

ETHNOBOTANICAL STUDY ON MEDICINAL HERB MARKET DURING DRAGON BOAT FESTIVAL IN PU'ER, YUNNAN, CHINA

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Abstract

To explore the unique cultural and experiential knowledge of the medicated diet culture of the Dragon Boat Festival and summarize the catalogue of the medicinal materials traded on herb market in Pu'er, field experiments were carried out. More than 100 species of medicinal plants were sold on the market and 81 species belonging to 40 families have been identified and inventoried. Information collected included the local names of the medicinal plants, their medicinal uses, preparation methods, medicinal parts and information on whether cultivated or from wild habitats. Pu'er is a platform on which Traditional Chinese Medicine exchanging and communicating with Multi-ethnic Medicine about local medicinal plant materials resources associated with traditional utilization knowledge were used. This study will serve as a useful resource for identifying promising plants for future drug discovery efforts.

Introduction

Duanwu, which is also known as the Dragon Boat Festival (DBF), observed on the fifth day of the fifth lunar month, is an ancient festival and celebration of traditional Chinese culture and folk lore that dates back to 300 BC (Zhang *et al.* 2011). In ancient times, people think that Yin Qi intersects with Yang Qi in lunar May and all things can determine life and death clearly. Lunar May has many taboos, which means ominous and leads people do something to avoid them. People ward off evil during the festival by bathing in flower-scented water, wearing herbal sachets, hanging plants such as moxa and calamus over their doors, and drinking realgar wine (Jing 1998, Lee 2010, Yang *et al.* 2009). The perspective of modern science is that spring intersects with summer in the lunar May, stuffy, damp, and some seasonal diseases gain their popularity (Wang *et al.* 2010). However, at the same time, most of the herbs are flourishing with good medicinal efficacy (Lee *et al.* 2010). People especially in minority areas use the knowledge of lunar calendar and climate combined with various medicinal materials to regulate their digestive system and strengthen their health; for instance, locals use chicken stewed with rhizome of *Foeniculum vulgare* for dispelling cold, relieving pain and regulating the stomach function (Lee 2012).

The proverbs "In DBF day, the collected herbs have the best medicinal efficacy" "Every grass can be used as medicine during the DBF" are widely spread in Chinese folk. People consider that eating some plant roots with health care functions during the DBF can eliminate the sick tendency, meanwhile add Yang Qi and raise the healthy tendency of the organism to resist all kinds of diseases and promote health. In order to explore the unique cultural and experiential knowledge of the medicated diet culture of the DBF, the investigation in Pu'er were made.

Materials and Methods

Pu'er is located in the southwest of Yunnan Province, between 22°02'-24°50'N and 99°09'-102°19'E (Fig. 1). The region's unique location, topography, landforms, large elevation range and obvious vertical climate produced a rich plant diversity of Pu'er, which provide a wealth of

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materials for the local DBF medicated diet culture (Zhang *et al.* 2015). There are 14 ethnic minorities lived in Pu'er for generations, such as Hani, Yi, Dai, Lahu, Wa, Bulang, Yao nationality etc, and the ethnic minorities are accounted for 61% of the total population. In the long-term exchanges, the various ethnic groups have developed unique cultural customs of the DBF.

Therefore, it has formed the unique "Bai Cao Gen" medicated diet culture during the DBF in Pu'er, which has been handed down for hundreds of years. The "Bai Cao Gen" medicated diet culture holds the view that "One hundred kinds of roots correspond to one hundred kinds of medicine", they match each other, and combine hundreds of different kinds of medicated diet. Every year, herb growers and local people who know where the wild herbs grow would collect different kinds of fresh medicinal materials from nearby hills or mountains in Pu'er and neighboring counties before DBF day, and sell them on the DBF herb market. Just like most medicinal plant markets, the medicinal materials are sold in open-air stalls placed along the customary street sides, and the market continues for 3-4 days before and after the DBF, and the market is climaxed in DBF day.

