|
| NXYD039           | Polygonum cuspidatum Sieb. et Zucc | La me tu   | Polygonaceae  | Root            | W   | L   | Rheumatoid Arthritis L88, Pain General/Multiple Sties A01, Jaundice D13, Hepatitis D71, Malignant Neoplasms Stomach D74, Post-partum Symptom/Complaint Other W18, Menstruation Irregular/Frequent X07, Burns/Scald S14 | 1   |
| NXYD040           | Polygonum multiflorum Thunb    | Tuo san qi | Polygonaceae  | Root            | W   | L   | Hepatitis D71, Pruritus S02, Benign Neoplasm Female Genital X80, Liver Disease T93, Constipation D12 | 1   |
| NXYC167           | Polygonum paleaceum Wall      | Jie ken    | Polygonaceae  | Root            | W   | L   | Rheumatoid Arthritis L88, Pain General/Multiple Sties A01, Hematochezia D16, Influenza R80 | 0.72|
| NXYC146           | Rheum delavayi Franch         | Lu zei ken | Polygonaceae  | Root            | W   | L   | Menstruation Irregular/Frequent X07, Constipation D12, Pain General/Multiple Sties A01, Parotitis R99, Diarrhea D11 | 0.78|
| NXYC060           | Rheum likiangense Sam         | Xi pu gao nu na | Polygonaceae | Root            | W   | L   | Menstruation Irregular/Frequent X07, Constipation D12, Pain General/Multiple Sties A01, Parotitis R99, Diarrhea D11 | 0.78|
| NXYC022           | Rheum palmatum L              | Hua zeng de | Polygonaceae  | Root            | W   | L   | Menstruation Irregular/Frequent X07, Constipation D12, Pain General/Multiple Sties A01, Parotitis R99, Diarrhea D11 | 0.78|
| NXYC146           | Arenaria serpyllifolia L      | Sao zhui   | Caryophyllaceae | Whole plant   | W   | L   | Hemorrhoids K96, Jaundice D13, Chronic Enteritis/Ulcerative Colitis D94, Skin Disease Other S99, Burns/Scald S14, Skin Disease Other S99, Teeth/Gum Disease D82, Diarrhea D11, Perianal Abscess D95, Parotitis R99 | 0.94|
| NXYC216           | Psammosilene tunicoides W. C. Wu et C. Y. Wu | Di yu      | Caryophyllaceae | Root           | W   | L   | Rheumatoid Arthritis L88, Pain General/Multiple Sties A01, Worms/other Parasites D96, Abdominal Pain Epigastric D02, Trauma A80 | 0.56|
| Voucher Specimens | Scientific name                  | Local name   | Family name    | Medicinal parts | W/C | L/E | Diseases treated (ICPC-2)                           | UF  |
|-------------------|---------------------------------|--------------|----------------|-----------------|-----|-----|-----------------------------------------------------|-----|
| NXYC254           | Silene viscidula Franch         | Wu zhong ke  | Caryophyllaceae| Root            | W   | L   | Boil/Carbuncle S10, Menstruation Irregular/Frequent X07, Pain General/Multiple Sties A01 | 0.5 |
| NXYC158           | Achyranthes bidentata Bl        | Ji e gu zi zi| Amaranthaceae   | Root            | W   | L   | Hypertension K25, Rheumatoid Arthritis L88, Menstruation Irregular/Frequent X07, | 1   |
| NXYC031           | Phytolacca acinosa Roxb         | A you ke hu pai| Phytolaccaeeae | Root            | W   | L   | Pyelonephritis U70, Skin Disease Other S99, Liver Disease NOS D97 | 1   |
| NXYC021           | Mirabilis jalapa L             | Zi mo li     | Nyctaginaceae  | Root            | W   | L   | Tonsillitis R76, Diabetes Mellitus T30, Prostatitis Y73, Menstruation Irregular/Frequent X07, Urinary Infection U71, Haematemesis D14 | 0.78|
| NXYC275           | Alangium chinense (Lour) Harms  | Huo guo piao zei| Comaceae       | Root, Stem      | W   | E   | Hypertension L88, Pain General/Multiple Sties A01, Dystocia, Jaundice D13 | 0.72|
| NXYC185           | Lysimachia christinae Hance     | Hai ken ba   | Primulaceae    | Whole plant     | W   | L   | Urinary Infection U71, Breast Symptom Female other X21, prostatic hypertrophy Y85, Pyelonephritis U70, Jaundice D13, Hemorrhoids K96, Pain General/Multiple Sties A01, Tuberculosis A70, Urinary Calculi U95 | 0.94|
| NXYC083           | Lysimachia congestiflora Hensl | Hai ken ba   | Primulaceae    | Whole plant     | W   | L   | Pyelonephritis U70, Skin Disease Other S99, Urinary Calculi U95, Influenza R80 | 1   |
| NXYC212           | Primula forrestii Balf. F      | Ai ji ceng   | Primulaceae    | Root            | W   | L   | Pain General/Multiple Sties A01, Rheumatoid Arthritis L88 | 0.61|
| NXYC30            | Agapetes mannii Hemsl          | Shu luo bo   | Ericaceae      | Root            | W   | L   | Hepatitis D71, Menstruation Irregular/Frequent X07, Pain General/Multiple Sties A01 | 0.5 |
| NXYC068           | Cassiope selaginoides Hook.f et Thoms | Tuo bei lei | Ericaceae      | Whole plant     | W   | L   | Rheumatoid Arthritis L88, Dyspepsia D07, Dizziness N17, Neurasthenia P78 | 0.67|
| NXYC14            | Gaultheria forrestii Diels     | Ke ha lu ge  | Ericaceae      | Whole plant     | W   | L   | Cough R05, Rheumatoid Arthritis L88, Tuberculosis A70 | 0.72|
| NXYC229           | Pyrola atropuspurea Franch     | Jiong gu lai | Ericaceae      | Flower          | W   | L   | Dermatitis Allergic S88, Bronchitis R78, Rheumatoid Arthritis L88, Tuberculosis A70 | 0.83|
| NXYC154           | Pyrola forestiana H. Andres    | Guang huang cao| Ericaceae     | Whole plant     | W   | L   | Tuberculosis A70, Influenza R80, Diarrhea D11 | 0.83|
| NXYC132           | Rhododendron delavayi Franch   | Ma ying hua  | Ericaceae      | Flower          | W   | L   | Post-partum Symptom/Complaint other W18, Menstruation Irregular/Frequent X07, Bleeding/Haemorrhage Nos A10, Dysuria U01, Skin Disease Other S99, Diarrhea D11 | 0.56|
| NXYC035           | Eucommia ulmoides Oliv         | E mian kuo   | Eucommiaceae  | Bark, Seed      | W, C| L   | Rheumatoid Arthritis L88, Abortion Spontaneous W82, Hypertension K25, Vaginal Discharge X14, Pain General/Multiple Sties A01 | 0.94|
| Voucher Specimens | Scientific name          | Local name         | Family name   | Medicinal parts | W/C | L/E | Diseases treated (ICPC-2)                                                                 | UF   |
|-------------------|--------------------------|--------------------|---------------|-----------------|-----|-----|--------------------------------------------------------------------------------------------|------|
| NXYC234           | *Galium elegans* Wall    | Niuzhou ken xu    | Rubiaceae     | Root            | W   | L   | Carbuncle S10, Urinary Infection U71, Pain General/Multiple Sties A01, Trauma A80, Vaginal Discharge X14 | 0.89 |
| NXYC259           | *Hedyotis diffusa* Willd | Bai hua she she cao | Rubiaceae     | Flower          | W   | L   | Neoplasm A21, Appendicitis D88, Pyelonephritis U70, Urinary Infection U71, Bronchitis R78, Breast Symptom Female other X21, Hepatitis D71, Tonsillitis R76, Skin Disease Other S99, Trauma A80 | 0.83 |
| NXYC144           | *Rubia schumanniana* Pritz | San xing che e    | Rubiaceae     | Root            | W   | L   | Menstruation Irregular/Frequent X07, Bleeding/Haemorrhage Nos A10, Rheumatoid Arthritis L88, Skin Disease Other S99 | 0.72 |
| NXYC209           | *Rubia yunnanensis* Diels | Niuzhou piao ba ken | Rubiaceae     | Whole plant     | W   | L   | Menstruation Irregular/Frequent X07, Hepatitis D71, Bleeding/Haemorrhage Nos A10, Rheumatoid Arthritis L88 | 0.61 |
| NXYC273           | *Uncaria macrophylla* Wall. in Roxb | Shuang gou teng | Rubiaceae     | Stem, Root      | W   | L   | headache N01, Epilepsy N88, Rheumatoid Arthritis L88 | 0.89 |
| NXYC196           | *Uncaria sinensis* (Oliv.) Havil | Gou teng         | Rubiaceae     | Stem            | W   | E   | Vertigo/Dizziness N17, headache N01, Epilepsy N88, Rheumatoid Arthritis L88 | 0.94 |
| NXYC173           | *Gentiana crassicaulis* Duthe ex Burk | Luo bo qin jiao  | Gentianaceae   | Root            | W, C| L   | Dysuria U01, Abdominal Pain Epigastic D02 | 0.67 |
| NXYC200           | *Gentiana rhoantha* Franch. ex Hemsl | Ji ba ka         | Gentianaceae   | Whole plant     | W   | L   | Jaundice D13, Influenza R80, Tuberculosis A70, Burns/Scald S14, Asthma R96, Skin Disease Other S99, Vaginal Discharge X14 | 0.67 |
| NXYC017           | *Gentiana rigescens* Franch.ex Hemsl | Ji kao            | Gentianaceae   | Whole plant     | W   | L   | Conjunctivitis F70, Malaria A73, Hemorrhoids K96, Hepatitis D71, Rash Localized S07, Tonsillitis R76, Breast Symptom Female other X21, Epilepsy N88, Pneumonia R81, Diarrhea D11 | 0.94 |
