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A PRELIMINARY INVESTIGATIONS OF WILD PLANTS USED BY THE MONGOLIANS IN BAIRIN LEFT BANNER, INNER MONGOLIA, CHINA: A CASE STUDY IN CHAGANHAD

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In this paper, applied the ethnobotany method to discuss the investigation of Inner Mongolia Chifeng City banner of Bairin Chaganhada Ulangerile village. Investigate the local Mongolian, access and collection of local people's daily used of wild plants.There are altogether have interview with 32 residents, collected and produced the 39 specimens of plant, belonging to 18 families and 25 genus. Then conduct to species appraise and analysis the life from,biotope. Furthermore, the way from the local population can be divided into food using plants, forage plants, medicinal plants and daily use four kinds of plant were analyzed.
Keywords: ethnobotany; mongolian; wild plants.

Ethnobotany is a scientific research on the interaction between people and plants, it is not only to study how the human cognitive plant, its cognitive process and the level of continuous accumulation and improvement. Also studies how humans use plants, and the use of plant history, current status and future trends in the evolution of processes.The research results are applied to the practice of sustainable utilization of plant resources and the protection of plant diversity [1].

Plants on the earth are the basic components of the earth's ecology, the producers of the ecosystem, the resources on which all kinds of organisms depend. Plants provide a variety of materials and resources for human daily life, It is also beneficial to the survival and development of human beings and ciosely related. Ethnobotany is based on Botany, Ecology, Ethnology, Linguistics, Medicine, Agriculture and Animal Husbandry science, horticulture and other related disciplines, the study on interaction between human activities and plant a across multiple disciplines. At the present stage of development of the field of Ethnobotany, it is importance for the modern and diversified conservation in the current sudden transition. Ethnobotany to make an important contribution, is provides an effective method and means for the sustainable development of plant resources [2].

The development of Ethnobotany is closely related to the ethnic diversity, plant diversity and regional diversity. Mongolian living on the Mongolia plateau for gen-

erations to survive, in harmony with the ecological environment of grassland in long-term production and life practice, accumulated a very valuable and rich and unique experience of the utilization of plant resources. On the one hand, there are a lot of unique experience knowledge about national botany, so it should be paid more attention to and explore its characteristics. The unique nomadic culture and the utilization of the plant resources of the Mongolian nationality are the fruits of the development of the survival and development of the nation, so it is necessary to attach importance to the research work [3].

1. Study Area

Bairin Left Banner belongs to the southeast of the Inner Mongolia Autonomous Region, north of Chifeng City, is a Mongolian as the main body, to the Han majority, including other minorities, the semi agricultural semi pastoral areas. This place is located in the northern border of the motherland, is located to the north of Sheilamulun River, at the foot of Greater Khingan Range south of the Wulandaba (called "Red Mountain" and "Wulan Mountain Radge"), it is belong to Greater Khingan Range mountains, the whole area is a hilly area. The terrain gradually decreased from northwest to southeast, appear the irregular slope, within the territory of the northwest elevation average at 800-1000 meters, southeast sea level is only 400 meters. The geographical position in east longitude118°44′00″-119°48′02″, north latitude 43°36′53″–44°48′22″. The east-west width of 52 km (max width of 70 km), total area of 6644 square kilometers, 9,953,261.4 acres [4].

This place terrain distribution for the northern and central areas of the montana, at middle part the mountain valley is between central mountainous and hilly areas, south is a hilly area, including the Chaganhada this survey. Chaganhada is located in hilly terrain, the height is not high, the slope is moderate, with an average elevation of 628 meters. The place of semi agricultural semi pastoral areas, residents are all Mongolian, the main production of livestock production, has a long tradition of stockbreeding. Ulangerile is the original village countryside government, is located to the village north and west have pasture and grassland, so abundant wild plant resources in this village, so Mongolian people are have rich and unique traditional knowledge use of wild plants [4].

2. Methodology

This research mainly through literature reading, interview survey, collection of specimens, plant identification, sorting data and other methods were investigated. First, through reading the literature and books about Ethnobotany and plant resources, realized the related concepts and methods of investigation [5]. July to September, 2016, carried out the investigation work in Bairin Left Banner Chaganhada Ulangerile village. Select the local has experience in the operation of livestock production and in the local elderly as the Key Informant. Using random interviews and semi-structured interviews method, to interview their familiar in life and all aspects of the use of wild plant resources, and invite the local people together to the outdoor interviews and collected plant specimens, or collected plant samples for interview. Finally, the specimens of the plant back to the laboratory and the use of plant literaturefor the identification of specimens and data finishing [6–11].