From 2015 to 2017, three visits were made by our research group to the Pu'er's biggest local herb market during DBF in Simao district. The first step of the fieldwork was a participatory ethnobotanical study on the market for any outstanding fresh medicinal plants, and then a more detailed ethnobotanical study by interviewing herb growers, vendors and consumers. The recording techniques included free-listing, unstructured interviews, and photography (Saikat *et al.* 2011). Information collected included the local names of the medicinal plants, their medicinal uses, preparation methods, medicinal parts and information on whether cultivated or from wild habitats. Every medicinal plant for sale is photographed as the evidence for identification. The surveys generally began in early morning, and the peak of market activity was during 10a.m. - 1 p.m.

All medicinal plant materials were identified by Professor Hongxiang Yin from Chengdu University of Traditional Chinese Medicine, and their scientific names were checked with <http://www.theplantlist.org>.

Results and Discussion

The traded medicinal materials were mainly consisting of medicinal plants and a few medicinal animals. More than 100 species of medicinal materials were traded on the market and 81 species belonging to 40 families have been identified and inventoried (Table 1). Of these, 30 species (11 families, 37.04%) were monocotyledons and 45 species (24 families, 55.56%) were dicotyledons, superiority obviously. Three species (3 families, 3.70%) were medicinal animals, 2 species (2 families, 2.47%) were fungi, 1 specie (1 family, 1.23%) was Musci. It is obvious that the families' distribution of medicinal plants sold in the market is dispersed as 34 families were represented by only one or two species (Fig. 2).

Eight major categories and 20 elaborate classifications of medicinal parts of plants have been classed according to the survey (Table 2). Roots and rhizomes holding more than 50% of all reflected the direct relationship between local habit of using fresh organism and the experience of traditional ethnomedicine.

Over 70 kinds of health promotion and therapeutic purposes that can be achieved by the medicinal plants from GBF market, the majors were bruises (17.28%), cough, rheumatoid arthritis, osphyalgia, common cold, edema, sore throat, tuberculosis, menoxenia and other diverse diseases (Yang *et al.* 2014, Zhang *et al.* 2015). In the long-term medical practice, the traditional folk customs - eating "Hundred grassroots" - as an important part of the table culture¹³ in the DBF, kept alive and gradually evolved into a distinctive medicated diet culture in Pu'er.

Table 1. Inventory of medicinal plants traded in herb market during DBF in Pu'er, Yunnan, China.

No.	Local name	Family name	Scientific name	Medicinal parts	Medical effects	Preparation methods	Habitat
Monocotyledoneae							
1	Tufuling	Liliaceae	<i>Smilax glabra</i> Roxb.	Rhizome	Rheumatoid arthritis	Decoction, vinum	Wild
2	Xiaotiangong	"	<i>Asparagus filicinus</i> D. Don	Tuberous root	Cough, sore throat	Stewed with meat	"
3	Babaozhenxindan	"	<i>Ophiopogon dracaenoides</i> (Baker) Hook. f.	Tuberous root	Heart disease	Cook with pig heart	"
4	Dianchonglou	"	<i>Paris polyphylla</i> Smith var. <i>yunnanensis</i> (Franch.) Hand.-Mazz	Rhizome	Bruises, sore throat, snakebite, thieroma	Decoction, mashed, powder	Wild & Cult
5	Jiejiegao	"	<i>Polygonatum kingianum</i> Coll. et Hemsl.	Rhizome	Tuberculosis, chronic hepatitis	Decoction, stewed with meat	Wild & Cult
6	Yemaidong	"	<i>Liriope spicata</i> (Thumb.) Lour.	Tuberous root	Cough, sore throat	Stewed with meat	Wild
7	Tiandong	"	<i>Asparagus cochinchinensis</i> (Lour.) Merr.	Tuberousroot	Cough, sore throat, constipation	Stewed with meat	Wild & Cult
8	Lvconggen	"	<i>Hemerocallis fulva</i> (L.) L.	Root	Jaundice, damp-heat, edema, morbid leukorrhea	Stewed with meat	Wild & Cult
9	Ye baihe, baihe	"	<i>Lilium brownii</i> F.E. Br. ex Mieliez	Bulb	Insomnia, cough	Stewed with meat, made into soup	Wild
10	Yiwuji	"	<i>Asparagus lycopodineus</i> (Baker) F.T. Wang et Tang	Tuberous root	Cough, dyspnea	Stewed with meat	"
11	Zhizhubaodan	"	<i>Aspidistra typica</i> Baill.	Leaf	Rheumatoid arthritis, bruises	Wrap rice dumplings	"
12	Laomamaguaigun	Zingiberaceae	<i>Costus speciosus</i> (J. Koenig.) Smith	Rhizome	Edema, cirrhosis of the liver	Stewed with meat, decoction,	"
13	Caoguoshu	"	<i>Amonum tsaoko</i> Crevost et Lemarie	Y-whole plant	Vomiting, malarial disease	Decoction	"
14	Heijitecao	Orchidaceae	<i>Dendrobium officinale</i> Kimura et Migo	Stem	Exhaustion of Stomach-Yin, Yin deficiency causes Heat	Soaked in boiling water	Wild & Cult