| NXYC221           | *Gentiana yunnanensis* Franch | Ji ka             | Gentianaceae   | Whole plant     | W   | L   | Hepatitis D71, Infectious Disease A78 | 0.44 |
| NXYC018           | *Sertaria punicea* Hemsl  | Ji kao            | Gentianaceae   | Whole plant     | W   | L   | Teeth/Gum Disease D82 | 0.89 |
| NXYC149           | *Veratrina baillonii* Franch | Te gu che er     | Gentianaceae   | Root            | W   | L   | Breast Symptom Female other X21, Hepatitis D71, Chronic Enteritis/Ulcerative Colitis D94, Influenza R80, Pain General/Multiple Sties A01, Pyelonephritis U70, Skin Disease Other S99, Poisoning by Medical Agent A84 | 0.67 |
| NXYC262           | *Strychnos nux-vomica* L  | Ku shi            | Loganiaceae    | Seed            | W   | L   | Heart Pain K01, Laryngitis R77 | 0.78 |
| NXYC028           | *Cynanchum otophyllum* Schneid | La gan zi yi    | Apocynaceae    | Root            | W   | L   | Rash Localized S07, Epilepsy N88, Trauma A80, Rheumatoid Arthritis L88, Dyspepsia D07 | 1    |
| NXYC276           | *Marsdenia tenacissima* (Roxb.) Wight | Tong guang san  | Apocynaceae    | Stem            | W   | E   | Dysuria U01, Breast/Lactation Symptom W19, Abdominal Pain Epigastic D02 | 0.72 |
| Voucher Specimens | Scientific name          | Local name     | Family name  | Medicinal parts | W/C | L/E | Diseases treated (ICPC-2)                                                                 | UF  |
|-------------------|--------------------------|----------------|--------------|-----------------|-----|-----|------------------------------------------------------------------------------------------|-----|
| NXYC271           | Periploca forrestii Schltr | Nian er na     | Apocynaceae  | Stem, Root      | W   | L   | Rheumatoid Arthritis L88, Pain General/Multiple Sties A01, Breast Symptom Female other X21, Skin Disease Other S99 | 0.67|
| NXYC260           | Cynoglossum anabile Stapf & J. R. Drumm | Dao ti hu    | Boraginaceae | Flower          | W   | L   | Cystitis U71, Urethritis U72, Jaundice D13, Skin Disease Other S99, Pyelonephritis U70, Hematochezia D16, Laryngitis R77 | 0.61|
| NXYC005           | Onosma paniculatum Buret Franch | Lao rao ken   | Boraginaceae | Root            | W   | L   | Rash Localized S07, Burns/Scald S14, Urinary Infection U71, Breast Lump/Mass Female X19, Infertility S20, Pyelonephritis U70, Skin Disease Other S99 | 0.94|
| NXYC251           | Cuscuta chinensis Lam     | Ci mian lv     | Convolvulaceae | Seed           | W   | L   | Impotence NOS Y07, Abortion Spontaneous W82, Dizziness N17, Hematochezia D16, Laryngitis R77 | 0.83|
| NXYC080           | Cuscuta japonica Choisy   |                |              |                |     |     |                                                                                           |     |
| NXYC139           | Dichondra repens Forst    | He bao cao     | Convolvulaceae | Whole plant    | W   | L   | Hematochezia D98, Infertility S20, Rheumatoid Arthritis L88, Vaginal Discharge X14          | 0.72|
| NXYC163           | Anisodus acutangulus C. Y. Wu et C. Chen | Du pei ken bei | Solanaceae   | Root            | W   | L   | Pain General/Multiple Sties A01, Rheumatoid Arthritis L88, Menstruation Irregular/Frequent X07, Chronic Enteritis/Ulcerative Colitis D94, Meningitis N71 | 0.78|
| NXYC136           | Solanum lyratum Thunb     | Bai ying       | Solanaceae   | Whole plant     | W   | L   | Hematochezia D98, Infertility S20, Rheumatoid Arthritis L88, Vaginal Discharge X14          | 0.72|
| NXYC111           | Solanum nigrum L          | Ruo la ze      | Solanaceae   | Stem, Leaf      | W   | L   | Influenza R80, Urinary Calculi U95, Pyelonephritis U70, Neoplasm A21, Urethritis U71, Breast Lump/Mass Female X19, Urinary Infection U71, Breast Symptom Female other X21, Trauma A80, Skin Disease Other S99, Teeth/Gum Disease D82 | 0.78|
| NXYC274           | Corallodiscus flabellatus (Craib) B. L. Burtt | Shi hua       | Gesneriaceae | Flower          | W   | L   | Menstruation Irregular/Frequent X07, Skin Disease Other S99, Infertility Female W15, Impotence NOS Y07, Abdominal Pain Epigastric D02, Pain General/Multiple Sties A01, Palpitation K04, Poisoning by Medical Agent A84, Vaginal Discharge X14 | 0.67|
| NXYC076           | Hemiphragma heterophyllum Wall | A you jian da ken | Plantaginaceae | Whole plant     | W   | L   | Rheumatoid Arthritis L88, Menstruation Irregular/Frequent X07, Pain General/Multiple Sties A01, Neoplasm A21 | 0.89|
| NXYC079           | Plantago asiatica L        | Bo mei ji gu da | Plantaginaceae | Whole plant     | W   | L   | Dysuria U01, Cataract F92, Skin Disease Other S99, Infertility S20 | 0.89|
| NXYC113           | Veronica anagallis-aquatica L | Shui suo cao   | Plantaginaceae | Whole plant     | W   | L   | Bleeding/Haemorrhage Nos A10, Cough R05, Pain General/Multiple Sties A01, Rheumatoid Arthritis L88, Menstruation Irregular/Frequent X07, Skin Disease Other S99 | 0.78|
| Voucher Specimens | Scientific name | Local name | Family name | Medicinal parts | W/C | L/E | Diseases treated (ICPC-2) | UF |
|-------------------|----------------|------------|-------------|-----------------|-----|-----|--------------------------|----|
| NXYC160           | Verbascum thapsus L | Da mao ye | Scrophulariaceae | Whole plant | W  | L   | Cystitis U71, Influenza R80, Urethritis U72, Urticaria S98, Urticaria R80, Chronic Enteritis/Ulcereative Colitis D94, Pain General/Multiple Sties A01, Skin Disease Other S99 | 0.67 |
| NXYC072           | Verbena officinalis L | Ruan miu bi | Verbenaceae | Whole plant | W  | L   | Hepatitis D71, Influenza R80, Laryngitis R77, Pyelonephritis U70, Pain in Testis/Scrotum Y02, Skin Disease Other S99, Teeth/Gum Disease D82, Chronic Enteritis/Ulcereative Colitis D94, Worms/other Parasites D96, Malaria A73, Menstruation Irregular/Frequent X07 | 0.94 |
| NXYC161           | Ajuga forestii Diels | Jin gu cao | Lamiaceae | Whole plant | W  | L   | Breast Symptom Female other X21, Jaundice D13, Carbuncle S16, Influenza R80, Urinary Calculi U95, Diarrhea D11, Otitis Media H74 | 0.61 |
| NXYC123           | Clerodendranthus spicatus (Thunb.) C. Y. Wu. ex H. W. Li | Ya nu miao | Lamiaceae | Whole plant | W  | E   | Cystitis U71, Urinary Calculi U95, Cholelithiasis D98, Pyelonephritis U70 | 0.78 |
| NXYC063           | Elsholtzia blanda (Benth.) Benth | Jia su | Lamiaceae | Whole plant | W  | L   | Influenza R80, Rash Localized S07 | 0.78 |
| NXYC152           | Isodon yuennanensis (Hand.-Mazz.) H. Harra | Beng mei ju ken | Lamiaceae | Root | W  | L   | Menstruation Irregular/Frequent X07, Pain General/Multiple Sties A01, Abdominal Pain Epigastric D02 | 0.67 |
| NXYC071           | Leonurus artemisia (Lour.) S. Y. Hu | Ba pei mei che | Lamiaceae | Whole plant | W  | L   | Menstruation Irregular/Frequent X07, Question of Pregnancy W01, Post-partum Symptom/Complaint other W18, Skin Disease Other S99 | 0.89 |
| NXYC180           | Origanum vulgare L | Yu lu a zhi | Lamiaceae | Whole plant | W  | L   | Influenza R80, Chronic Enteritis/Ulcereative Colitis D94 | 1 |
| NXYC217           | Phlomis betonicoides Diels | Rong bu shi | Lamiaceae | Whole plant | W  | L   | Neoplasms A21, Breast Lump/Mass Female X19, Tuberculosis A70, Hepatitis D71, Cataract F92, Pain General/Multiple Sties A01, Influenza R80, Goiter T81, Stroke K90, Parotitis R99, Vaginal Discharge X14 | 1 |
| NXYC126           | Salvia flava | Bai qi piao | Lamiaceae | Root | W  | L   | Menstruation Irregular/Frequent X07, Sleep Disturbance P06, Pain General/Multiple Sties A01, Teeth/Gum Disease D82 | 0.67 |
| NXYC238           | Salvia przewalskii Maxim | Fu ken man | Lamiaceae | Root | C  | E   | Abdominal Hernia other D91, Sleep Disturbance P06, Pain General/Multiple Sties A01, Menstruation Irregular/Frequent X07, Heart Pain K01, Skin Disease Other S99 | 0.67 |
| NXYC126           | Salvia trijuga Diels | Xiao hong shen | Lamiaceae | Root | W  | L   | Menstruation Irregular/Frequent X07, Liver Disease NOS D97, Impotence Y07 | 0.72 |
Table 1 (continued)

