

# An ethnobotanical study on the Chuanqing People of China based on an herbal market survey at the Dragon Boat Festival

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## Research

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# Abstract

**Background:** The Chuanqing People (侗族) are an ethnic group native to Guizhou Province of China, with a unique culture and rich knowledge of traditional medicinal plants. The herbal market at the Dragon Boat Festival plays an important role in the inheritance of traditional medicinal knowledge among the Chuanqing People. This study aims to record the characteristics, current situation, and problems of medicinal plant usage by the Chuanqing People of China. Such information is important for the inheritance and protection of the Chuanqing People's traditional medical knowledge.

**Methods:** Data were collected through key informant interviews, semi-structured interviews, and taxonomic identification. The results were compared with those of traditional Chinese medicine and other ethnic medicines in Guizhou Province. Data were analyzed with use-value (UV) and cultural importance index (CI) values.

**Results:** A total of 102 species from 53 families and 92 genera were recorded, with Orchidaceae and Asparagaceae (6 species each), Berberidaceae and Compositae (5 species each), and Apocynaceae, Ranunculaceae, Rosaceae, and Polygonaceae (4 species each) as the predominant families. The most frequently used taxon was *Hedera nepalensis* var. *sinensis* (Tobler) Rehder (UV and CI=0.29). Moreover, 71 investigated human ailments were grouped into 12 categories. Diseases of the musculoskeletal system and connective tissue (34 mentions) were the most frequently mentioned in this study.

**Conclusions:** The traditional herbal market during the Dragon Boat Festival is a hotspot of traditional medicinal plant knowledge of the Chuanqing People. However, urbanization threatens the inheritance of local medicinal plant knowledge. This study highlights the traditional medicinal knowledge of the Chuanqing People, providing basic data for further research on and protection of minority medicine.

## Background

The Chuanqing People are a native ethnic group with a large population in China. They live mainly in Nayong County and Zhijin County of Guizhou Province [1]. According to Guizhou local records and academic consensus, the term "Chuanqing" is derived from the native people - "Li Minzi" [2]. From the perspective of historical evolution, the Chuanqing People are a community with multiple ethnic groups. A large number of Han people migrated to Guizhou, which led to the construction of Han immigrant society [2]. Based on native culture, the characteristics and culture of the Chuanqing People developed in the complex natural and humanistic environment of the migration area [3].

China attaches great importance to the development of ethnic medicine and has issued many preferential policies to promote the development of ethnic medicines [4]. For example, in 1997, *the decision of the Central Committee of the Communist Party of China and the State Council on Health Reform and Development* pointed out that "medicines of all ethnic groups are an integral part of traditional medicines of China, we should strive to explore, sort out, summarize and improve them, and give full play to its role in protecting the health of all ethnic groups" [5]. With the strong support of the state for ethnic medicine,

many ethnic medicines, such as Tibetan medicine [6], Miao medicine, Yi medicine and Dai medicine [7], that lack scientific research have begun to attract the public's attention. However, in comparison with ethnic medicines, which have many associated research documents, the traditional medicinal culture of small ethnic groups, such as the Mosuo People in Yunnan [8], the Sherpa People in the Himalayas [9], and the Chuanqing People in Guizhou, is rare.

At the end of the Western Han Dynasty, the following was recorded in *the Xiaozheng Chinese Calendar*: "Herbs were collected and stored to remove toxic substance during the Dragon Boat Festival". Thus, there is a long tradition of collecting herbs at the Dragon Boat Festival. The herbs collected at the Dragon Boat Festival are considered to be of higher quality than those collected at other times. The Dragon Boat Festival is the first festival in summer with hot and humid weather, during which diseases are common [10]. Therefore, people will take advantage of this time to collect herbs for their use and take the surplus herbs to the market. In Southwest China, the Dragon Boat Festival herbal market has become a national custom that was formed spontaneously by the people and has been practiced for hundreds of years. It is not only the exhibition and sale place of local medical resources but also the communication platform for local medical knowledge and experience. It has developed into a platform for disseminating national traditional medicine and folk culture [11]. On the fifth of May in the lunar calendar of every year, the Chuanqing People in Nayong County bring recently collected herbs to the market for sale. People sell and buy herbs and share the experience of using herbs and treating diseases at the herbal market of the Dragon Boat Festival. The market has a large scale, and all sorts of herbs are sold there. Therefore, the traditional herbal market of the Dragon Boat Festival has become an integral part of the medical culture of the Chuanqing People. This spontaneous traditional activity plays an important role in the inheritance and protection of local traditional medicinal knowledge and the sustainable development of the local ecological environment.

With the acceleration of the internationalization process, international scientists have increasingly conducted in-depth research on natural drugs. However, research on the Chuanqing People's herbs is lacking worldwide. In modern society, with the rapid development of transportation, the traditional culture of the Chuanqing People is also being impacted by the wave of globalization. With the gradual ageing of people who mastered the traditional medical knowledge of the Chuanqing People, the younger generation has not inherited this valuable knowledge. At the same time, they do not realize the importance of "inheritance" for a nation. To date, research and literature about the Chuanqing People's traditional medicinal knowledge are lacking. If we do not act in time, valuable knowledge may be lost in the long term. Sooner or later, this knowledge will disappear in the long river of history. However, research on the Chuanqing People's herbs is lacking, and traditional medicinal knowledge and experience are disappearing rapidly. Therefore, it is urgent to explore, document and inherit national medicinal knowledge with the characteristics of the Chuanqing People, which is on the verge of being lost.

Based on the theory and method of ethnobotany, a systematic investigation of the ethnic medicinal plants of the Chuanqing People in Guizhou Province was carried out to protect and inherit this treasured ethnic medicinal knowledge to the greatest extent possible. This research is helpful for enriching and

advancing knowledge of ethnic medicinal resources in Southwest China. It is also of great significance for exploring and developing a colourful ethnic medicinal culture within China.