(Contd.)

No.	Local name	Family name	Scientific name	Medicinal parts	Medical effects	Preparation methods	Habitat
15	Shichuanlian	"	<i>Bulbophyllum kwangtungense</i> Schltr.	Whole plant	Fracture, cough, bruises	Decoction, mashed	"
16	Baiji	"	<i>Bletilla striata</i> (Thumb.) Rchb.f.	Tuber	Tuberculosis, bruises	Decoction	Wild
17	Shihu	"	<i>Dendrobium stuposum</i> Lindl.	Stem	Exhaustion of Stomach-Yin, Yin deficiency causes Heat	Soaked in boiling water	Wild & Cult
18	Fengyaoshihu	"	<i>Dendrobium findlayanum</i> E.C.Parish et Rchb.f.	"	Exhaustion of Stomach-Yin, Yin deficiency causes Heat	Soaked in boiling water	"
19	Shihu	"	<i>Dendrobium nobile</i> Lindl.	"	Exhaustion of Stomach-Yin, Yin deficiency causes Heat	Soaked in boiling water	"
20	Shihu	"	<i>Dendrobium chrysotoxum</i> Lindl.	"	Exhaustion of Stomach-Yin, Yin deficiency causes Heat	Soaked in boiling water	"
21	Yansun	"	<i>Thunia alba</i> (Lindl.) Rchb.F.	Whole plant	Bruises, fracture	Decoction, mashed	"
22	Dayexianmao	Amaryllidaceae	<i>Curculigo capitulata</i> (Lour.) Kuntze.	Rhizome	Kidney deficiency, emission, osphyalgia	Decoction, stewed with meat	"
23	Yezonggen	"	<i>Curculigo orchioides</i> Gaertn.	Whole plant	Kidney deficiency, emission, osphyalgia	Decoction, stewed with meat	"
24	Cieigu	Araceae	<i>Lasia spinosa</i> (L.) Thwait.	Root, T-leaf	Chronic gastritis, rheumatoid arthritis, dyspepsia	Stewed with meat, stirred fry (tender-leaves)	"
25	Shuichangpu	Acoraceae	<i>Acorus calamus</i> L.	Whole plant	Rheumatoid arthritis, epilepsy, dyspepsia, pruritus	Decoction, hang up, bath	"
26	Xiaohongsuan	Iridaceae	<i>Eleutherine bulbosa</i> (Mill.) Urb.	Bulb	Dysentery, bruises, amenorrhea	Stewed with meat	Wild & Cult
27	Zongxin	Areaceae	<i>Trachycarpus fortune</i> (Hook.) H.Wendl.	Heartwood	Prolapse of anus, metrorrhagia, hematuria, hematochezia	Cold dish, made into soup	Wild

(Contd.)