| Voucher Specimens | Scientific name          | Local name       | Family name      | Medicinal parts | W/C | L/E | Diseases treated (ICPC-2)                                                                 | UF  |
|-------------------|--------------------------|------------------|------------------|-----------------|-----|-----|------------------------------------------------------------------------------------------|-----|
| NXYC108           | *Salvia yunnanensis* C. H. Wright | Bai qi piao      | Lamiaceae       | Root            | W   | L   | Menstruation Irregular/Frequent X07, Breast Lump/Mass Female X19, Post-partum Symptom/Complaint other W18, Skin Disease Other S99, Pain General/Multiple Sties A01, Liver Disease NOS D97, Hepatitis D71 | 0.94 |
| NXYC062           | *Scutellaria amoena* C. H. Wright | Ken shi ba hen   | Lamiaceae       | Root            | W   | L   | Cough R05, Jaundice D13, Bleeding/Haemorrhage Nos A10, Diarrhea D11, Abortion Spontaneous W82 | 0.89 |
| NXYC073           | *Scutellaria barbata* D. Don | Shi gong che e   | Lamiaceae       | Stem, Leaf      | W   | L   | Urinary Infection U71, Hepatitis D71, Neoplasm A21, Breast Symptom Female other X21, Liver Disease NOS D97, Cystitis U71, Bleeding/Haemorrhage Nos A10, Jaundice D13, Trauma A80, Tuberculosis A70 | 0.89 |
| NXYC253           | *Boschniakia himalaica* Hook. f. et Thoms | Qian jinzhui    | Orobanchaceae   | Flower, Root    | W   | L   | Impotence NOS Y07, Other Parasites D96, Abdominal Pain D01, Abdominal Hernia other D91, Rheumatoid Arthritis L88, Pain General/Multiple Sties A01, Cough R05, Laryngitis R77, Poisoning by Medical Agent A84, Parotitis R99 | 0.72 |
| NXYC240           | *Cistanche desertica* Y. C. Ma | Rou cong rong    | Orobanchaceae   | Stem            | C   | E   | Impotence NOS Y07, Infertility Female W15, Constipation D12, Abdominal Pain Epigastric D02, Vaginal Discharge X14 | 0.94 |
| NXYC092           | *Adenophora khasiana* (Hook. f. et Thomson) Oliv. ex Collett et Hemsl | Ba hen shi shua ken | Campanulaceae   | Root            | W   | L   | Bronchitis R78, Whooping Cough R71, Diabetes Mellitus T90, Skin Disease Other S99 | 0.89 |
| NXYC026           | *Codonopsis subglobosa* W. W. Smith | Xu dang         | Campanulaceae   | Root            | W   | L   | Diabetes mellitus T90, Heart Pain K01, Dyspepsia D07, Jaundice D11 | 0.94 |
| NXYC215           | *Plantycodon grandiflorum* (Jacq.) A. DC | Ji gen ken      | Campanulaceae   | Root            | W   | L   | Bronchitis R78, Tuberculosis A70 | 0.78 |
| NXYC006           | *Aucklandia costus* Falc | Sa dui ken bi    | Asteraceae      | Root            | C   | L   | Vomiting D10, Diarrhea D11, Dyspepsia D07 | 0.89 |
| NXYC186           | *Ainsliaea latifolia* (D. Don) Sch-Bip | Mao jiao wei ling xian | Asteraceae      | Root            | W   | L   | Abdominal Pain D01, Pain General/Multiple Sties A01, Conjunctivitis F70 | 0.56 |
| NXYC243           | *Ainsliaea pertyoides var. albo-tomentosa* | Piao tai ba     | Asteraceae      | Root            | W   | L   | Pain General/Multiple Sties A01, Rheumatoid Arthritis L88, Post-partum Symptom/Complaint other W18, Dermatitis Allergic S88, Menstruation Irregular/Frequent X07 | 0.67 |
| NXYC042           | *Arctium lappa* L | E mei la ba      | Asteraceae      | Root            | W   | L   | Influenza R80, Boil Carbuncle S10, Skin Disease Other S99 | 0.89 |
| NXYC069           | *Artemisia lancea* Van | Gei shi gong shen a | Asteraceae      | Whole plant     | W   | L   | Influenza R80, Hepatitis D71, Malaria A73, Trauma A80, Skin Disease Other S99 | 0.89 |
| Voucher Specimens | Scientific name          | Local name   | Family name    | Medicinal parts | W/C | L/E | Diseases treated (ICPC-2)                                                                 | UF   |
|------------------|--------------------------|--------------|----------------|-----------------|-----|-----|------------------------------------------------------------------------------------------|------|
| NXYC166          | Artemisia sieversiana Ehrhart | Beng ka      | Asteraceae     | Whole plant     | W   | L   | Rheumatoid Arthritis L88, Pain General/Multiple Sties A01, Skin Disease Other S99, Bleeding/Haemorrhage Nos A10, Influenza R80 | 0.83 |
| NXYC016          | Aster jeffreyanus Diels  | Lu mi        | Asteraceae     | Root            | W   | L   | Boil Carbuncle S10, Cough R05, Infectious Disease A78                                    | 1    |
| NXYC138          | Atractylodes macrocephala Koidz | Chao bai zhu | Asteraceae     | Root            | W   | L   | Dysuria U01, Jaundice D13, Dyspepsia D07, Abortion Spontaneous W82                        | 0.83 |
| NXYC122          | Bidens pilosa L          | Yi bao zhen  | Asteraceae     | Whole plant     | W   | L   | Malaria A73, Hypertension K25, Appendicitis D88, Jaundice D13, Influenza R80, Dyspepsia D07, Menstruation Irregular/Frequent X07, Rheumatoid Arthritis L88, Neoaplasm A21, Skin Disease Other S99 | 0.67 |
| NXYC086          | Carthamus tinctorius L   | Ci hong hua  | Asteraceae     | Flower          | C   | L   | Palpitation K04, Liver Disease NOS D97, Anemia B82, Pain General/Multiple Sties A01, Urinary Calculi U95, Menstruation Irregular/Frequent X07, Rheumatoid Arthritis L88, Infertility Female W15, Skin Disease Other S99 | 0.94 |
| NXYC078          | Cirsium japonicum Fisch. ex DC | Ba qi       | Asteraceae     | Root            | W   | L   | Peptic Ulcer D86, Pain General/Multiple Sties A01, Burns/Scald S14, Skin Disease Other S99, Hypertension K25, Vaginal Discharge X14 | 1    |
| NXYC014          | Crepis phoenix Dunn     | Ke shua ri   | Asteraceae     | Root            | W   | L   | Hepatitis D71, Breast/Lactation Symptom W19, Pruritus S02                                 | 0.83 |
| NXYC105          | Dendranthes marfolium (Ramat) Tzvel | Ju hua     | Asteraceae     | Flower          | W   | L   | Influenza R80, Deafness H86, Conjunctivitis F70, Hypertension K25, Skin Disease Other S99 | 0.94 |
| NXYC075          | Dicrhocephala auriculate (Thunb.) Druce | Ni mei ge ru ji | Asteraceae | Whole plant     | W   | L   | Laryngitis R77, Skin Disease Other S99, Pain General/Multiple Sties A01                  | 0.94 |
| NXYC188          | Dolomiae berardioidea (Franch.) Shih | Guo bai bai | Asteraceae     | Root            | W   | L   | Dyspepsia D07, Bronchitis R78, Chonic Enteritis/Ulcereative Colitis D94                    | 0.94 |
| NXYC195          | Eclipta prostrata L      | Ni men da ba xiao | Asteraceae | Whole plant     | W   | L   | Hepatitis D71, Bleeding/Haemorrhage Nos A10, Skin Disease Other S99, Diarrhea D11, Tetanus N72 | 0.89 |
| NXYC143          | Egeron breviscapus (Vant.) Hand.-Mazz | Dong ju    | Asteraceae     | Whole plant     | W   | L   | Rheumatoid Arthritis L88, Teeth/Gum Disease D82, Influenza R80, Diarrhea D11           | 0.56 |
| NXYC070          | Eupatorium fortunei Turcz | Peng lai    | Asteraceae     | Whole plant     | W   | L   | Influenza R80, Menstruation Irregular/Frequent X07, Diabetes Mellitus T90, Pain General/Multiple Sties A01 | 0.89 |
### Table 1 (continued)