## Methods

### *Location of the study site*

The study was conducted in Nayong County of Guizhou Province, China (105 ° 38 ' 04 " E and 27 ° 05 ' 54 " N) (Fig. 1). The study covers an area of 2448 square kilometres. The area has a wide karst landform, which is the transition zone from the Yunnan-Guizhou Plateau to the Wumeng Mountain area. The elevation ranges from 1050 to 2476 m, and the average elevation is 1685 m. The mean annual temperature is 13.7 °C, the mean sunshine duration is 1346.3 h, and the mean annual precipitation is 1203.0 mm. The area is characterized by no severe cold in winter, no severe heat in summer, and a cool climate in summer and autumn. It experiences synchronization of rain and heat, giving it a subtropical monsoon climate. The county is a multi-ethnic place located in the core area of the distribution of the Chuanqing People. The traditional customs and habits of the Chuanqing People are well preserved. The ethnic characteristics of traditional culture and medical knowledge are distinct and representative. Nayong is one of the key poverty-stricken counties receiving national poverty alleviation work in China, with an incidence of poverty of 6.04% [12]. The vegetation is luxuriant, and the forest coverage rate is 47.05%. According to official data, Nayong County is a vegetation transition zone and has a northern subtropical humid monsoon climate. The vegetation of the karst area is composed of evergreen broad-leaved forest, evergreen deciduous mixed forest and deciduous broad-leaved forest [13]. A total of 1857 plant species from 277 families and 772 genera, as well as 174 species of wild vertebrates from 56 families and 26 orders, have been recorded in Nayong County. Nayong County is rich in biodiversity, as it is surrounded by the provincial dove tree nature reserve, which includes rare animals and plants, such as *Tetracentron sinense* Oliv., *Prionodon pardicolor* Hodgson, and *Tylototriton kweichowensis* Fang and Chang [14,15]. This diversity is conducive to the investigation of medicinal ethnobotany and specimen collection.

Fig. 1 The location of Nayong County, Guizhou Province, China

### *Ethnobotanical data collection*

This survey was conducted from June 2018 to June 2019 at the Dragon Boat Festival. In this survey, 52 informants were investigated, of whom 33 were males and 19 were females, aged from 25 to 80 years old, with an average age of 56 years. The sold medicinal materials included 1 to 25 kinds per informant, 90% of which were wild medicinal materials, mainly obtained through self-collection. Key informant interviews, semi-structured interviews, and free listing were used to obtain information about the ages of the vendors, the names of the medicinal materials, the medicinal parts, the medicinal methods, and the functions, indications, sources and collection methods of the medicinal materials (Appendix 1). After collecting the basic information, the medicinal materials were bought from the vendors and regarded as plant vouchers. Each exsiccata was identified by the Flora of China [16] and Flora of Guizhou [17]. The

taxonomic identification of plant families and species followed the World Flora Online [18] and was used to provide a uniform nomenclature after identification. All the voucher specimens were identified by Professor Hongxiang Yin, Associate Professor of Chengdu University of Traditional Chinese Medicine. The voucher specimens were preserved at the Specimen Center of Chengdu University of Traditional Chinese Medicine (CDCM). At the same time, the collected plant information was compared with the pharmacopeia of the People's Republic of China (ChP) [19] and the Quality Standard of Traditional Chinese Medicine, and National Medicine in Guizhou Province (QSTCMNM) [20]. The Information System of Chinese Rare and Endangered Plants [21] of the Chinese Academy of Sciences was used to determine the protection status of the collected medicinal plants.

### ***Data analysis***

The quantitative statistical indexes of ethnobotany were calculated by Microsoft Excel 2010, including use-value (UV) and cultural importance index (CI). According to the International Classification of Primary Care (ICPC) [22], 71 diseases of the Chuanqing People in Nayong County were classified into 12 categories. The UV of a medical plant species, a quantitative parameter that demonstrates the relative importance of species known by local people, was also calculated as follows:

$$UV = \sum \frac{UP}{n}$$

where UP refers to the number of mentions per species by each informant and n is the total number of informants [23].

The cultural importance index (CI) was used to indicate the spread of the use (number of informants) of each species as well as to determine the diversity of uses.

$$CI_s = \sum_{u=u_1}^{u_{NC}} \sum_{i=i_1}^{i_N} \frac{UR_{ui}}{N}$$

where N is the total number of informants and NC is the total number of use categories. CI is the sum of the proportion of informants that mentioned each of the use categories for a given species. A higher CI value indicates more uses of a species[24].

## **Results**

### ***Age and gender structure of the mastery of medical knowledge***

According to the investigation, the number of medicinal materials that were mastered by men was much higher than that mastered by women (Fig. 2). The data showed that 299 herbs were provided by men,

while only 128 herbs were provided by women. The number of herbs provided by women was less than half of that provided by men. In addition, there were no female vendors aged 20-30 years, and the number of medicinal materials provided by male vendors was very small, only 10 kinds (Fig. 2). The knowledge of medicinal plants of the Chuanqing People was mainly mastered by middle-aged and older males (aged from 31 to 70 years).

Fig. 2 shows the number of medicinal materials mastered by males (70%). First, according to the data of the National Bureau of Statistics, in 2010, the illiteracy rate of males in the rural area was 29.04%, and that of females was 70.96%. Males who accepted higher education learned more relevant medicinal plant knowledge. The second reason is that males are commonly physically stronger than females; when they collect herbs from the local mountain, males are able to collect more varieties of medicinal plants and acquire more knowledge about them. Finally, heavy agricultural work can cause local people to easily suffer from rheumatism and trauma, and local agricultural activities are mainly undertaken by men. Therefore, the number of medicinal materials mastered by males is greater.

Fig. 2 The demographics of vendors

### ***Taxonomic characteristics of the medicinal plants***

A total of 102 medicinal plant species belonging to 92 genera and 53 families were provided by the Chuanqing People (Fig. 3). The dominant families of the Chuanqing People's medicinal plants were Orchidaceae and Asparagaceae (6 species each), including species such as *Bletilla striata* (Thunb.) Rchb.f., *Reineckea carnea* (Andrews) Kunth, and *Asparagus filicinus* Buch.-Ham. ex D.Don, followed by Berberidaceae and Asteraceae (5 species each), including species such as *Senecio analogus* DC. and *Dysosma delavayi* (Franch.) Hu., and Apocynaceae, Ranunculaceae, Rosaceae, and Polygonaceae (4 species each). The remaining families were represented by 4 or fewer entities.