3. Results

3.1 Statistics of Wild Plant Utilization

The survey interviewed a total of 32 residents, a total of 38 plants collected. First, 7 residents are example of freedom pointed out used in life of wild plants. Then, a total of four times to go to the outdoor, and collected plant specimens. Finally, the identification of plant specimens was carried out in addition to the species name, living type and habitat of the collected plants (Table 1).

Table 1

Local Mongolian Use of Wild Plants Statistics

Latin Name	**Life Form**	**Habitat**	**Specimen No.**
Allium ramosum	Ph	Mx	HG009
Allium senescens	Ph	Mx	HG030
Amaranthus retroflexus	Ah	Mp	HG016
Artemisia argyi	Ph	Mp	HG004
Astragalus adsurgens cv.'Shadawang'	Ph	Mx	HG021
Caragana microphylla	Sh	Xp	HG017
Chenopodium album	Ah	Mp	HG005
Chloris virgata	Ah	Mp	HG028
Cynanchum thesioides	Ph	Xp	HG023
Eriochloa villosa	Ah	Hy	HG025
Glycyrrhiza uralensis	Ph	Mx	HG020, HG026
Hippophae rhamnoides subsp.sinensis	Sh, Ar	Xm	HG018
Iris dichotoma	Ph	Mx	HG011
Iris lactea var.chinensis	Ph	Mp	HG024
Ixeris chinensis var.graminifolia	Ph	Mx	HG007
Koeleria cristata	Ph	Xp	HG014
Lespedeza davurica	Ph	Mx	HG031
Leymus chinensis	Ph	Xp, Mx	HG008
Malva verticillata	Ah	Mp	HG003
Pennisetum centrasiaticum	Ph	Xp	HG027
Phragmites australis	Ph	Hy	HG015
Polygonum koreense	Ah	Pp	HG033
Populus davidiana	Ar	Mp	HG013
Portulaca oleracea	Ah	Mp	HG001
Potentilla anserina	Ph	Mp	HG035
Potentilla bifurea	Ph,Su	Xp	HG037
Prunus humilis	Us	Mp	HG029
Salix cheilophila	Sh, Du	Pp	HG019
Salsola collina	Ah	Xm	HG002
Sonchus arvensis	Ph	Mp	HG010
Sophora flarescens	Ph	Mx	HG032
Stellera chamaejasme	Ph	Xp	HG039
Stipa grandis	Ph	Xp	HG034

Taraxacum mongolicum	Ph	Mp	HG038
Thymus serpyllum var.asiaticus	Se	Xp	HG006
Tribulus terrestris	Ah	Mp	HG022
Ulmus pumila	Ar	Xm	HG012
Xanthium mongolicum	Ah	Mp	HG036

(Notes: Tab of wild plant life form ①Ph : Perennial herb; ②Ah : Annual herb; ③Sh : Shrub;
④Ar : Arbor; ⑤Se : Semishrub; ⑥Su : Suffrutescent; ⑦Us : Undershrub; ⑧Du : Dungarunga.
Tab of wild plant habitat ①Mx : Mesoxerophyte; ②Mp : Mesophyte; ③Xp : Xerophyte;
④Hy : Hygrophyte; ⑤Xm : Xeric Mesophyte; ⑥Pp : Phreatophyte.)

As shown in the table, the survey collected wild plants are mostly herbaceous plants, which are mostly perennial herbs, a total of 21 species, accounting for 55,26% of the total number of plants; Annual herb 10 species occupy all 26.31%; There are 6 species shrub, included 1 species perennial herbs, occupy all 15,79%; with arbor life type 4 species plants, included 2 species shrub, occupy all 10,52%; The analysis of habitat is mainly Mesophyte, Mesoxerophyte, Xerophyte. The plant has 14 species is Mesophyte, accounting for 36,84% of all plants; Xerophyte have 9 species of plants, including 1 species is Mesoxerophyte, accounted for 23,68%; Mesoxerophyte have 8 species of plants, including 1 species is Xerophyte, accounted for 21.05%; The other, Xeric Mesophyte have 3 species, accounted for 7,89% of all plants; Phreatophyte and Hygrophyte each have 2 species of plants, accounting for 5,26% of the total plants.