| Voucher Specimens | Scientific name | Local name | Family name | Medicinal parts | W/C | L/E | Diseases treated (ICPC-2) | UF |
|-------------------|-----------------|------------|-------------|-----------------|-----|-----|----------------------------|----|
| NXYC057           | Gerbera delavayi Franch | Ju ben | Asteraceae | Whole plant | W | L | Dyspepsia D07, Worms/other Parasites D96, Diarrhea D11 | 0.72 |
| NXYC187           | Gynura japonica (Thunb.) Juel | Ze lan shi | Asteraceae | Root | W | L | Pain General/Multiple Sties A01, Post-partum Symptom/Complaint other W18, Breast Symptom Female other X21, Tonsilitis R76 | 0.78 |
| NXYC222           | Hippolytia delavayi (Franch. ex W. W. Smith) Shih | Beng lei ru | Asteraceae | Root | W | L | Tuberculosis A70, Cough R05, Bronchitis R78 | 0.5 |
| NXYC257           | Inula nervosa Wall. ex Hook.f | Ju wei ru | Asteraceae | Root | W | L | Abdominal Pain Epigastric D02, Dyspepsia D07, Dizziness N17 | 0.44 |
| NXYC194           | Lageria crispa (Vahl) Hepper et J | Liu leng ju | Asteraceae | Whole plant | W | L | Influenza R80, Teeth/Gum Disease D82, Tuberculosis A70, Urinary Infection U71, Trauma A80, Skin Disease Other S99 | 0.72 |
| NXYC056           | Petasites tricolobus Franch | Di hu lu | Asteraceae | Whole plant | W | L | Pain General/Multiple Sties A01, Skin Disease Other S99, Constipation D12 | 0.61 |
| NXYC258           | Saussurea deltoidea (DC) Sch.-Bip | Mao ye wei ling xian | Asteraceae | Root | W | L | Rheumatoid Arthritis L88, Abdominal Pain Epigastric D02, Diarrhea D11, Vaginal Discharge X14 | 0.61 |
| NXYC178           | Saussurea leucoma Diels | Ji se yu lei | Asteraceae | Whole plant | W | L | Menstruation Irregular/Frequent X07, Tuberculosis A70, Pain General/Multiple Sties A01 | 0.94 |
| NXYC211           | Saussurea romulifolia Franch | ri miu ru | Asteraceae | Whole plant | W | L | Rheumatoid Arthritis L88, Pain General/Multiple Sties A01, Trauma A80 | 0.61 |
| NXYC169           | Senecio scandens Buch.-Ham | Ba shi ba | Asteraceae | Whole plant | W | L | Influenza R80, Vaginal Discharge X14, Boil Carbuncle S10, Hepatitis D71, Cholecystitis D98, Cataract F92, Burns/Scald S14, Meningitis N71 | 0.83 |
| NXYC046           | Taraxacum mongolicum Hand-Mazz | Bo xiao mi | Asteraceae | Root, Whole plant | W, C | L | Upper Respiratory Infection R74, Tonsillitis R76, Conjunctivitis F70, Breast Symptom Female other X21, Choric Enteritis/Ucerative Colitis D94, Appendicitis D88, Hepatitis D71, Urinary Infection U71, Diarrhea D11, Parotitis R99 | 1 |
| NXYC244           | Wedelia urticifolia (Bl.) DC | Di xue shen | Asteraceae | Root | W | L | Pain General/Multiple Sties A01 | 0.72 |
| NXYC182           | Xanthium sibiricum Patrin ex Widder | Fu gu du | Asteraceae | Fruit | W | L | Rheumatoid Arthritis L88, Malaria A73, Sinusitis R75, Rash Localized S07, Trauma A80, Pruritus S02 | 1 |
| NXYC050           | Sambucus williamsii Hance | Wo zhu ze | Adoxaceae | Bark | W | L | Pain General/Multiple Sties A01, Rheumatoid Arthritis L88, Pyelonephritis U70 | 0.94 |
| NXYC030           | Dipsacus asper Wall. ex Henry | Qi ke du lu | Caprifoliaceae | Root | W, C | L | Rheumatoid Arthritis L88, Abortion Spontaneous W82, Breast/Lactation Symptom W19, Infertility Female W15, Breast Lump/Mass Female X19 | 1 |
| Voucher Specimens | Scientific name | Local name | Family name | Medicinal parts | W/C | L/E | Diseases treated (ICPC-2) | UF |
|-------------------|----------------|------------|-------------|-----------------|-----|-----|--------------------------|----|
| NXYC112           | Leycesteria formosa Wall | Ji wei wei | Caprifoliaceae | Stem, Leaf | W | L | Rheumatoid Arthritis L88, Jaundice D13, Menstruation Irregular/Frequent X07, Cystitis U71, Hemorrhoids K96, Dyspepsia D07 | 0.78 |
| NXYC157           | Lonicera japonica Thunb | Han xue ni ba ze | Caprifoliaceae | Stem | W, C | L | Menstruation Irregular/Frequent X07, Rheumatoid Arthritis L88 | 0.39 |
| NXYC230           | Morina nepalensis D. Don var. delavayi (Franch.) C. H. Hsing | Yu he | Caprifoliaceae | Flower, Root | W | L | Cough R05, Anemia B82, Dyspepsia D07, Vaginal Discharge X14 | 0.61 |
| NXYC261           | Nordostachys jatamansi (D. Don) DC | Hua lei piao | Caprifoliaceae | Root | C | E | Epilepsy N88, Abdominal Pain D01, Abdominal Pain Epigastric D02, Teeth/Gum Disease D82, Dyspepsia D07 | 0.72 |
| NXYC233           | Triplotesia grandiflora Gagnep | Ju leng bu | Caprifoliaceae | Root | W | L | Anemia B82, Pain General/Multiple Sties A01, Poisoning by Medical Agent A84 | 0.61 |
| NXYC269           | Valeriana jatamansi Jones | Ruan ke ruan lei leng | Caprifoliaceae | Whole plant | W, C | L | Hepatitis D71, Chronic Enteritis/Ulcerative Colitis D94, Rheumatoid Arthritis L88 | 0.94 |
| NXYC206           | Pittosporum heterophyllum Franch | Che nu e | Pittosporaceae | Bark | W | L | Rheumatoid Arthritis L88, Menstruation Irregular/Frequent X07, Jaundice D13, Worms/other Parasites D96, Palpitation K04, Pain General/Multiple Sties A01, Peptic Ulcer D86, Post-partum Symptom/Complaint other W18, Bleeding/Haemorrhage Nos A10, Trauma A80 | 0.72 |
| NXYC101           | Eleutherococcus nodiflorus (Dunn) S. Y. Hu | Ban wu na e | Araliaceae | Bark | W | L | Rheumatoid Arthritis L88, Pain General/Multiple Sties A01, Abdominal Hernia other D91, Pruritus S02, Neurotistia P78 | 0.83 |
| NXYC269           | Eleutherococcus trifolius (L.) S. Y | Ban wu na | Araliaceae | Stem, Bark | W | L | Rheumatoid Arthritis L88, Pain General/Multiple Sties A01, Parotitis R99 | 0.61 |
| NXYC142           | Hedera nepalensis var. sinensis (Tobl.) Rehd | Zuo teng | Araliaceae | Stem | W | L | Rheumatoid Arthritis L88, Menstruation Irregular/Frequent X07, Breast/Lactation Symptom W19, Hemorrhoids K96, Bronchitis R78, Pruritus S02 | 0.67 |
| NXYC239           | Panax ginseng C. A. Mey | Hong shen | Araliaceae | Rhizome | W, C | E | Menstruation Irregular/Frequent X07, Diabetes Mellitus T90, Dyspepsia D07, Palpitation K04 | 0.94 |
| NXYC010           | Angelica sinensis (Oliv.) Diels | Yun gui | Apiaceae | Whole plant | C | L | Menstruation Irregular/Frequent X07, Post-partum Symptom/Complaint other W18, Constipation D12, Pain General/Multiple Sties A01 | 1 |
| NXYC009           | Bupleurum candelae Wall | Muru | Apiaceae | Whole plant | W | L | Hepatitis D71, Dyspepsia D07, Influenza R80 | 0.44 |
| NXYC109           | Heracleum candicans Wall. ex DC | Chi nu ken | Apiaceae | Root | W | L | Rheumatoid Arthritis L88, Influenza R80 | 0.94 |
| NXYC141           | Heracleum likiangense Wolff | Ji jiao qi | Apiaceae | Root | W | L | Abdominal Pain Epigastric D02, Sinusitis R75 | 0.72 |
| Voucher Specimens | Scientific name                | Local name       | Family name | Medicinal parts | W/C | L/E | Diseases treated (ICPC-2)                                                                 | UF  |
|-------------------|--------------------------------|------------------|-------------|-----------------|-----|-----|------------------------------------------------------------------------------------------|-----|
| NXYC011           | *Ligusticum chuanxiong* Hort   | Xiong qiong      | Apiaceae    | Whole plant     | C   | L   | Rheumatoid Arthritis L88, Menstruation Irregular/Frequent X07, Liver Disease NOS D97, Pain General/Multiple Sties A01 | 1   |
| NXYC172           | *Pimpinella candolleana* Wight et Arn | Yu ma zhe nu ken | Apiaceae    | Root            | W   | L   | Influenza R80, Rheumatoid Arthritis L88, Skin Disease Other S99, Abdominal Pain Epigastric D02, Tetanus N72 | 0.67 |
| NXYC193           | *Seseli yunnanense* Franch     | Zhu ye fang feng | Apiaceae    | Root            | W   | L   | Influenza R80, Abdominal Pain D01, Neoplasm A21, Trauma A80                              | 0.78 |