No.	Local name	Family name	Scientific name	Medicinal parts	Medical effects	Preparation methods	Habitat
28	Jungui	Stemonaceae	<i>Stemona japonica</i> (Bl.) Miq.	Tuberous root	Tuberculosis, bronchitis, psoriasis	Stewed with meat, bath	Wild
29	Lushuicao	Commelinaceae	<i>Cyanotis arachnoidea</i> C.B. Clarke	Root	Rheumatoid arthritis, eczema	Stewed with meat	"
30	Bajiaoxin	Musaceae	<i>Musa basjoo</i> Sieb. & Zucc. ex Inuma	Cauloid	Edema, jaundice, beriberi	Cold dish	"
Dicotyledoneae							
31	Gegen	Fabaceae	<i>Pueraria lobata</i> var. <i>thomsonii</i> (Benth.) Maesen	Root	Apoplexy, hemiplegia, alcoholism	Decoction	"
32	Gegen	"	<i>Pueraria lobata</i> (Willd.) Ohwi.	Root	Apoplexy, hemiplegia, alcoholism	Stewed with meat, raw, juice	"
33	Choucai	"	<i>Acacia pennata</i> (L.) Willd.	T-leaf	Rheumatoid arthritis, bruises	Stirred fry with eggs, made into soup, cold dish	"
34	Shanwugui	Menispermaceae	<i>Stephania delavayi</i> Diels.	Tuberous root	Stomachache, sore throat, bruises, snakebite	Decoction, mashed, powder	"
35	Jinqiandiahulu	Menispermaceae	<i>Tinospora sagitata</i> var. <i>yunnanensis</i> (S.Y. Hu) Lo.	Tuberous root	Chronic gastritis, enteritis	Stewed with meat	"
36	Dishiliuye	Campanulaceae	<i>Pratia nummularia</i> (Lam.) A. Br. et Aschers.	Whole plant	Menoxenia, rheumatoid arthritis, bruises	Stirred fry with eggs, made into soup	"
37	Gudonggen	"	<i>Campanumoea javanica</i> Bl.	Root	Cough, diarrhea	Stewed with meat	"
38	Huangyangshen	Asteraceae	<i>Crepis napifera</i> (Franch.) Babcock	Root, whole plant	Infertility, malnutrition, vertigo	Stewed with meat	"
39	Heiweiling	"	<i>Inula nervosa</i> Wall. ex DC.	Root	Common cold, rheumatoid arthritis, beriberi	Stewed with meat, decoction	"

(Contd.)