From this point of view, we can see that the Ulangerile village geographical location and vegetation for herbaceous plants to adapt to the local climate and soil, the growth of Mesophyte, Mesoxerophyte, Xerophyte etc, the drought resistant plants showed typical steppe plant growth characteristics. Then analyse the species of the family, genus, specie (Table 2) [12].

Table 2

Local Mongolian Use of Wild Plants Specific Composition Statistics

Family	Genus	Species	Variety
Amaranthaceae	1	1	
Asclepiadaceae	1	1	
Chenopodiaceae	2	2	
Compositae	5	4	1
Elaeagnaceae	1	1	
Gramineae	7	7	
Iridaceae	1	1	1
Labiatae	1	1	
Leguminosae	5	4	1
Liliaceae	1	2	
Malvaceae	1	1	
Polygonaceae	1	1	
Portulacaceae	1	1	
Rosaceae	2	3	

Salicaceae	2	2	
Thymelaeaceae	1	1	
Ulmaceae	1	1	
Zygophyllaceae	1	1	
All 18 Family	35	35	3

Can be seen from table 2, it is number of plants from growth of prairie, containing more then five genus are Gramineae, Leguminosae, Compositae three families. each accounted for 18,42%, 13,15%, 13,15% of all; Containing two genus of Rosaceae, Chenopodiaceae and Salicaceae, each accounted for 7,89%, 5,26%, 5,26% of all; Liliaceae and Iridaceae containing one genus plant of 2 species accounted for 5,26% of all; in addition to other families containing one genus and 1 species, each accounted for 2,63% of all.

3.2 Statistics of Wild Plant Utilization Way

Mongolian not only has a long history, has its unique traditional knowledge of their long-term survival in the grasslands, plain material is not rich, the nomadic people living here have a wealth of experience in practice, it can be said that they have been integrated into the nature[13]. Through this investigation, it is understood that the Mongolian people in the region in the life of how to use the natural resources of wild plants (Figure 1).

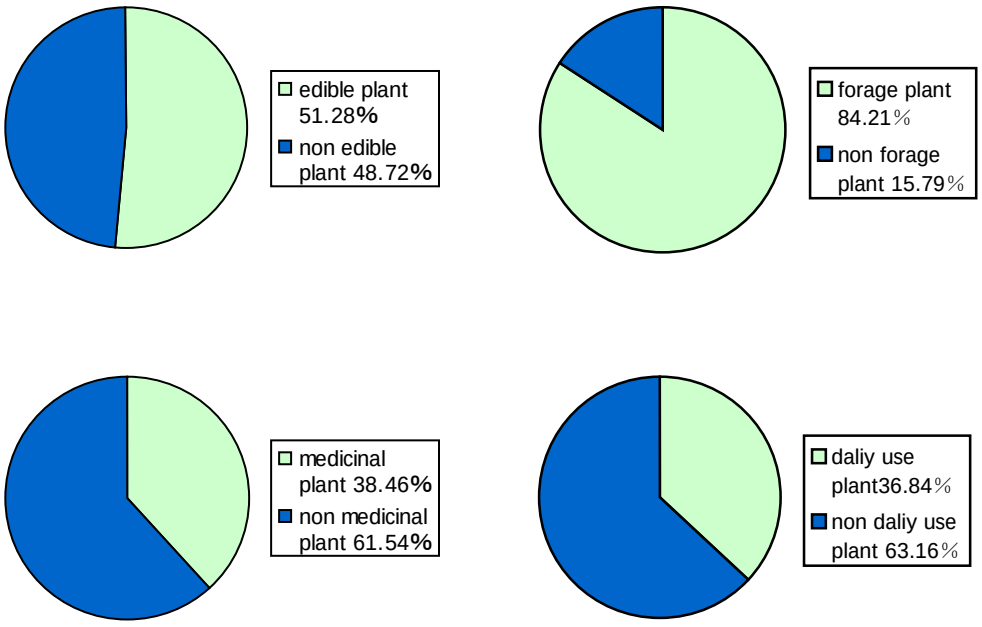

Figure 1 Local Mongolian Use Way of Wild Plants Proportion

It can be observed, the local residents have told wild plant by investigation can be divided into edible, medicinal, forage and daily use four kinds of plant, and mostly forage plants. This place local livestock are mainly sheep, cattle, horses, pigs, chickens, the main production of livestock production, so you can understand the rich traditional knowledge of forage plants [14]. Secondly, the prairie soil is thin, once upon a time, the herdsmen did not grow food plants, the edible plants are obtained from nature. Today, even if there are a lot of herdsmen are planting edible plants, but the grassland soil is not suitable for a large number of planting. The wild plant is rich in various nutrients content, eat no pollution, no additives edible plants more popular than planted plants[15]. In addition, Mongolian traditional medicine system has its own unique cultural knowledge implication, whether it is the human body mechanism or the use of veterinary drugs have their traditional cultural value. In the end, the former herdsmen's life began in nature, based on nature, and in nature, their basic needs of their lives are obtained by adapting to their environment at the same time [16, 17].