W/C: W, wild; C, cultivated  
E/L: E, Exotic; L, local  
Angiosperms are sorted according to APG IV
the greater the difference among plant species used in the treatment of a given disease, and the lower the ICF value is, the smaller the difference among plant species used in the treatment of a disease [25]. The highest ICF values were recorded in this study for meningitis N71, malignant neoplasms stomach D74, dementia P70 (ICF = 2.0) and infectious disease A78 (ICF = 1.50), followed by tracheitis R77, sinusitis R75, question of pregnancy W01, prostatitis Y73 and syphilis Y70 (ICF = 1.33). Further analysis indicated that most of the plant species were used for pain general/multiple sites A01 (Nur = 99, Nt = 27), followed by rheumatoid arthritis L88 (Nur = 96, Nt = 10), skin disease other S99 (Nur = 78, Nt = 11) and menstruation irregular/frequent X07 (Nur = 74, Nt = 8). These values indicated that these four groups of diseases are common in areas were the Naxi people live, and Naxi folk healers have a high consensus on the treatment of these diseases.

Herbal medicine recorded in the Dongba Sutra
The Dongba Sutra recorded topics such as philosophy, history, religion and medicine and is used as a type of encyclopaedia for the Naxi community. Among the topics, many medical classics reflect the contents related to life and health in ancient times, which are the simple understanding of life, health and medicine of ancient people and were of great significance to the study of the origin of medicine. The Dongba people who practiced the primitive religion of the Naxi people mastered Dongba words and accumulated the initial knowledge and long-term practice of medicine [15]. In addition, they formed unique diagnosis and treatment theories and developed valuable experience in disease prevention and treatment. In this market research, 19 of 277 medicinal materials were recorded in the Dongba Sutra (Table 4, Fig. 5). All the medicines recorded in the Dongba Sutra are formulas, and the Naxi Dongba is compatible with medicines used to treat diseases. For example, to treat serious colds, the Naxi Dongba uses Bupleurum candollei and Pyrola forrestiana (Fig. 5A). Pueraria lobata and Melia azedarach can be used to treat malnutrition in children (Fig. 5B), Rheum palmatum, Rheum likiangense and Wolfiporia cocos can be used to treat urinary infection (Fig. 5C), and Reineckia carnea, Sambucus williamsii and Drynaria delavayi can be combined to treat dyspepsia (Fig. 5D).

