

The indigenous knowledge of The Hani group: The Utilisation and Conservation of Natural Forest Resources at Y Ty Commune, Bat Xat District, Lao Cai Province, Vietnam

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ABSTRACT

In Y ty, Lao Cai province in Vietnam still maintain the primeval forests. These primeval forests were protected and effective using by the community of black Hani living in this area. This study have recorded 96 species of plants, including 40 species of edible plants, 8 species for husbandry, 44 species of medicinal plants, and 4 species utilised for dyeing by indigenous knowledge of the black Hani. The indigenous knowledge in classification of forest, knowledge in management of forest were studied in the framework of this paper.

Keywords: Black Hani group, conservation, natural forest resources, indigenous knowledge, useful plants.

I. Introduction

Vietnam is located in the Indo-Burma Biodiversity hotspot. It is ranked 16th in terms of the richness of biodiversity among the countries in the world. Vietnam's biological diversity is matched by its cultural diversity which is evident in the country's fifty four ethnic groups. Cultures emerge in large measure from the interplay of humans and the natural environment. In Vietnam, there are so many evidences showed that this process has begun for over thousands years [5] giving rise to the fifty four ethnic groups so that they still maintain their cultural until now. Each of these cultures possesses different sets of utilisation of knowledge of their environment, plants, animals.

Vietnam's ethnic minority groups are mainly located, for a longtime, in mountainous areas where vegetation covers are abundant in biodiversity [9,10].

In their daily lives, these ethnic minority groups often make use of forest resources for their needs such as food, medicines, house construction, textile, and others [10]. While using these resources, they also, in the process, create their original indigenous knowledge and experiences on the utilisation and conservation of the natural forest resources. However, this highly valuable and intangible heritage is at risk of disappearance due to economic social impacts. Thus, in recent years, Vietnam is actively investigating and developing database about the utilisation and conservation of its indigenous knowledge on natural resources.

Nowadays, most of biodiversity areas of Vietnam are located in midland and highland and where ethnic minority groups live. It is therefore important to note that innational biodiversity conservation strategy, it is necessary to pay attention to the knowledge, experiences and habit of exploiting and utilizing forest resources of native groups while developing conservation policies on the sustainable uses of natural resources (National Strategy for Biodiversity until 2020).

One of these minority groups is the Hani of Vietnam who live mostly in northern highlands in Lao Cai Province and Lai Chau Province. They possess original and rich indigenous knowledge on the exploitation and utilisation of forest resources. Due to the scarcity of studies conducted on the Hani group, a study on the process and manner on the utilisation of these resources needs to be done and carried out.

Outline of the Black Hani in Vietnam

The Hani group is one of the ethnic minority groups in Vietnam with a population of 26.000 people [2], [8]. A great number of them are now at present living in Lao Cai, Dien Bien provinces. There are two groups of Hani people in Vietnam: the Black Hani group and the Flower Hani group These two groups are distinguished through the features of their costumes. In Vietnam, the Black Hani group lives mainly in Lao Cai province (Bat Xat) and Lai chau province (Muong Te). It is said that their was ancestors were the Chinese who emigrated from Van Nam province of China. They emigrated to Vietnam in different times and the Flower Hani group in Lai Chau is believed to emigrate 3 centuries ago and were considered the earliest settlers while the Black Hani group in Lao Cai emigrated about 180 years ago. [14]

Lao Cai is home to about 4000 Black Hani who live in some communes such as the Y Ty, Nam Pung, A Lu, Ngai Thau and Trinh Tuong in Bat Xat District. The Y Ty commune has the largest number of Black Hani people and which accounts for 54.2 % of commune's population and of the 8 of 16 villages. [6]

The main livelihood of the Hani group is agriculture particularly the harvesting of non- timber forest. Their agricultural techniques are old-fashioned so their life mostly depends on non-timber forest. However, they follow strictly forest management laws to the protect primary, sacred sand riverhead forests. Primary forests can only be found in Y Ty and Trung Leng Ho commune in Bat Xat

district, Lao Cai province. There is a need therefore to study the customs and the utilisation and management of knowledge of forest resources so as to clarify and analyse the relationship between the group and these concepts. This study will also provide bases on what national policies are needed in safeguarding the biodiversity conservation and the rich tradition and cultural identity of the ethnic groups of Vietnam.