3.2.1 Edible Wild Plant

Edible plants are one of the main traditional ways of utilizing plant resources for human beings. Not only have the wild plants collected in the past, they are get many food plants from the wild in today (Table 3).

Table 3

Local Mongolian Use of Edible Wild Plants Statistics

Latin Name	Mongolia Name	Edible Method
Allium ramosum	herin-gogod	cold dish, fried dish,implied meaning, flower sauce (heaten food, fill sausage)
Allium senescens	mangir	Dipping sauce, cold dish, dish, implied meaning
Amaranthus retroflexus	arbai	Make dish, wheaten food,food with milchigs
Cynanchum thesioides	temen-huh	Fruit can be eaten raw, cold dish, dish
Glycyrrhiza uralensis	xihir-ebus	Roor can cook to drink
Hippophae rhamnoides subsp. sinensis	qiqargana	Fruit can be eaten raw,squeeze for juice
Ixeris chinensis var. graminifolia	sus-ebus	infusion of tea
Lespedeza davurica	hurbeg	Boil tea
Malva verticillata	toor-ebus	Make dish,wheaten food,food with milk
Polygonum koreense	olalj	Stem can suck
Portulaca oleracea	naran-nogo	cold dish (heat up in hot water), implied meaning
Potentilla anserina	tolain-tangnai	Make dish
Prunus humilis	olan	Fruit can be eaten raw
Salsola collina	hamhol	cold dish (heat up in hot water), wheaten food, fried dish, implied meaning
Sonchus arvensis	gason-nogo	Dipping sauce, cold dish, dish, implied

		meaning
Stipa grandis	hilgana	Seed can be eaten raw
Taraxacum mongolicum	bagbagai-qeqeg	Dipping sauce, cold dish, dish, infusion of tea
Thymus serpyllum var. asiaticus	jagar-ebus	Cook or roast meat and cooking condiment
Ulmus pumila	hailas	Seed can be eaten raw, cold dish, dish, wheaten food

Some of the wild plants eaten by the local people are equip efficacy. According to statistics, oleracea has the treatment of allergic constitution, eradication of worms in the gastrointestinal, the treatment of diabetes, etc. Pick chinensis and mongolicum, then dry in the sun, long term to infusion tea and drink can reduce internal heat, treatment of hepatobiliary diseases and have a number of case of hepatic adipose infiltration, bitter taste. Pluck the bud and flower by ramosum can be made from flower sauce, this can clearing away heat, according to the herdsmen said three years preserved chives taste good, better effect; The arvensis is conducive to the blood circulation and detoxification function; The uralensis root can relieve a cough, cure a cold, disintoxication, etc.

3.2.2 Forage Wlid Plant

In stockbreeding activities, people through observation and practice has long accumulated cognition of forage plant related, and in every seasons has different needs (Table 4).

Table 4

Local Mongolian Use of Forage Wild Plants Statistics

Latin Name	Mongolia Name	Animals and methods of feeding
Allium ramosum	herin-gogod	Fda. (rich nutrient)⑤
Allium senescens	mangir	Fda. (rich nutrient)⑤
Amaranthus retroflexus	arbai	Fda., pig (raw or heat up in hot water) ⑤
Astragalus adsurgens cv. 'Shadawang'	bor-honqir	Fda. (rich nutrient)⑤
Caragana microphylla	altagana	Fda. ②
Chenopodium album	noil	Fda., pig(remove seed, add salt, raw or heat up in hot water in summer,dried and crushed in winter) ⑤
Chloris virgata	gulug-ebus	Fda. ⑤
Cynanchum thesioides	temen-huh	Fda. ⑤
Eriochloa villosa	eliye-bodaga	Fda., pig and chicken(seed)⑤
Glycyrrhiza uralensis	xihir-ebus	Fda. ⑤
Ixeris chinensis var. graminifolia	sus-ebus	Fda. ⑤
Koeleria cristata	dagan-sule	Fda. ①