Herbal medicine recorded in Yulong Ben Cao
The Yulong Ben Cao was compiled based on the environment, climate, eating habits and other diseases where the Naxi community is situated. It is a key source on Naxi medicine [31]. In this market research, 12 of the medicinal plants were recorded in the Yulong Ben Cao (Fig. 6), namely Cynanchum otophyllum, Rodgersia sambucifolia, Swertia punicea, Geum aleppicum, Salvia trijuga, Polygala arillata, Senecio scandens, Polygonum paleaceum, Rumex nepalensis, Arctium lappa, Ajuga forrestii and Valeriana jatamansi. Among these species, Rumex nepalensis is also recorded in the Dongba Sutra. In the Dongba Sutra, Rumex nepalensis is mashed, mixed with honey and smashed green onions to treat men with hernia (Fig. 7). In the Yulong Ben Cao, the indications for Rumex nepalensis are different, and it is primarily used for treating skin eczema, sweat spots, acute tonsillitis, constipation and other ailments [32]. In the theory of TCM [33], the indications for Rumex nepalensis are roughly the same as those recorded in Yulong Ben Cao. The Yulong Ben Cao was written in Chinese by an author from the Naxi people.
and is the product of the combined culture of Naxi medical culture and Han medical culture [34]. Lijiang is in north-western Yunnan Province at the junction of Yunnan, Sichuan and Tibet. It is a multi-ethnic place. In addition to Han and Naxi, there are 21 ethnic minorities, such as Tibetan, Bai and Yi. Some medicinal materials are also used by these ethnic minorities, such as *Rumex nepalensis*. Tibetans use it to treat sores and ulcers, as recorded in the Jingzhu Materia Medica [35]. The Bai people use it to treat constipation, gastrointestinal haemorrhage, eczema, etc. [36]. The Naxi people also have this usage [32]. These phenomena reveal the interrelationship between the Naxi medical culture and the medical culture of the surrounding ethnic groups.

### Resources status

Among the original plants from the 277 species of medicinal materials, 266 (92.39%) were from the local area, and 21 (6.92%) were from other places. Among them, 258 species (89.27%) were completely wild, 15 species (5.19%) were cultivated, and 16 species (5.54%) were wild or cultivated (Fig. 8). This observation was consistent with the trend in the survey results from the Honghe area of Yunnan Province, where wild medicinal plants accounted for 80.1% [9]. The possible reason was that most of the sellers surveyed during the two surveys were local rhizotomists.

According to the ISCREP [21], 2 of the 277 medicinal materials were listed as first class nationally protected plants in China (Table 5), and they were *Tiepishi* and *Renshen*. This finding was also consistent with a survey of the medicinal materials market in Dali Prefecture, Yunnan [13]. According to the IUCN Red List of Threatened Species, *Ginkgo biloba* and *Panax ginseng* are "critically endangered" species. *Dendrobium officinale* was not recorded. Fortunately, both *Ginkgo biloba* and *Panax ginseng* can be obtained through cultivation. There were 17 species listed as second-class nationally protected plants in China (Table 5), of which 15 species sold in the markets of Lijiang were completely taken from wild plants. It is worth noting that *Psammomisile tunicoides*, *Bletilla striata*, *Gymnadenia conopsea* and *Rhodiola crenulata* were classified as "endangered" species according to the IUCN Red List of Threatened Species, but all those currently sold on the Lijiang market were collected from the wild; *Dysosma versipellis* and *Gymnadenia orchidis* belong to the "vulnerable" species according to the IUCN Red List of Threatened Species, and all those sold in the Lijiang markets were also collected from the wild. Although *Paris pubescens* and *Cistanche deserticola* were classified as 'endangered' species according to the IUCN Red List of Threatened Species, they could be cultivated and obtained at present. Reasonable utilization and effective protection for these wild species are extremely vital; otherwise, they might be endangered in the near future.

### Discussion

The ecological ethics of Naxi people have positive significance for the conservation of wild plant resources

The study area, the Lijiang area in Yunnan Province of China, is well known for its exceptional richness in medicinal plants. We recorded 277 species of medicinal plants being traded on the markets involving 97 families, such as Asteraceae, Rosaceae and Ranunculaceae. The medicinal parts, including the roots and rhizomes, stems, skins, leaves, fruits, seeds, whole plants, flowers, etc., showed abundant plant diversity and rich local knowledge in this area. Yunnan Province is called “the kingdom of animals and plants”; for possessing extremely rich biological resources. There are many medicinal plants, especially the species in the Asteraceae, Ranunculaceae and Liliaceae. Systematic research on these key families would help to develop new medicinal resources and protect endangered species.

The ancestors of the Naxi people attached great importance to the harmonious development of man and nature. The Naxi people consider human beings and nature to be brothers. This ecological ethics concept laid the foundation for the Naxi people to live in harmony with nature; it shows the most primitive and simple concept.
| Disease types          | Number | Disease                                      | The sum of plant species (Nur) | The number of identical plant species used (Nt) | ICF |
|------------------------|--------|----------------------------------------------|-------------------------------|-----------------------------------------------|-----|
| Digestive              | 166    | Worms/other Parasites D96                    | 10                           | 2                                             | 0.89|
| Abdominal Hernia other  | 6      | D91                                          |                               |                                               | 1.00|
| Jaundice D13           | 22     | D13                                          |                               |                                               | 0.95|
| Hepatitis D71          | 40     |                                              |                               |                                               | 1.03|
| Vomiting D10           | 4      | D10                                          |                               |                                               | 1.00|
| Diarrhea D11           | 33     | D11                                          | 16                            |                                               | 0.53|
| Dyspepsia D07          | 30     |                                              | 7                             |                                               | 0.79|
| Chronic Enteritis/Ulcerative Colitis D94 | 17 |                                              |                               |                                               | 1.06|
| Constipation D12       | 9      | D12                                          |                               |                                               | 1.13|
| Liver Disease NOS D97  | 11     | D97                                          |                               |                                               | 1.10|
| Teeth/Gum Disease D82  | 13     |                                              | 2                             |                                               | 0.92|
| Haematemesis D14       | 8      | D14                                          | 3                             |                                               | 0.71|
| Hematochezia D16       | 5      | D16                                          | 3                             |                                               | 0.50|
| Peptic Ulcer D86       | 8      |                                              | 0                             |                                               | 1.14|
| Malignant Neoplasms Stomach D74 | 2 | D74                                          | 0                             |                                               | 2.00|
| Abdominal Pain Epigastic D02 | 29 |                                              |                               |                                               | 1.04|
| Appendicitis D88       | 5      |                                              |                               |                                               | 1.25|
| Abdominal Pain D01     | 6      | D01                                          | 0                             |                                               | 1.20|
| Perianal Abscess D95   | 1      |                                              | 0                             |                                               | -   |
| General and unspecified| 158    | Pain General/Multiple Sties A01              | 99                           | 27                                            | 0.73|
| Bleeding/Haemorrhage Nos A10 | 25 |                                            | 4                             |                                               | 0.88|
| Malaria A73            | 10     | A73                                          | 3                             |                                               | 0.78|
| Tuberculosis A70       | 33     | A70                                          | 1                             |                                               | 1.00|
| Infectious Disease A78 | 3      | A78                                          | 0                             |                                               | 1.50|
| Trauma A80             | 25     | A80                                          | 5                             |                                               | 0.83|
| Poisoning by Medical Agent A84 | 7 |                                            | 2                             |                                               | 0.83|
| Neoplasm A21           | 22     | A21                                          | 4                             |                                               | 0.86|
| Respiratory            | 128    | Bronchitis R78                                | 24                           | 4                                             | 0.87|
| Cough R05              | 28     | R05                                          | 5                             |                                               | 0.85|
| Influenza R80          | 55     | R80                                          | 14                            |                                               | 0.76|
| Tonsillits R76         | 14     | R76                                          | 2                             |                                               | 0.92|
| Pneumonia R81          | 6      | R81                                          | 3                             |                                               | 0.60|
| Whooping Cough R71     | 6      | R71                                          | 0                             |                                               | 1.20|
| Foreign Body Nose/Larynx/Bronchus R87 | 1 |                                            | 0                             |                                               | -   |
| Upper Respiratory Infection R74 | 13 |                                            | 3                             |                                               | 0.83|
| Tracheitis R77         | 4      | R77                                          | 0                             |                                               | 1.33|
| Sinusitis R75          | 4      | R75                                          | 0                             |                                               | 1.33|
| Parotitis R99          | 13     | R99                                          | 2                             |                                               | 0.92|
| Female genital         | 117    | Menstruation Irregular/Frequent X07          | 74                           | 8                                             | 0.90|
| Breast Lump/Mass Female | 8     | X19                                          | 1                             |                                               | 1.00|
| Breast Symptom Female other X21 | 17 |                                              | 2                             |                                               | 0.94|
| Vaginal Discharge X14  | 27     | X14                                          | 3                             |                                               | 0.92|
| Benign Neoplasm Female Genital X80 | 1 |                                               | 0                             |                                               | -   |
| Skin                   | 109    | Boil Carbuncle S10                           | 10                           | 2                                             | 0.89|
| Rash Localized S07     | 8      | S07                                          | 0                             |                                               | 1.14|
| Burns/Scald S14        | 12     | S14                                          | 1                             |                                               | 1.00|
| Pruritus S02           | 6      | S02                                          | 2                             |                                               | 0.80|
| Skin Disease Other S99 | 78     |                                              | 11                            |                                               | 0.87|
of environmental conservation by human beings [37]. Experienced medicinal gatherers attach great importance to the sustainable use of resources. They generally pick large herbs rather than small herbs. Most of them collect herbs when the seeds are mature and sow seeds in the surrounding area to be able to renew them naturally [27]. However, with the increase in usage, the demand for trade in medicinal plants may increase in the coming years, leading to the over harvesting of wild plant species and possibly even endangering natural populations. In this study, we found that most of the medicinal plants use roots and whole plants, including the second-level nationally protected plants *Rhodiola fastigiata*, *Bulbophyllum odoratissimum*, *Dysosma versipellis*, *Spiranthes sinensis*, etc., and they are all wild plants. Over harvesting is not conducive to the sustainable development of these plants. The sustainable management of wild medicinal plants is very important to protecting their diversity and