II. METHODOLOGY

Study site

This study was conducted in the area of two villages (Choen Then and Nhiu Co San), which can be found in Y Ty Commune, Bat Xat District, Laocai Province (North-western Vietnam).

Latitudes 22° 37' 17'' (N)

Longitudes 103° 37' 04'' (E)

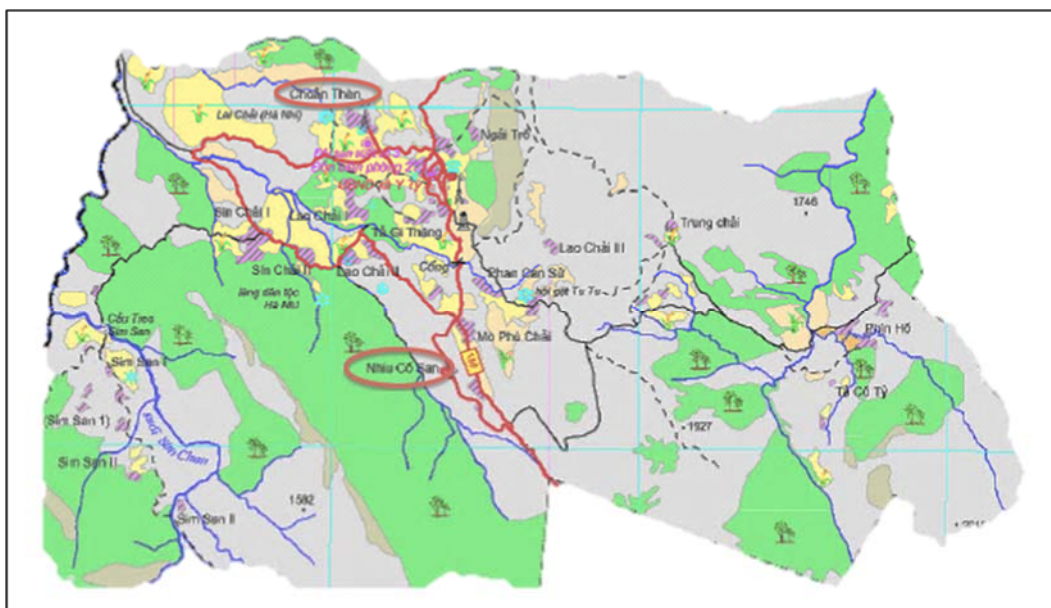
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Method

Using participant observation and semi-structured interview, data on the local knowledge in harvesting, uses and management forest in communities at Y ty area were gathered between March and September, 2013.

Key informants were identified on the basis of semi-structured interviews for transect walks through the surrounding mountains and fields to collect the documented plants for samples and voucher specimens. Picture cards with medicinal plants were shown to informants to document local knowledge.

The process of identifying the names and descriptions of plants is based morphological characters [11]. All available specimens of plants that are used for specific purposes can be found in the herbarium of Institute of Ecology and Biological Resources (IEBR). Scientific names have also been evaluated by the taxonomists of the IEBR.



Map of Study area at Y ty Commune

III. RESULTS

1. Outline of the economic social characteristics of the Hani group

The Black Hani group is known by the black indigo colour of their traditional dress. Although they have skills in cultivating terraced fields and rice fields, they still depend on on natural forest resources. Their handicraft is quite developed. They often make hand-made products for housing and selling.

The distinct characteristic of the dresses of the Black Hani women is not only its indigo colour but also the wigs used by married women. Those wigs are not only accessories but also as a means of of keeping their heads warm during the cold weather of the highlands. They also use these as pillows or scarves. In olden time, wigs were made from black dyed threads of bark, but now they are made from cotton or wool threads or wool.