No.	Local name	Family name	Scientific name	Medicinal parts	Medical effects	Preparation methods	Habitat
40	Duoduogen,didancao	Asteraceae	<i>Elephantopus scaber</i> L.	Root, whole plant	Tuberculosis, chronic hepatitis, damp-heat	Stewed with meat	Wild
41	Jicigen	"	<i>Cirsium japonicum</i> Fisch.ex DC	Root	Eczema, hematochezia	Stewed with meat	"
42	Niubanggen	"		Root	Common cold, sore throat	Stewed with meat	Wild & Cult
43	Aihao	"	<i>Artemisia lappa</i> L.	Whole plant	Infertility, hematemesis, metrorrhagia	Hang up	"
44	Guanyindaozuo	Polygonaceae	<i>Polygonum paleaceum</i> Wall.	Rhizome	Chronic gastritis, menoxenia	Decoction	Wild
45	Heshouwu	"	<i>Polygonum multiflorum</i> Thunb.	Tuberous root	Blood deficiency, emissio, insomnia, osphyalgia, palpitation	Stewed with meat	"
46	Lanhuagen,	Gentianaceae	<i>Gentiana rigescens</i> Franch. ex Hemsf.	Root	Hypertension, cholecystitis	Decoction	"
47	Hongmudan	Verbenaceae	<i>Clerodendrum japonicum</i> (Thunb.) Sweet	Flower	Palpitation, insomnia	Stirred fry with eggs	"
48	Matixiang	Aristolochiaceae	<i>Saruma henryi</i> Oliv.	Rhizome	Hematuria, stomachache, heatstroke	Decoction, stewed with meat	"
49	Ranfanhua	Loganiaceae	<i>Buddleja officinalis</i> Maxim.	Antho& Bud	Liver deficiency, keratoconjunctivitis	Spice, dye rice	"
50	Tongchui	Ranunculaceae	<i>Ranunculus sceleratus</i> L.	Whole plant	Anemia, esophagus cancer	Stirred fry	"
51	Xiaohongshen	Rubiaceae	<i>Rubia yunnanensis</i> Diels.	Rhizome	Anemia, insomnia, chronic gastritis	Stewed with meat	"
52	Sheshecao	"	<i>Oldenlandia diffusa</i> (Willd.) Roxb.	Whole plant	Edema, damp-heat, dysentery, enteritis	Decoction	"
53	Kuliangcai	Solanaceae	<i>Solanum nigrum</i> L.	T-leaf	Common cold, edema, bronchitis, urinary calculi	Stirred fry, made into soup, cold dish	"
54	Gouqiye	Solanaceae	<i>Lycium chinense</i> Mill.	T-leaf	Kidney deficiency, liver deficiency	Stirred fry, cold dish, decoction	"
55	Danggui	Apiaceae	<i>Angelica sinensis</i> (Oliv.) Diels	Root	Blooddeficiency, menoxenia, bruises, constipation	Stewed with meat	Wild & Cult

(Contd.)

No.	Local name	Family name	Scientific name	Medicinal parts	Medical effects	Preparation methods	Habitat
56	Maticao	Apiaceae	<i>Centella asiatica</i> (L.) Urb.	Whole plant	Heatstroke, diarrhea, damp-heat	Stirred fry, cold dish	Wild
57	Xingyefangfeng	"	<i>Pimpinella candolleana</i> Wight et Arn.	Root	Common cold, malarial disease, stomachache	Stirred fry, cold dish	"
58	Shanbaizhi	"	<i>Heracleum bivittatum</i> de Boiss.	"	Hematemesis, pruritus, burn	Stewed with meat	"
59	Shuiqincai	"	<i>Oenanthe javanica</i> (Blume) DC.	Whole plant	Common cold, morbid leukorrhea, hypertension	Stirred fry, cold dish	"
60	Huixianggen	"	<i>Foeniculum vulgare</i> Mill.	Rhizome	Cough, dysmenorrhea, osphyalgia, Bruises	Stewed with meat	"
61	Damacai	Phytolaccaceae	<i>Phytolacca americana</i> L.	Root	Edema, gastrointestinal hemorrhage	Stewed with meat	"
62	Sanqi	Araliaceae	<i>Panax zingiberensis</i> C.Y. Wu et K.M. Feng	Rhizome	Bruises, osphyalgia	Stewed with meat, decoction, vinum	"
63	Tuniuxi	Amaranthaceae	<i>Achyranthes aspera</i> L.	Root	Osphyalgia, amenorrhea, dysmenorrhea, toothache	Stewed with meat	"
64	Hongniuxi	"	<i>Achyranthes longifolia</i> (Makino) Makino	Root, whole plant	Osphyalgia, amenorrhea, dysmenorrhea, toothache	Stewed with meat	"
65	Niuxi	"	<i>Achyranthes bidentata</i> Bl.	Root	Osphyalgia, amenorrhea, dysmenorrhea, toothache	Stewed with meat	"
66	Jiduzigen	Polygalaceae	<i>Polygala arillata</i> Buch.-Ham. ex D. Don	"	Menoxenia, tuberculosis, beriberi	Stewed with meat	"
67	Manshanxiang	Magnoliaceae	<i>Schisandra lancifolia</i> (Rehder et E.H. Wilson) A.C. Sm.	"	Bronchitis, fracture, menoxenia, bruises	Stewed with meat	"
68	Shengfeng	Asclepiadaceae	<i>Stemocrypton khasianum</i> (Kurz) Baill.	Vine	Common cold, rheumatoid arthritis, stomachache	Stewed with meat, decoction	"
69	Kucaihua	"	<i>Dregea volubilis</i> (L.f.) Benth. ex Hook.f.	Flower	Common cold, vomiting, rheumatoid arthritis	Stirred fry with eggs	"
70	Mujiangzi	Lauraceae	<i>Litsea garrettii</i> Gamble	Fruit	Common cold, menoxenia, osphyalgia, pruritus	Spice, bath	"