### Table 3 (continued)

| Disease types                          | Number | Disease                          | The sum of plant species (Nur) | The number of identical plant species used (Nt) | ICF  |
|----------------------------------------|--------|----------------------------------|-------------------------------|-----------------------------------------------|------|
| Musculoskeletal                        | 95     | Rheumatoid Arthritis L88         | 96                            | 10                                            | 0.91 |
| Urological                             | 57     | Dysuria U01                      | 12                            | 1                                             | 1.00 |
|                                      |        | Urinary Infection U71           | 17                            | 3                                             | 0.88 |
|                                      |        | Urinary Calculi U95             | 7                             | 1                                             | 1.00 |
|                                      |        | Pyelonephritis U70              | 34                            | 3                                             | 0.94 |
|                                      |        | Cystitis U71                    | 9                             | 0                                             | 1.13 |
| Cardiovascular                        | 45     | Hemorrhoids K96                  | 14                            | 3                                             | 0.85 |
|                                      |        | Heart Pain K01                   | 8                             | 0                                             | 1.14 |
|                                      |        | Hypertension K25                 | 10                            | 1                                             | 1.00 |
|                                      |        | Palpitation K04                  | 6                             | 1                                             | 1.00 |
|                                      |        | Stroke K90                       | 9                             | 0                                             | 1.13 |
| Pregnancy, childbearing, family planning | 31    | Post-partum Symptom/Complaint other W18 | 16                            | 0                                            | 1.07 |
|                                      |        | Breast/Lactation Symptom W19     | 6                             | 0                                             | 1.20 |
|                                      |        | Abortion Spontaneous W82        | 7                             | 1                                             | 1.00 |
|                                      |        | Infertility Female W15          | 6                             | 0                                             | 1.20 |
|                                      |        | Question of Pregnancy W01       | 4                             | 0                                             | 1.33 |
| Neurological                          | 25     | Epilepsy N88                     | 12                            | 0                                             | 1.09 |
|                                      |        | Migraine N89                     | 1                             | 0                                             | -    |
|                                      |        | Tetanus N72                      | 4                             | 2                                             | 0.67 |
|                                      |        | Meningitis N71                   | 2                             | 0                                             | 2.00 |
|                                      |        | Dizziness N17                    | 4                             | 1                                             | 1.00 |
| Male genital                          | 21     | Prostatitis Y73                  | 4                             | 0                                             | 1.33 |
|                                      |        | Pain in Testis/Scrotum Y02       | 1                             | 0                                             | -    |
|                                      |        | Impotence Y07                    | 16                            | 0                                             | 1.07 |
|                                      |        | Syphilis Y70                     | 4                             | 0                                             | 1.33 |
| Psychological                         | 15     | Dementia P70                     | 2                             | 0                                             | 2.00 |
|                                      |        | Sleep Disturbance P06            | 7                             | 1                                             | 1.00 |
|                                      |        | Neurasthenia P78                 | 6                             | 0                                             | 1.20 |
| Eye                                   | 14     | Cataract F92                     | 8                             | 1                                             | 1.00 |
|                                      |        | Conjunctivitis F70               | 9                             | 3                                             | 0.75 |
| Endocrine/metabolic and nutritional   | 13     | Diabetes Mellitus T90            | 12                            | 1                                             | 1.00 |
|                                      |        | Lipid Disorder T93               | 1                             | 0                                             | -    |
| Ear                                   | 7      | Deafness H86                     | 6                             | 0                                             | 1.20 |
|                                      |        | Otitis Media H74                 | 1                             | 1                                             | -    |
| Blood, blood forming organs and immune mechanism | 6   | Anemia B82                       | 7                             | 3                                             | 0.67 |
preventing their extinction, especially for species that are frequently used in traditional medicine. Therefore, on the one hand, we should strengthen the punishments for indiscriminate digging, and on the other hand, we should engage in the artificial domestication and cultivation of large and precious medicinal materials to alleviate the rapid decline in the current medicinal plant resources.

Naxi medicinal plants are versatile and have local characteristics
In terms of disease treatment, the herbal applications by the Naxi people almost covers common diseases, including dyspepsia, the common cold, menstruation disturbances, fractures, etc. as well as incurable infectious diseases such as rabies and malaria in addition to current research hotspots such as cancer and cardiovascular diseases. Common local diseases, such as rheumatoid arthritis and external injury are also addressed. During the use of medicinal plants, a versatile feature is very common; for example, *Aconitum brachypodum* can be used to treat cancer and rheumatoid arthritis. *Todtalia asiatica* can be used to treat rheumatoid arthritis, external injury, gastrointestinal bleeding and menstruation disturbances.