Figure 1. Hani women preparing for the Tet Holiday Photo: Ngoc Anh LD.

2. Indigenous knowledge and experience on utilizing plant resources of black Hani group

At the first step of my study, the checklist of the 96 species that belong to 53 families of plants used by Hani group in Y Ty commune, Bat Xat District, Lao Cai province were documented. These plants are used for different purposes such as for medicines, food, or during death. The utilisation of these plants is based on their traditional knowledge and experience Forty-four (44) of these species are used as medicinal plants, 40 species are for food consumption and 8 of these are used to feed the pigs. (Appendix 1)

These species of useful plants of the Hani group in Y Ty commune are quite similar to results show in different research conducting on other ethnic minority groups in Vietnam [3, 8, 14]. However, the group's resources conceptualisation and utilisation is unique and therefore needs to be studied.

2.1 Indigenous Knowledge and experience on processing, utilizing edible plants

The edible plants of Black Hani group are carbonhydrates food plants, vegetable plants, and spice plants which are used to process foods. Due to high productivity of rice cultivation, they do not use wild plants (*Dioscorea* spp., *Aloscaia* spp.,...) for foods. The group uses 34 species of wild plants for vegetable such as the *Kadsura heteroclita* (Roxb.) Craib, *Ficus racemosa* L., *Blastus eglandulosus*

Stapf ex Spare,..). They also plant some kind of vegetable for daily needs such as the (*Vigna* spp., *Brassica juncea* (L.) Czern. et Coss,.).



Figure 2. Preparing dinner made from cultivated beans in Choan Then village, Y Ty commune, Bat Xat district, Lao Cai province. Photo: Ngoc Anh LD.

Three types of plants such as the (*Begonia pedatifida*, *Begonia chapaensis*, *Gardenia multiflora*) are used to coagulate tofu. The Hani group considers tofu as an important traditional food during holidays, new house construction ceremony or wedding so they make sure to use these forest plants to coagulate tofu. The leaves which are used to make tofu have sour taste and often crushed then are rinsed to collect water. They mix water with tofu to coagulate.

2.2 Plants for pig keeping foods

Eight species of wild plants are utilised to feed pigs. The group usually raise many pigs around their house so they regard these plants as necessity.



Figure 3. A Hani woman harvesting the plants for feeding pigs. Photo: Ngoc Anh LD.

2.3 Medicinal plants

There are 44 species of medicinal plants which are used for epilepsy, arthritis, bone fracture, snake bites, digestion, allergy, and other sickness. Twenty-eight of these species are used to remedy arthritic pains or bone fractures which are common in highlands due to its harsh weather and climate conditions. A certain Mr. San Tho, considered by many of the Hani group in Y Ty commune is the only person who can utilise these medicinal plants for bone fractures.

The indigenous knowledge of using medicinal plants for bone fracture of the Black Hani group can be considered as practical and valuable. They gather these medicinal plants then pound them to pieces. Next, they put the pounded leaves in a cloth, heat it and then put it on the broken bone. This is repeated for several times. (Please see appendix for the details of the utilisation of these medicinal plants). At present however, because there are now a number of health care facilities built around these mountain areas and because of the free treatment at public health care centres, using medicinal plants to cure ailments and sickness is not that popular. Although it can still be said that utilisation of medicinal plants still play an important role in the lives of the Black Hani group.

2.4 Plants for textile dyeing

In the past, the Black Hani groups used to cultivate cotton for making traditional dresses and costumes. Each of the Hani family chose the best place to cultivate cotton for getting thread. The group's cotton cultivation techniques are the same as the other ethnic minority groups in Vietnam.

The traditional colour of the dresses of the Hani groups is dark indigo. To achieve this colour, woven cloth is dyed in indigo solution (*Strobilanthes cusia* (Nees) Kuntze). In the dyeing process, the cloth is boiled in water with rice bran (*Oryza sativa* L.) or corn powder so that the dark indigo colour will last stay or last longer. This process is similar to the Dao groups in Ta Phin commune, Sapa, Lao Cai district.