(Contd.)

No.	Local name	Family name	Scientific name	Medicinal parts	Medical effects	Preparation methods	Habitat
71	Xiangerdouye	Moraceae	<i>Ficus auriculata</i> Lour.	T-leaf	Obesity	Stewed with meat, cold dish, made into soup	Wild
72	Matixiang	Valerianaceae	<i>Valeriana jatamansi</i> Jones	Root	Stomachache, dyspepsia, diarrhea, dysentery	Stewed with meat	"
73	Doubanlv	Piperaceae	<i>Peperomia tetraphylla</i> (G. Forst.) Hook. et Arn.	Whole plant	Tuberculosis, dysmenorrhea, fracture, Bruises	Decoction, mashed	"
74	Hongyaqi	Saxifragaceae	<i>Bergenia purpurascens</i> (Hook. f. et Thoms.) Engl.	Rhizome	Vertigo, morbid leukorrhea	Decoction	"
75	Laohucao	Saxifragaceae	<i>Saxifraga stolonifera</i> Curt.	Whole plant	Cough, toothache, hematemesis, scald	Stirred fry, cold dish	"
Animal							
76	Baiyi	Rhinotermitidae	<i>Coptotermes formosanus</i> Shiraki	Whole body	Debility, qi-blood deficiency	Raw	"
77	Bianselong	Salamandridae	<i>Tylotriton verrucosus</i> Anderson	Whole body	Malnutrition, burn, scald	Steamed with eggs or meat, mashed	"
78	Shuitagu	mustelidae	<i>Lutra lutra</i> Linnaeus	Skeleton	Vomiting, malignant boil	Decoction	"
Musci							
79	Huixincao	Bryaceae	<i>Rhodobryum roseum</i> (Hedw.) Limpr.	Whole plant	Heart disease, psychosis, impotence	Cook with pig heart	"
Fungi							
80	Fulin	Polyporaceae	<i>Poria cocos</i> (Schw.) Wolf	Sclerotium	Vomiting, emission	Decoction	"
81	Chongcao	Clavicipitaceae	<i>Cordyceps liangshanensis</i> Zang, Liu et Hu	Dry complex of stroma and Sclerotium	Cough, asthma	Stewed with meat	"

Local name is written in Chinese phonetic alphabet.

Wild & Cult., Wild and cultivated, Y - Whole plant, Young whole plant, T - leaf, Tender leaf, Antho & Bud, Anthotaxy and Bud.

Mixing medicinal materials with other food items is the most common preparation method and consumption style (Fig. 3). People regard that the local medicinal plants are food ingredients with special effects, most of which may stew with meat such as chicken, pork ribs, trotters, the preserved ham and so on. There is the most popular diet including rhizome of *Foeniculum vulgare*, *Polygonatum kingianum*, root of *Cirsium japonicum*, *Elephantopus scaber*,

Table 2. The classifications of medicinal parts and corresponding percentages of the total species in medicinal herb market during DBF in Pu'er, Yunnan, China.