The main families of medicinal plants were the Orchidaceae and Asparagaceae families. Orchidaceae and Asparagaceae are the most important medicinal plants of the Chuanqing People in Guizhou for three reasons. First, Guizhou is one of the most typical karst areas in the world. Its unique geographical location and complex natural environment provide suitable conditions for wild orchids [25]. Second, Orchidaceae plants are widely used in traditional Chinese medicine. There are 343 species of 82 genera in Orchidaceae that can be used as medicine and 297 species of 78 genera of medicinal Orchidaceae in China. Third, a large number of orchids increases the probability of orchids being used by people. According to the number of species, Orchidaceae is the largest family of monocotyledons, and 500 new species published each year are from the Orchidaceae and Asparagaceae [26]. Most plants in Asparagaceae, such as *Polygonatum sibiricum* Delar. ex Redoute and *Asparagus cochinchinensis* (Lour.) Merr., are used frequently because their thick root tubers are attractive to herb collectors. Moreover, *Asparagus cochinchinensis* (Lour.) Merr. is a w Chinese herbal medicine widely used by people of Han nationality. The folk medicine of the Chuanqing People has been influenced by traditional Chinese medicine for a long time, so a large amount of traditional Chinese medicine is expected to be used.

Related research on *Asparagus cochinchinensis* (Lour.) Merr. shows that it mainly contains steroids and has a strong anti-tumour effect [27].

Fig. 3 The dominant medicinal plant families at the herbal market of the Dragon Boat Festival

### ***Analysis of medicinal parts***

Sixteen medicinal parts of medicinal plants were used by the Chuanqing People, of which the whole plant was the most common (36%), such as in *Dendrobium officinale* Kimura et Migo and *Taraxacum mongolicum* Hand. - Mazz., etc. This was followed by roots (25%), rhizomes (12%), root tubers (9%), leaves (4%), fruits (2%), flowers (2%), stems (2%), aerial parts (2%) and others (7%) (Fig. 4). The proportion of plants for which roots and whole plants were used as medicinal parts reached 60.95%.

Roots, rhizomes, and root tubers accounted for 46%. First, roots and rhizomes are the main organs of plants that store nutrients and secondary metabolites, which have been recognized and used by humans for a long time. Second, in winter, the above-ground parts of most herbaceous plants wither, and only underground roots and tubers can be used. The whole plant is the most commonly used medicinal part, accounting for 36%. First, the whole plant is easy to obtain, so it is a good choice. Second, local people have no systematic knowledge of drug use, so they do not usually subdivide medicinal parts, such as roots and flowers, to treat diseases. In addition, the whole plant is more convenient for them to use.

Fig. 4 The proportion of medicinal parts at the herbal market of the Dragon Boat Festival

### **Medication methods**

Twenty medicinal methods of the Chuanqing People were recorded. Decoction (44%) was the most commonly used medical method, as observed for *Disporopsis fuscipicta* Hance, *Verbena officinalis* L., and *Polygonum aviculare* L.. This was followed by alcohol maceration (19%), bath (6%), cooked with pork (6%), mashed (5%), cooked with chicken (3%), powder with boiled water (3%), steamed with honey (3%), sliced (2%), vinegar maceration (2%) and others (6%) (Fig. 5). For the Chuanqing People, most of the medicinal materials were used in the treatment of the musculoskeletal system and connective tissue diseases. Additionally, there were some special medical methods used by the Chuanqing People, such as souping with glutinous rice and firing with eggs.

Decoction (44%) is the most commonly used medication method for the Chuanqing People, and it plays an important role in the preparation of ancient traditional Chinese medicine. The decoction of traditional medicine is the earliest and most widely used traditional dosage form in China, with a long history[28]. Additionally, decocting can control the dosage according to the patient's symptoms, so it is very convenient to use and widely used.

Alcohol maceration was the second most commonly used method (accounting for 19%) and most medicinal materials macerated with alcohol were used to treat traumatic injury. For example, in ***Huang Di Nei Jing (Yellow Emperor's Canon of Medicine)***, there are chapters devoted to the discussion of medicinal

liquor, such as "Tang Ye Liao Li", which shows that the application of medicinal liquor began in the Warring States period of China. As a good semipolar organic solvent, alcohol can dissolve alkaloids, volatile oils, tannins and other components that cannot be dissolved in water. In addition, the Chuanqing People also have some other special usages, such as making a soup with glutinous rice wine, and steaming with eggs.

Fig. 5 The proportion of medicinal uses at the herbal market of the Dragon Boat Festival

### ***Analysis of the UV and CI values of medicinal plants of the Chuanqing People***

The UV of medicinal plants used by the Chuanqing People ranged from 0.02 to 0.29, while many species had low UV and CI values. Appendix 1 shows that the highest UV and CI values were calculated for *Hedera nepalensis* var. *sinensis* (Tobler) Rehder (UV and CI=0.29), *Aconitum carmichaelii* Debeaux, *Plantago major* L., *Polygonum capitatum* Buch.-Ham. ex D. Don, *Paris polyphylla* Smith, and *Potentilla discolor* Bunge (UV and CI=0.13). The UV of ten medicinal plants (UV = CI>0.10) was high because they were widely distributed in the local habitat of Nayong County and relatively easy to obtain. Most local people do not know which part is most effective in treating the disease. When using herbs to treat diseases, they do not use specific medicinal parts, so it is easiest for them to use the whole plant. Finally but importantly, because the local people are generally engaged in agricultural labour for a long time, overwork is excessive, and the local summer climate is humid and hot, so weakness and rheumatism become two major problems faced by local people. These herbal medicines have excellent effects in solving these two problems. The above reasons are why the herbs appear frequently and have a high demand at the Chuanqing People's Dragon Boat Festival medicinal market.

### ***Functions and indications***

According to the International Classification of Primary Care (ICPC) (<https://www.who.int/classifications/icd/en/>) [22], seventy-one investigated human ailments divided into 12 categories were represented among the herbs sold by Chuanqing People at the herbal market of the Dragon Boat Festival (Table 1). Most medicinal materials were used to treat diseases of the musculoskeletal system and connective tissue (34 mentions).