Lespedeza davurica	hurbeg	Fda. (rich nutrient)⑤
Leymus chinensis	hiyag	Fda. ④
Malva verticillata	toor-ebus	Pig,chicken ①
Pennisetum centrasiaticum	ulun-qagan	Fda. ⑤
Phragmites australis	holos-ebus	Fda. ④
Polygonum koreense	olalj	Fda. ⑤
Populus davidiana	oliyas	Fda. ②
Portulaca oleracea	naran-nogo	Pig,chicken ①
Potentilla anserina	tolain-tangnai	Fda. (rich nutrient)⑤
Potentilla bifurea	hemeh-ebus	Fda. ⑤
Prunus humilis	olan	Fda. ⑤
Salix cheilophila	borgas	Fda. ②
Salsola collina	hamhol	Fda., pig(heat up in hot water), donkey ⑤
Sonchus arvensis	gason-nogo	Fda. ⑤
Sophora flarescens	dogol-ebus	Fda. ⑤
Stipa grandis	hilgana	Fda. ③
Taraxacum mongolicum	bagbagai-qeqeg	Fda. ⑤
Thymus serpyllum var. asiaticus	jagar-ebus	Fda. ①
Tribulus terrestris	temer-jango	Fda., donkey ⑤
Ulmus pumila	hailas	Fda. ②
Xanthium mongolicum	honin-jango	Fda., pig ⑤

(Notes: Mongolian say the goat, sheep, cattle, horses and camels are collectively referred to as the five domestic animals, simple written in Fda.; The following are storage forage plants that are generally stored in summer and autumn, feeding in winter and coming spring:
①feeding in summer, not reserve.
②tree plant, domestic animals are eat a little of its branches and leaves, not reserve.
③domestic animals are eat a little and reserve.
④domestic animals not edible in summer, reserve. ⑤mainly forage plant)

As can be seen from the table 4, in addition to the 2 kinds of plants are used for feeding five animals, accounting for 93.75%, reflecting the type of main livestock in Mongolia. 75.00% of the plants can be reserve of forage, is also known as the autumn tieband.

3.2.3 Medicinal Wild Plant

The main research contents of medical ethnobotany is the human use of plant resources to prevention and treatment of the traditional knowledge and experience. Relate to the use, distribution, sustainable use, protection and utilization of different

ethnic groups in the development of the plant, the relationship between the environment and the practice (Table 5).

Table 5

Local Mongolian Use of Medicinal Wild Plants Statistics

Latin Name	Mongolia Name	Medicinal parts and methods
Allium ramosum	herin-gogod	Entire herb: Mongolia medicine — clearing away heat, veterinary drugs — treatment of gastrointestinal and physical weakness
Artemisia argyi	soih-ebus	Entire herb: therma treatment, dispel cold, sterilize
Glycyrrhiza uralensis	xihir-ebus	Entire herb: relieve a cough, cure a cold, disintoxication, recuperate
Iris dichotoma	haiqi-ebus	Entire herb: veterinary drugs — after bail can treat nat urine disease
Ixeris chinensis var. graminifolia	sus-ebus	Entire herb: reduce internal heat, treatment of hepatobiliary diseases and hepatic adipose infiltration
Malva verticillata	toor-ebus	Seed
Prunus humilis	olan	Root: cure toothache
Sonchus arvensis	gason-nogo	Entire herb: conducive to the blood circulation, clearing away heat
Sophora flarescens	dogol-ebus	Root:Mongolia medicine — clearing away heat, veterinary drugs — treat enteropathy
Stellera chamaejasme	dalan-turu	Entire herb:cure wound healing
Taraxacum mongolicum	bagbagai-qeqeg	Entire herb: reduce internal heat, treatment of hepatobiliary diseases and hepatic adipose infiltration
Thymus serpyllum var. asiaticus	jagar-ebus	Above ground: therma treatment
Tribulus terrestris	temer-jango	Seed
Xanthium mongolicum	honin-jango	Fruit

These are the daily use of the herdsmen and the knowledge of medicinal wild plants, there are difference in the knowledge of folklore medicine and theoretical medicine. As can be seen from this table, the herdsmen get medicinal plants in the nature of the most entire herb is used as medicine, accounted for 57.14% of all.

3.2.4 Daliy Use Wlid Plant

Nomads living in the grasslands of long time, there life with daily tools, firewood, furniture and many other commodities are derived from natural (Table 6).