Medicinal parts	Number	Percentage (%)	Including parts (Number)
Roots and rhizomes	44	54.32	Root (22), Rhizome (11), Tuberos root (9), Bulb (2)
Whole parts	19	23.46	Whole plant (16), Young-whole plant (1), Whole body (2)
Stems and woods	9	11.11	Stem (5), Tuber (1), Cauloid (1), Heartwood (1), Vine (1)
Leaves	6	7.41	Leaf (1), Tender-leaf (5)
Flowers	3	3.70	Flower (2), Anthotaxy and Bud (1)
Fruits	1	1.23	Fruit (1)
Fungi	2	2.47	Sclerotium (1), Dry complex of stroma and larva body (1)
Others	1	1.23	Skeleton (1)

All medicinal parts are recorded and participate in statistical data analysis, including several species have more than one used part.

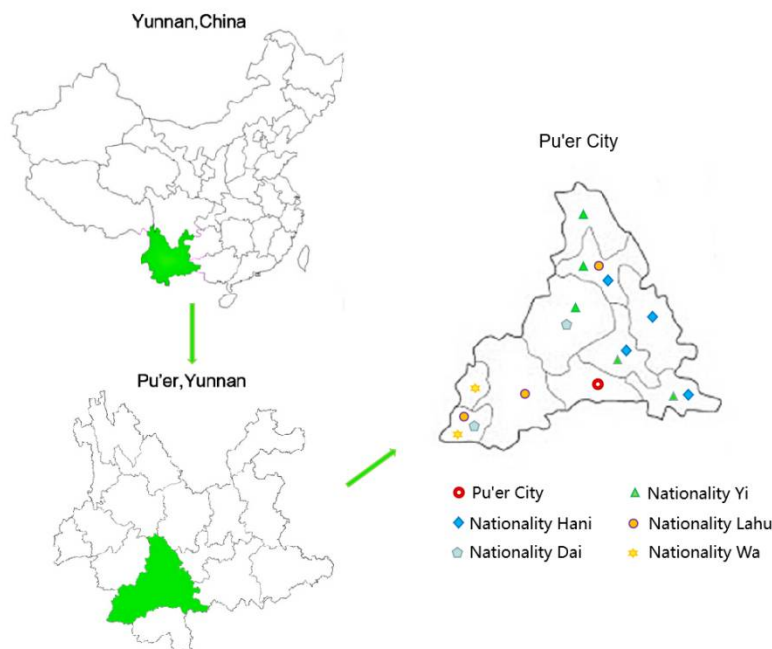


Fig. 1. Location of the traditional medicinal market in Pu'er that was selected as a study site and the map of habitat of nationality in Pu'er City.

Achyranthes bidentata, *Angelica sinensis*, *Artemisia lappa*, *Hemerocallis fulva*, *Polygala arillata*, *Campanumoea javanica*, *Valeriana jatamansi*, tuberous root of *Fallopia multiflora*, *Asparagus cochinchinensis*, *Asparagus lycopodineus*, *Stemona japonica*, vine of *Stelmatocrypton khasianum* and bulb of *Eleutherin plicata*, etc. According to their physical conditions, tastes and family habits, local people choose a dozen or more medicinal plants to realize an effect of regulating gastrointestinal functions by eating herb roots.