Nayong County has a humid climate, and most people are engaged in agriculture, which leads to multiple musculoskeletal systems and connective tissue diseases, such as rheumatism, traumatic injuries and other diseases. The occurrence of these diseases is closely related to the local environment, climate, living habits and production activities. For instance, *Artemisia argyi* H.Lév. & Vaniot (UV=0.10), *Hedera nepalensis* var. *sinensis* (Tobler) Rehder (UV=0.29), and *Lysimachia paridiformis* var. *stenophylla* Franch. (UV=0.10) are all used to treat rheumatism. *Liparis campylostalix* Rchb.f., *Rhodiola yunnanensis* (Franch.) S. H. Fu, and *Cynanchum inamoenum* (Maxim.) Loes. ex Gilg. & Loes., are used to treat traumatic injuries.

**Table 1.** The Number of Categories of Aliments

Category	Number
Diseases of the musculoskeletal system and connective tissue	34
Diseases of the digestive system	18
Certain infectious and parasitic diseases	17
Diseases of the genitourinary system	16
Diseases of the respiratory system	15
Injury, poisoning and certain other consequences of external causes	5
Diseases of the circulatory system	5
Diseases of the nervous system	3
Diseases of the blood and blood-forming organs and certain disorders involving an immune mechanism	2
Diseases of the ear and mastoid process	2
Certain conditions originating in the perinatal period	1
Diseases of the eye and adnexa	1

### ***Analysis of the rare and endangered status***

A total of 11 medicinal plants were recorded in the Information System of Chinese Rare and Endangered Plants (Table 2), and 11 species were recorded as nationally protected plants (10.78%). Among them, 5 species were protected by the Convention on International Trade of Endangered Species of Wild Fauna and Flora (CITES), and 6 species were recorded in the International Union for Conservation of Nature (IUCN), including low-risk (1 mention), near-risk (2 mentions), vulnerable (2 mentions) and endemic (2 mentions) species in China. Six medicinal species were endemic to China.

**Table 2.** Records of the Information System of Chinese Rare and Endangered Plants

Scientific name	National protection	CITES	IUCN	Distribution area
<i>Magnolia officinalis</i> Rehd. et Wils	☐☐☐	☐	NT	
<i>Houpoea officinalis</i> (Rehder & E. H. Wilson) N. H. Xia & C. Y. Wu	☐☐☐		NT	Only in China
<i>Rhodiolayun nanensis</i> (Franch.) S. H. Fu	☐☐☐		LC	Only in China
<i>Pleione yunnanensis</i> (Rolfe) Rolfe	☐☐☐	☐	VU	
<i>Cibotium barometz</i> (L.) J. Sm.	☐☐☐	☐		Only in China
<i>Aristolochia tuberosa</i> C. F. Liang et S. M. Hwang	☐☐☐		VU	Only in China
<i>Paris polyphylla</i> Smith	☐☐☐			
<i>Citrus cavaleriei</i> H. Lév. ex Cavalier	☐☐☐			Only in China
<i>Dendrobium officinale</i> Kimura & Migo	☐☐☐			Only in China
<i>Taxus chinensis</i> (Pilg.) Rehder	☐☐☐	☐	VU	
<i>Gastrodia elata</i> Blume.	☐☐☐	☐		

NT: Near threatened; LC: Least Concern; VU: Vulnerable

### ***Comparison of the Chuanqing People medicine with the ChP and other ethnic groups medicines in Guizhou Province***

While the traditional medical uses of some plants are similar to those of other people, the Chuanqing People possess distinctive medicinal plant knowledge. Comparing the ChP [19] and QSTCMNM [20], 22

medicinal plants (21.57%) were documented by the ChP [19]. For the QSTCMNM [20], 24 medicinal plants (23.53%) were documented, and 7 species of these medicinal plants were also recorded in the ChP, the QSTCMNM and the Chuanqing People's medicine. For instance, the root of *Aconitum carmichaelii* Debeaux is used to restore yang for resuscitation in the ChP and Chuanqing People's medicine. Many usages are have only been reported in the literature; for example, the paeonol contained in *Cynanchum paniculatum* (Bunge) Kitagawa has an anti-inflammatory effect and is used to alleviate inflammation associated with gynaecological diseases to a certain extent [29]. *Sanguisorba officinalis* L. has antibacterial and anti-inflammatory pharmacological effects and, to some extent, can be used to treat diarrhoea [30].

The investigation also revealed the specific uses and efficacies of the drugs used by the Chuanqing People, but there are no literature records. *Paris polyphylla* Smith is used to treat heart disease, but the use of *Gleditsia sinensis* Lam. to treat bone pain and joint pain has not been reported. Therefore, the traditional medicinal plant knowledge of the Chuanqing People, especially for unique plants and usages, should be conserved immediately.

## Conclusions

This is the first study to document the traditional medicinal knowledge of the Chuanqing People from Nayong County, China. A total of 102 species from 50 families and 92 genera were recorded to treat 71 human ailments; these ailments were divided into 12 categories. Most medicinal materials were used to treat diseases of the musculoskeletal system and connective tissue (34 mentions). Many plants with high UV were the most preferred species at the study site, and these medicinal plants need more attention and further research. The results reflected a closer connection in comparison with the ChP, QSTCMNM, and Chuanqing People's medicine. A total of 11 medicinal plants were recorded in the Information System of Chinese Rare and Endangered Plants.