Table 6

Local Mongolian Use of Daliy Use Wild Plants Statistics

Latin Name	**Mongolia Name**	**Daliy Use methods**
Artemisia argyi	soih-ebus	After dry and combustion can repellent, after heat up in hot water or boil, tapping on head can relieve beadache also can footbath or bath
Astragalus adsurgens cv. 'Shadawang'	bor-honqir	Firewood,stailization of sands
Caragana microphylla	altagana	Firewood, Seed can plant or sell, stailization of sands and helter from the wind
Hippophae rhamnoides subsp. sinensis	qiqargana	Firewood,stailization of sands and helter from the wind
Iris lactea var.chinensis	qahildag	Make tool, tieband bacco, make tool
Koeleria cristata	dagan-sule	Make pot brush
Leymus chinensis	hiyag	Build
Pennisetum centrasiaticum	ulun-qagan	Butter lamo wick
Populus davidiana	oliyas	Make tool, firewood, build, make furniture
Salix cheilophila	borgas	Make tool, firewood
Stipa grandis	hilgana	Build
Tribulus terrestris	temer-jango	Seed can sell
Ulmus pumila	hailas	Make tool, firewood, build, make furniture
Xanthium mongolicum	honin-jango	Seed can sell, wet stem can tieband

3.3 Statistics of Key Informant

In the survey, a total of 32 key informant reported to the provide the plant resources data, all the mongolian. Gender statistics for 12 men and 20 women, there are 4 people under the age of 40; Age 40 to 50 years old has 9 people; Age 50 to 60 years old has 15 people; Age 60 to 70 years old has 4 people. There degree of education have primary school, junior middle school, Secondary specialized school, high school, junior college, university, etc. There jobs for herdsman 17 people, teacher 7 people, docter, public servant and labour each have 2 people, electrician and chef each have 1 people. The survey is mainly based on the herdsmen, followed by a variety of work to interview people. According to an interview survey found that the traditional culture in a serious loss, under the 45 years old people are less than the old people know of use of wild plants. This is the loss of nomadic culture and follow the loss of traditional knowledge, the modernization of today we very few people in the summer and moved to the ranch, most of them in a fixed place to build a brick tile, enclosed courtyard, planted vegetables and fruits, more and more people gradually use of wild plant resources is less, it is traditional knowledge slowly forgotten.

4. Discussion

In the long process of history, the Mongolian People's life has been infiltrated in the grassland environment. They have created valuable experience and splendid culture in the life and production. Ethnobotany is the study of the traditional knowledge and experience of the use of plants, the relationship between people and plants in a certain area, including the material, cultural, spiritual and cultural significance of the plant[18]. In the process of investigation and analysis of the collected information and the traditional knowledge of the scientific value, practical value, cultural value, protection value and application potential. With the progress of modern society and ecological destruction, environmental problems are increasing year by year, and the effects of various factors such as vegetation degradation, the Mongolian traditional knowledge system is in a stage of rapid and neglected and lost[19]. Traditional knowledge is passed down from generation to generation for years, not text record. So there is no scientific record of the study before the crisis faced with the loss of the crisis. Through the ages the accumulation of unique plants and practical knowledge and experience including the knowledge system with the nation and the nature of mutual adaptation, with cognitive experience in the area of natural environment and plant resources conditions. Plant resources are an important part of nature, so it is necessary to discover and protect the traditional knowledge about the use of plant knowledge[20].

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ПРЕДВАРИТЕЛЬНЫЕ ИССЛЕДОВАНИЯ ДИКИХ РАСТЕНИЙ, ИСПОЛЬЗУЕМЫХ МОНГОЛАМИ В ХОШУНЕ БАЙРИН-ЦЗОЦИ (ВНУТРЕННЯЯ МОНГОЛИЯ, КИТАЙ): НА ПРИМЕРЕ ЧАГАНХАДЫ

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В статье применен этноботанический метод исследования использования растений в деревне Чаганхада хошуна Байрин-Цзоци городского округа Чифэн Автономного района Внутренняя Монголия (КНР). Всего было проведено интервью с 32 жителями, собрано и идентифицировано 39 образцов растений, 18 семейств и 25 родов. Затем была произведена оценка и анализ жизненных форм, биотопа. Кроме того, по способам использования местным населением дикие растения можно разделить на продовольственные, кормовые, лекарственные и повседневного назначения.

Ключевые слова: этноботаника; монгольский язык; дикие растения.