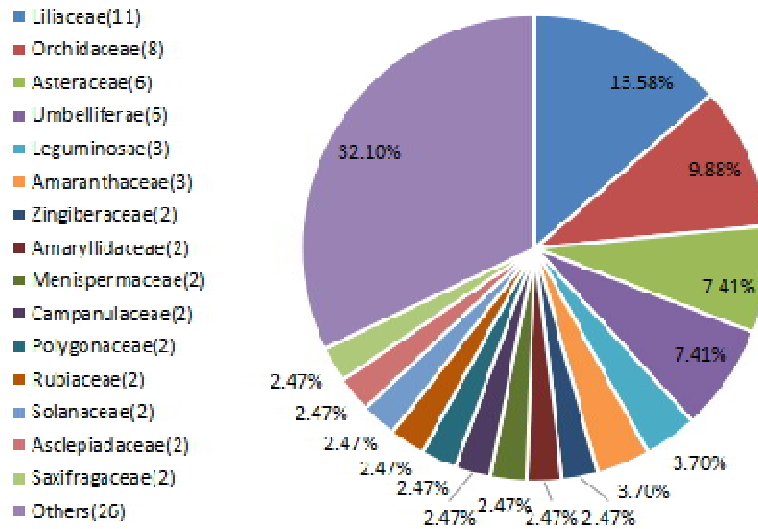


Fig. 2. Numbers of recorded species of the 16 families containing at least 2 species.

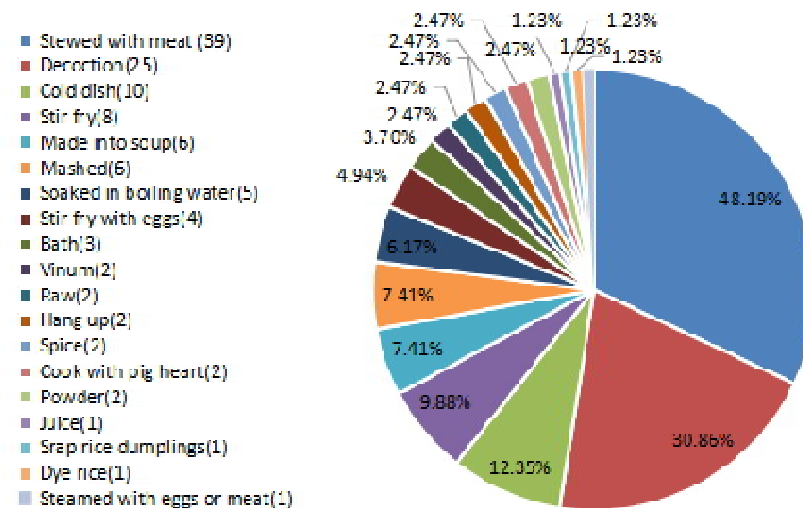


Fig. 3. Numbers of preparation methods.

Medicinal plants show better curative effects by different cooking methods. Tender-leaves of *Lasia spinosa* and *Solanumnigrum* were stirred fry for anti-inflammatory, flower of *Clerodendron japonicum* stirred fry with eggs and whole plant of *Rhodobryum roseum* cooked with pig heart for heart-protecting, whole body of *Tylototriton verrucoosus* steamed with eggs for malnutrition of children, whole body of *Coptotermes formosanus* eaten raw for nourishing and strong. Except to as ingredients, medicinal plants also play a role to add aroma and flavor. The local people used leaves of *Aspidistra typica* to wrap rice dumplings, anthotaxy and buds of *Buddleja officinalis* to stew with rice and dye color on it. In addition, liniment, lotion, vinum and other traditional Chinese medicine usages are inherited. What's more, every family hangs moxa and calamus on the door during GBF to exorcise evil spirits and pray for luck. It shows that combined with life experiences of local people and medical knowledge in the background of diversified ethnic composition, the distinctive folk medical culture and medicated diet culture were formed in Pu'er.

Pu'er as a multi-ethnic inhabitat area with rich resources in medicinal materials, is also a platform that multi-ethnic medicine exchanging and colliding with each other (Long *et al.* 2009). Their utilization of medicines was mostly based on the experience of their previous generations. However, they know little about the toxicity characteristics of some herbs (Saikat *et al.* 2011, Genget *al.* 2016,). Thus, although some kinds of medicinal plants from Araceae or Fugi are widely used (Kang *et al.* 2012), the safety must be carefully checked in future. Finally, the unique medicated diet culture of the DBF was displayed in detail and the catalogue of medicinal plants traded on medicinal herb market in Pu'erwas summarized, which will serve as a useful resource of promising plants for future drug discovery efforts.

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