The herbal market of the Dragon Boat Festival is a cultural phenomenon involving ethnic medicines in Southwest China. It is a platform for the exchange and inheritance of traditional medicinal knowledge. With today's globalized development, traditional medicine keeps pace with the times, which is of great value in the protection of human health; for example, Tu Youyou won the Nobel Prize in physiology or medicine for the discovery of artemisinin in 2015. *Rhodiola*, a Tibetan medicine made from *Rhodiola crenulata* (Hook. f. et Thoms.) H. Ohba, can prevent acute altitude sickness and improve exercise ability. To prevent COVID-19, the National Health Protection Commission of China has written the Lianhua Qingwen Capsule and Qingfei Paidu Decoction into the guidelines for clinical diagnosis and treatment. All of these factors have shown the important role played by traditional medicine in modern society. However, with the impact of the modern lifestyle and the change in people's conception of medical treatment, traditional medicine has been severely damaged, especially the inheritance of the medical culture of some special ethnic groups. Therefore, this is the first study to systemize traditional herbal knowledge of the Chuanqing People by the ethnobotany method, which is of great significance for the arrangement and inheritance of traditional herbal knowledge of the Chuanqing People.

# List Of Abbreviations

UV: Use-Value; CI: cultural importance index; ChP: Pharmacopoeia of the People's Republic of China; QSTCMNM: the Quality Standard of Traditional Chinese Medicine and National Medicine in Guizhou Province.

## Declarations

### *Ethics approval and consent to participate*

The authors asked for permission from the local authorities and the people interviewed to carry out the study.

### *Consent for publication*

The people interviewed were informed about the study's objectives and the eventual publication of the information gathered, and they were assured that the informants' identities would remain undisclosed.

### *Availability of data and materials*

All data generated or analysed during this study are included in this published article and its supplementary information files.

### *Competing interests*

The authors declare that they have no competing interests.

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### *Authors' contributions*

Qinghe Wang was involved in the study design, literature search, and analysis of the data. Chi Gao, Lin Zhao, Jiawen Zhang and Zixuan Ren analysed part of the data. Yuxiang Shen provided botanical identification. Hongxiang Yin and Ruyu Yao supervised the study and reviewed and revised the manuscript. All authors read and approved the final manuscript.

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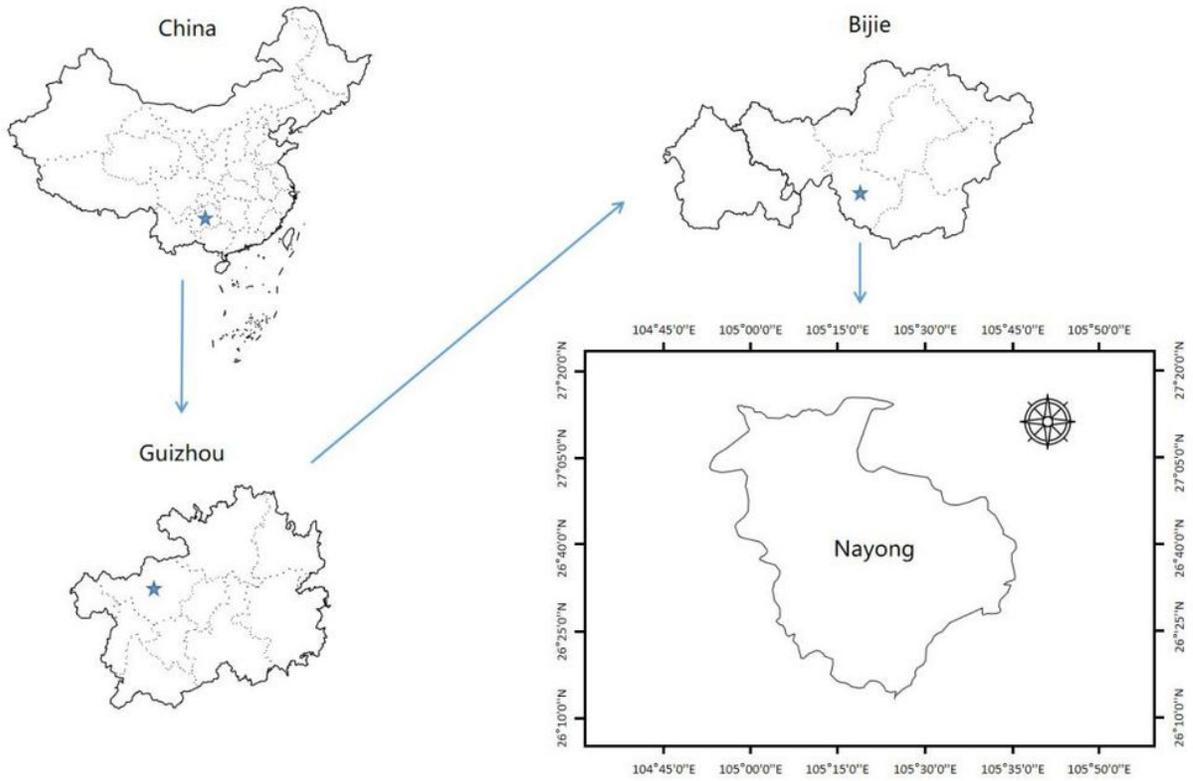
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## References