The Naxi people constantly learned and absorbed the culture and production technology of the various Table 4  Medicinal plants sold in the market and recorded in the Dongba Sutra

| Voucher specimens | Local name | Latin name of original plant | International phonetic alphabet | Hieroglyphs |
|--------------------|------------|------------------------------|--------------------------------|------------|
| NXYC002            | Chong beng | *Acorus calamus* L.          | t3h2b21w2kh33                   |            |
| NXYC009            | Mu ru      | *Bupleurum candollei* Wall  | t5ae21h21                        |            |
| NXYC078            | Ba qi      | *Cirsium japonicum* Fisch. ex DC | z3ua21t3hi21kh33              |            |
| NXYC093            | Lu ba di li| *Drynaria delavayi* Christ | h3u52z3ua52da21t3he33khw33     |            |
| NXYC119            | Me mu      | *Engleromyces goetzii* P.Henn | m5w5mu55                        |            |
| NXYC029            | Qie san che e| *Geranium strictipes R.Knuth* | k3a12se33ci33                 |            |
| NXYC076            | A you jian da ken| *Hemiphragma heterophyllum* Wall | g1q21t21sha33             |            |
| NXYC003            | Da lv lv   | *Melia azedarach* L.         | da3tbw23da3ty33ly33            |            |
| NXYC077            | Leng gan se ji | *Oxalis corniculata* L.     | h3ua31t3hi21                 |            |
| NXYC020            | Gan gan er | *Pueraria lobata* (Wild)Ohwi | g3a21do21khw33              |            |
| NXYC154            | Guang huang cao | *Pyrola forestiana* H.Andres | lu12hae21t3ha13            |            |
| NXYC117            | Jiu jie ling| *Reineckea carnea* (Andrews) Kunth | g3v3khw21g3v3t3ar32q31         |            |
| NXYC060            | Xi pu gao nu na| *Rheum liliangense* Sam | n3ja21nv31t3chi21          |            |
| NXYC022            | Hua zeng de | *Rheum palmatum* L.          | da30hua21                   |            |
| NXYC044            | Hua leng hua zeng ke | *Rumex nepalensis* Spreng | h3ua5b3e33                |            |
| NXYC050            | Wo zhu ze  | *Sambucus williamsii* Hance | t5ie21gu12da33                |            |
| NXYC049            | Guo jiu lv | *Schisandra rubriflora* (Franch.) Rehd.et Wils | k5o21w25se33              |            |
| NXYC034            | Ci lv lv ru da biao| *Selaginella pulvinata* (Hook. et Grev.) Maxim | t5hw21ly21ly21z3u21da33b32ia33 |            |
| NXYC048            | Tuo ken lv | *Poria cocos* (Schw.)Wolf | t5o3khw31ly33               |            |
surrounding ethnic groups while communicating with them, thereby enriching and developing their own culture and promoting their own national progress and development [23]. In the Dongba Sutra "Genesis" (Chuang Shiji), it is mentioned that the Tibetans Bai and Naxi were closely related. In the Naxi creation epic "Chongmo Chongze", it is also mentioned that the Naxi and the Tibetans are brothers [33]. This recording also showed that the Naxi people had close exchanges with Tibetans, Bai nationalities and other ethnic groups. In this study, we found that the Naxi, Bai and Tibetans also share similarities in medicinal plant applications. For example, both the Naxi and Tibetans use *Rheum palmatum* to treat constipation, dyspepsia, diarrhoea, jaundice, carbuncles, amenorrhea, etc. In addition, the Naxi people also use *Rheum palmatum* to treat vomiting, gastrointestinal haemorrhages, tumours and other diseases, and the Tibetans also use it to treat infectious diseases, fever and other diseases.

**Naxi medical classics record the excellent culture of the Naxi people**

The "Dongba religion" is the most primitive religion of the Naxi people. Various cultural activities and phenomena, such as Dongba words, sutras, rituals and music making up the Dongba religion, are called the Dongba culture [38]. Many medicinal plants and their uses were recorded in the Dongba Sutra. In this market survey, a total of 19 medicinal plants were recorded in the Dongba Sutra, including *Bupleurum candollei, Pyrola forestiana, Rheum palmatum*, etc. In the survey, 19 medicinal plants were all found to be from the local area of Lijiang. There were common medicinal materials used by people from ancient times to the present. The Naxi people have a long history of recognizing and using medicines.

The *Yulong Ben Cao* was a local herbal book written under the guidance of traditional Chinese medicine theory and combined with the personal experience of the Naxi people [23]. In this market survey, a total of 12 herbs...
were recorded in the Yulong Ben Cao, including Cynanchum otophyllum, Rodgersia sambucifolia and Swertia punicea. Some of them were also recorded in the Dongba Sutra, such as Rumex nepalensis. However, the usage of Rumex nepalensis in the Yulong Ben Cao is different from that in Dongba Sutra. The usage of Rumex nepalensis in the Yulong Ben Cao is closer to that of TCM. Thus, Naxi medicine has absorbed the practice and theory of TCM to promote the formation and development of a national medicine.

The development of Naxi medicine has gone through a long historical process. There are records of medical knowledge in many ancient Dongba Sutra works. With the integration of various ethnic cultures, Naxi medicine has been deeply influenced by various cultures, such as Han, Tibetan and Bai. Unlike other ethnic medicines, Naxi medicine is a multicultural medical theory that has absorbed the practices and theories of TCM, Tibetan medicine and other ethnic medicines and combines the characteristics of its own ethnicity.
Conclusion

This research is the first contribution toward understanding, from an ethnobotanical point of view, that medicinal plants play an important role in the lives of the Naxi people. We studied the records of medicinal plants sold in the markets in the Dongba Sutra and Yulong Ben Cao. The traditional knowledge of medicinal plants recorded in these medical classics is the result of ancient humans’ understanding of nature. From the perspective of the relationship between humans and nature, the content they contain has important ethnobotanical value. However, traditional medicine knowledge and medicinal plants are greatly threatened by rapid economic development for various reasons. Therefore, policies and practices to protect medicinal plants and their associated traditional knowledge are necessary.

| Voucher specimens | Local name       | Family name   | Latin name of original plant                                      | W/C | L/E | IUCN |
|--------------------|------------------|---------------|------------------------------------------------------------------|-----|-----|------|
| NXYC175            | Ai shi ban mi ba | Orchidaceae   | Dendrobium officinale Kimura et Migo                              | W   | L   | –    |
| NXYC239            | Hongshen         | Aralaceae     | Panax ginseng C. A. Mey                                            | W/C | E   | CR   |
| NXYC024            | Me ji xu         | Crassulaceae  | Rhodiola fastigiata (Hook. f. et Thoms.) S. H. Fu                | W   | L   | LC   |
| NXYC043            | Lv ji piao       | Orchidaceae   | Bulbophyllum odoratissimum (Smith) Lindl                         | W   | L   | LC   |
| NXYC054            | Ke ba guo lian   | Berberidaceae | Dynosma versipellis (Hance) M. Cheng ex Ying                      | W   | L   | VU   |
| NXYC085            | Fen cao          | Fabaceae      | Glycyrrhiza uralensis Fisch                                        | C   | E   | LC   |
| NXYC140            | A dong ming      | Orchidaceae   | Calanthe ricinata Lindl.ex Wall                                   | W   | L   | LC   |
| NXYC150            | Da du wu         | Crassulaceae  | Rhodiola yunnanensis Franch                                        | W   | L   | LC   |
| NXYC162            | Xiao ban ye lan  | Orchidaceae   | Goodyera repens (L.) R. Br                                         | W   | L   | LC   |
| NXYC177            | Lei ke           | Orchidaceae   | Gastrodia elata Blume                                              | W/C | L   | –    |
| NXYC213            | Di yu            | Caryophyllaceae | Psammosilene tunicoides W. C. Wu et C. Y. Wu                 | W   | L   | EN   |
| NXYC219            | Yu ma pu         | Melanthiaceae | Paris pubescens (Hand.-Mazz.) Wang et Tang                        | W/C | L   | EN   |
| NXYC224            | Gong ben ya de   | Orchidaceae   | Bletilla striata (Thunb.) Rchb. f                                | W   | L   | EN   |
| NXYC225            | Gong ben ya ji   | Orchidaceae   | Pleione bulbocodioides (Franch.) Rolfe                           | W   | L   | EN   |
| NXYC236            | A yu la ba       | Orchidaceae   | Gymnadenia conopsea (L.) R. Br                                   | W   | L   | EN   |
| NXYC237            | Xinanshoushen    | Orchidaceae   | Gymnadenia orchidis Lindl                                         | W   | L   | VU   |
| NXYC240            | Roucangrong      | Orobanchaceae | Cistanche deserticola Y. C. Ma                                  | C   | E   | EN   |
| NXYC245            | Wu lu me ji xu   | Crassulaceae  | Rhodiola crenulata (Hook. f. et Thombs.) H. Ohba                | W   | L   | EN   |
| NXYC247            | Lu bu gei        | Orchidaceae   | Spiranthes sinensis (Pers.) Armes                                 | W   | L   | LC   |

*CR critically endangered, LC least concern, EN endangered, VU vulnerable*
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