1. Zhang LP. Investigates on The Chuanqing People Folk Culture and Art Festival–Based on the Perspective of the Traditional Sports Culture. *Journal of Guiyang University (Social Science)*. 2017;12(06):63-65. <https://doi.org/10.3969/j.issn.1673-6133>.
2. Li LP. On the Records of "ChuanQingRen" and National Origins and Ethnic Appellations of Ancestors in Guizhou Chorography. *Guizhou Ethnic Studies*. 2011;32(2):159-166.
3. Zhou CX. A study on the national identity of the Chuanqing People. Guiyang: Guizhou Minzu University; 2013.
4. Sun XM, Zhang XH, Wang HF, Zhu GW. Industry Status and Development Strategies of Chinese Ethnic Medicine. *Chinese Journal of Experimental Traditional Medical Formulae*. 2020;26(12):195-202. <https://doi.org/10.13422/j.cnki.syfjx.20201058>.
5. Liang NN. On the legal protection mode of traditional Chinese medicine. Chongqing: Southwest University of Political Science & Law; 2011.
6. Jia MR, Zhang Y, Du J. Characteristics and sustainable development in Tibetan medicine. *Chinese Traditional and Herbal Drugs*. 2010;41(02):326-329.
7. Li S. Some ethnic medicine policies in recent years. *Applicable Technology for Rural Areas*. 2012;(012):10.
8. Xu XL. Social Cognition and Gender Studies: Taking the Mosuo People living on the border of Yunnan and Sichuan as an Example. *Guizhou Ethnic Studies*. 2019;40(09):46-51
9. Li YL. On the ethnic origin of Sherpas People. Abstracts of papers of 2019 annual meeting of Chinese Society for Anatomical Sciences. Chinese society for Anatomical Sciences. 2019;23.
10. Li CY. Culture of Dragon Boat Festival in Zhuang Nationality in Jingxi. *Journal of Hubei Correspondence University*. 2017;30(21):80-82.
11. Lin CR, Lu ZC, Liu J, Huang YS, Xu WB, Liu Y. Investigation of Medicinal Plants on Medicine Market during Dragon-Boat Festival in Yao Autonomous County of Guangxi. *Modern Chinese Medicine*. 2016;18(06):730-736.
12. Zhen JN, Xu H. Construction and assessment of resource environment pressure index system of ingoing ground: a case study of Nayong County of Guizhou. *Bull Surv Map*. 2020,(8):126-130.
13. Liu CX, Xie YG, Lu WQ, Bi N, Wu CP. Preliminary Study on Relationship between Karst Vegetation Distribution and Mountain Climate in Northwestern Guizhou. *Forest Inventory and Planning*. 2008,33(4):41-45. <https://doi.org/10.3969/j.issn.1671-3168.2008.04.011>.
14. Zou TC. Studies on investigation and utilization of medicinal plant germplasm resources for sustainable development in Guizhou, China. *J Pharm Pract (National Sciences)*. 2001;19(2):1-11.
15. Chen Q, Ke LP, Cheng F, Wang G. Analysis of the best meteorological conditions of Gaoshan organic tea in Nayong County. *South China Agriculture*. 2017;11(23):3-4. <https://doi.org/10.19415/j.cnki.1673-890x.2017.23.002>.

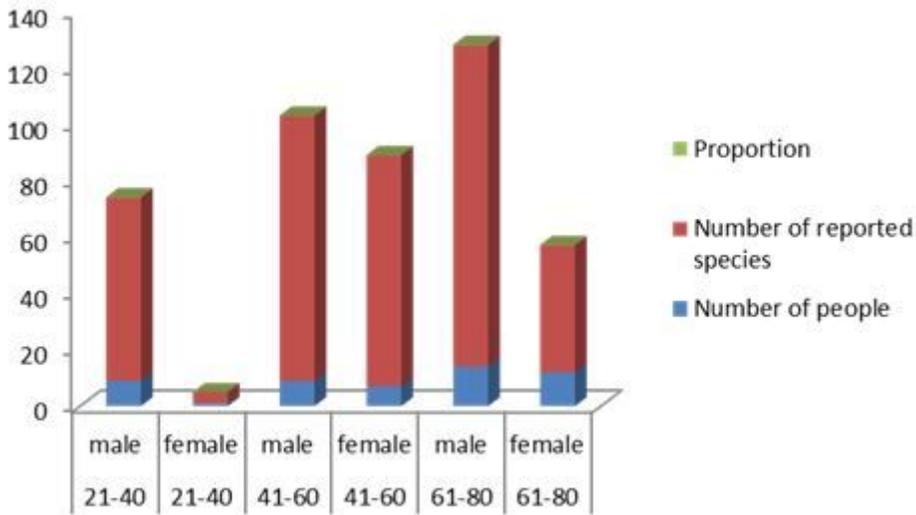
16. Editorial Committee of Flora of China. Chinese Academy of Sciences. Flora of China. Beijing: Science Press; 1993.
17. Editorial Committee of Flora of Guizhou. Flora of China. Guiyang: Guizhou People's Press; 1982.
18. 'WFO (2020): World Flora Online. Published on the Internet; <http://www.worldfloraonline.org>. Accessed on: 18 Sep 2020.
19. Chinese Pharmacopoeia Commission. Chinese Pharmacopoeia. Beijing: Chinese Medical Science Press; 2015.
20. Guizhou Medical Products Administration. The Quality Standard of Traditional Chinese Medicine and National Medicine in Guizhou Province. Guiyang: Guizhou Science and Technology Publishing House; 2003.
21. The information system of Chinses Rare and Endangerous Plants. 2013. <http://www.iplant.cn/rep/protlist>. Accessed 4 March 2020.
22. International Classification of Primary Care (ICPC). 2020. <http://www.who.int/classification/icd/adaptations/icpc2/en/>. Accessed 16 March 2020.
23. Albuquerque UP, Lucena RFP, Monteiro JM, Florentino ATN. Evaluating two quantitative ethnobotanical techniques. *Ethnobotany Res App*. 2006;4:51–60. <https://doi.org/10.17348/era.4.0.51-60>.
24. Tardío J, Pardo-de-Santayana M. Cultural importance indices: a comparative analysis based on the useful wild plants of southern Cantabria (Northern Spain). *Econ Bot*. 2008;62:24–39. <https://doi.org/10.1007/s12231-007-9004-5>.
25. Li ZF. Division of Karst Landform in Guizhou. *Guizhou Geology*. 2011,28(3):177-181,234. <https://doi.org/10.3969/j.issn.1000-5943.2011.03.005>.
26. Chase MW, Cameron KM, Freudenstein JV, et al. An updated classification of Orchidaceae. *Bot J Linn Soc*. 2015;177(2): 151-174.
27. Tao HM, Wang LS, Zhao DQ, Zhu QH, Yin YG, Liu YH. Steroids from tubers of *Asparagus filicinus*. *Chinese Traditional and Herbal Drugs*. 2012,43(9):1716-1720.
28. Chen HY, Gao SR, Yan B, Zhou CH, Zhu TM, Sun WJ, Gao H, Chen SH, Li XL, Liu RX. Discussing the Quality Control of Traditional Chinese Medicine Decoction by Combining the Relative Density Monitoring Model of Herbal Decoction of Whole Grass Flower and Leaf. *Herald of Medicine*. 2020,39(7):954-958. <https://doi.org/10.3870/j.issn.1004-0781.2020.07.014>.
29. Liu TT. Research progress on the anti-tumor molecular-biological mechanism of *Cynanchum paniculatum*. *Practical Journal of Medicine & Pharmacy*. 2016;33(5):455-458. <https://doi.org/10.14172/j.issn1671-4008.2016.05.032>.
30. Li W, Yang CJ, Cheng C, Zhang WJ, Peng C, Yuan YM, Yao MC. Study on the Active Components and Pharmacological Effects of *Sanguisorba officinalis* based on Network Pharmacological. *Modernization of Traditional Chinese Medicine and Materia Materia-World Science and Technology*. 2019;21(7):1336-1345. <https://doi.org/10.11842/wst.2019.07.009>.

# Figures



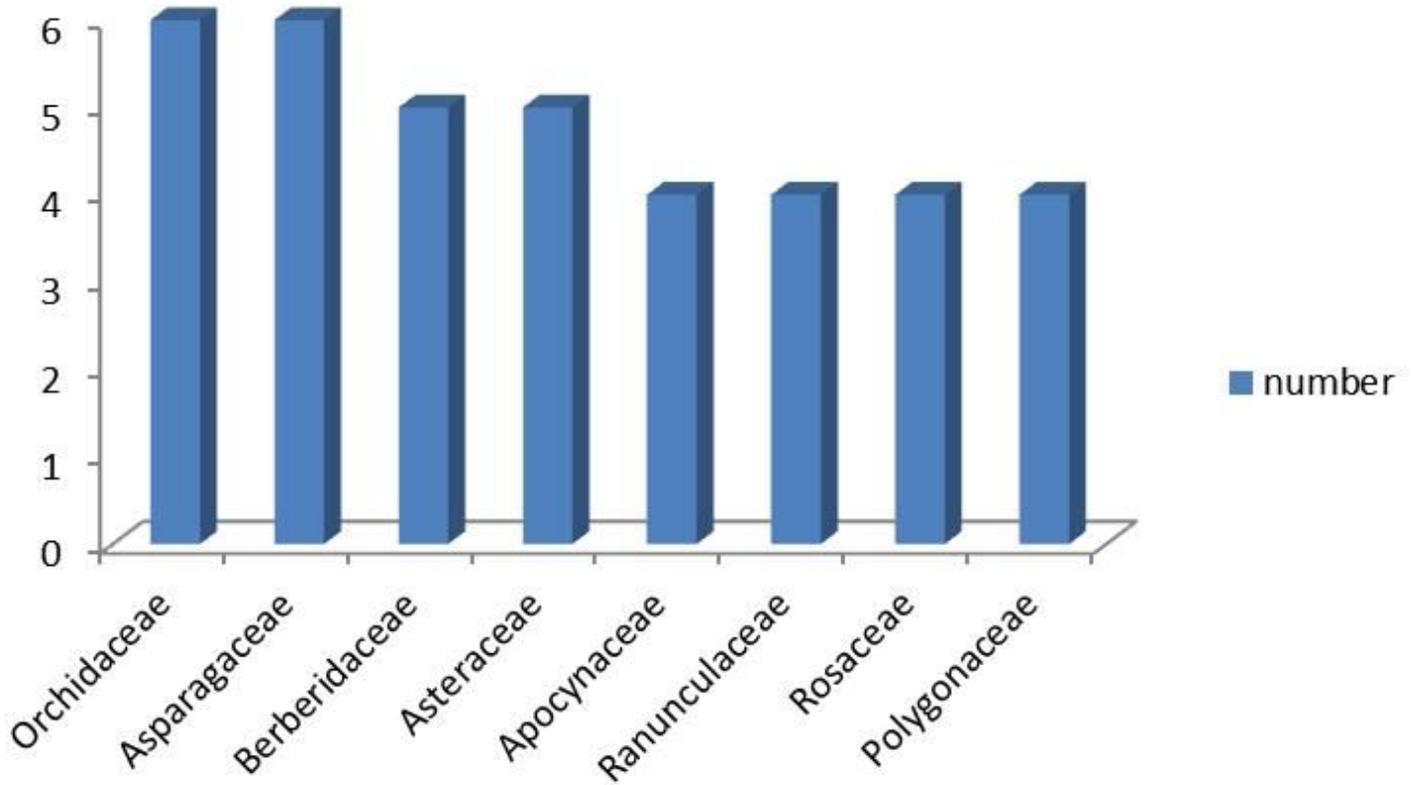
**Figure 1**

The location of Nayong County, Guizhou Province, China



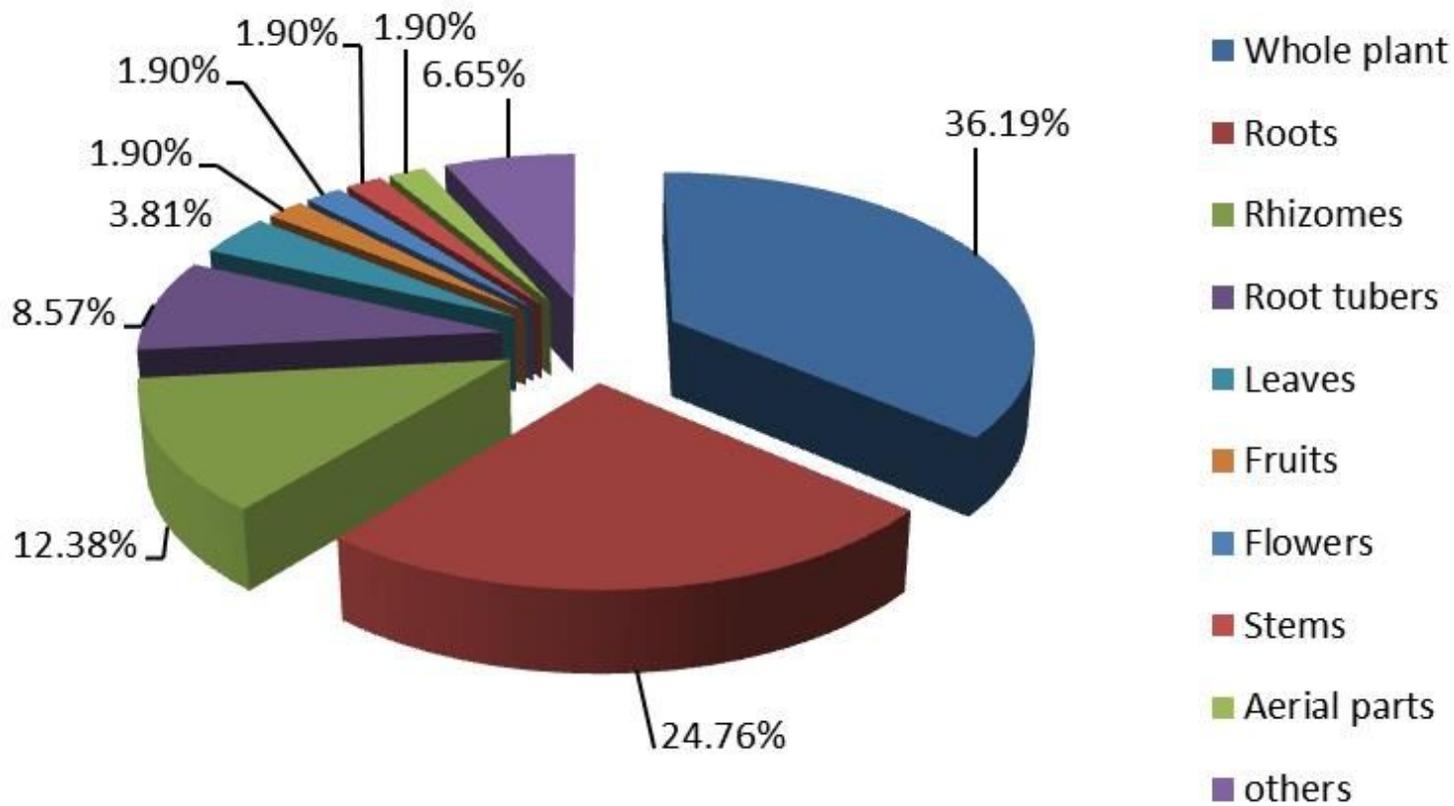
**Figure 2**

The demographics of vendors



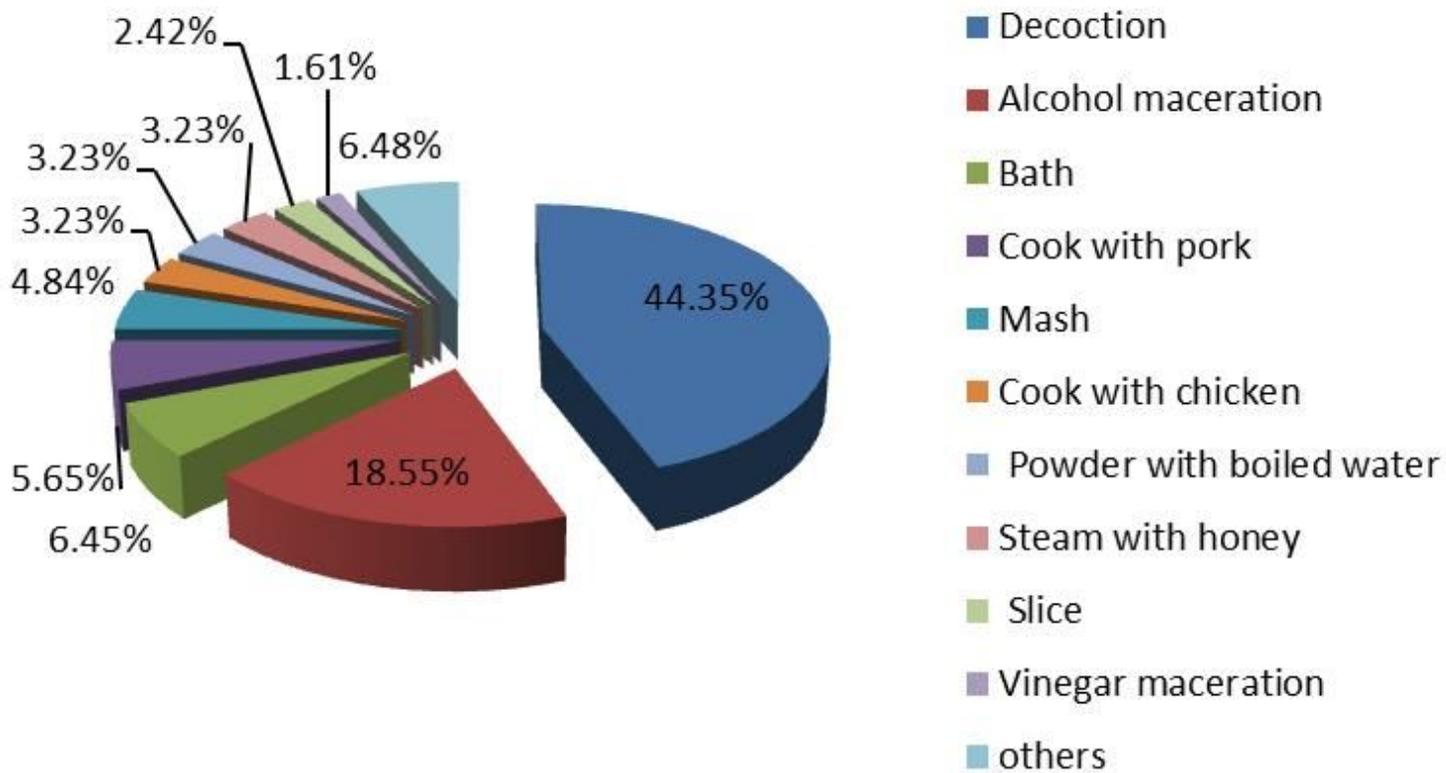
**Figure 3**

The dominant medicinal plant families in the herbal market of Dragon Boat Festival in Nayong



**Figure 4**

The proportion of used parts of medicinal plants in herbal market of Dragon Boat Festival in Nayong



**Figure 5**

The proportion of medicinal uses of medicinal plants in the herbal market of Dragon Boat Festival in Nayong

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