Plants are not only used for the group's daily lives's needs but also for ritual and spirituality. According to Mr. Pa, leader of Nhiu Co San hamlet, the species *Docynia indica* (Wall.) Decne (Chua chat) và *Alnus nepalensis* D. Don (Tống quán sùi) are considered sacred plants because they have many leaves and fruits symbolise which symbolise richness. The Hani people usually plant in sacred forest, and altars are often put under this tree. The group also think that the *Randia canthioides* Champ. Ex Benth can protect them from the ghost of forest. So they usually separate the space of the sacred forest from that of the village by planting *R. Canthioides*.



Figure 4. A view of worship ceremony at Ga ma do forest (9th in January). Photo: Ngoc Anh LD.

3. INDIGENOUS KNOWLEDGE AND THE PRACTICE OF THE BLACK HANI ON FOREST MANAGEMENT

The group's indigenous knowledge on forest protection stems from their awareness of the forest. This awareness is grounded on their long and practical experiences with the forest and is formed through their spirituality, creed, habit, conception, passing down from generation to generation by memory and social practices. This indigenous knowledge becomes an effective tool in the management of the forest before and at present times.

a. Classification of forests based on the Hani groups's conception in Y ty commune

There are 3 types of forest in in areas that are inhabited by people.

- Economic forest: This forest is planted for economic purposes. Cardamon is commonly planted. Economic forest is invested in and managed by households.



Figure 5. Cardamon in the primeval forest. Photo: Ngoc ANh LD.

- Communal forest: This forest is used by community and is known as « Li lo xa cha ». This includes primeval and natural forest regeneration. In Y ty commune, communal forest has an area of around 6000 ha, and is a source of wood for house construction, firewood, medicinal plants and vegetables.



Figure 6. Primeval forest managed by community in Y ty commune. Photo: Ngoc Anh LD.

- Forbidden and sacred forest: The Hani village, also as known as Phu in Y Ty commune, Bat Xat, Lao Cai has four sacred forest, including,
 1. Ga ma do or god worshipping forest: the forest of the male guardian god, husband of “Mu thu do”, sacred forest of Phu who protects the lives of villagers and is located on the upper basin of village.

2. Mu thu do or god worshipping forest: the forest of the female guardian god, wife of “Ga ma do” god, and is located on the left of lower basin of village.



Figure 7. The “Mu thu do“ Forest: guardian god worshipping place in Nhiu Co San village.
Photo: Ngoc Anh LD.

3. “Thu ty” god worshipping forest: is the forest for worshipping the earth god or ancestor.
4. “A go la do” or the entertaining forest: located near the road which leads to the village for holiday festivals. Although there is no designated god in in this forest, the Hani group still considers this forest as sacred forest.

b. The role of indigenous knowledge and the practice of forest management and protection

The principles that guide the Hani group in protecting the forest effectively are as follows:

- Considering forests as gods in in the lives of the community,
- Name the forest as sacred forest or forbidden forest, and
- Develop village conventions/rules for managing and protecting the forests.

b. 1 Considering forests as gods in the lives of the community

The groups believe that plants also have the soul and every forest has a guardian god. The guardian god has supernatural powers to protect or harm humans. Therefore, people have to beg permission from the guardian god before they cut down trees or collect firewood.

The relationship between Hani groups and forest is defined by respect and friendship. They always think carefully before utilizing the forest. Although this is considered as spiritual concept, it plays an important role in forest protection.

b. 2 Establishing the forest as sacred or forbidden

Every villages of Hani groups in Y Ty commune name the forest as sacred forest or forbidden forest (“Mu thu do” forest, “Ga ma do” forest, “earth god” forest).

An example of this is the “Ga ma do” or god worshipping forest which is located on the upper

basin of village such that members of the Hani group never build their houses higher than the forest. In this forest, they choose the tall and straight trees with edible fruits to be the god tree, particularly the Chua Chat tree (*Docynia indica* (Wall.) Decne). They put two rectangular stones under the tree to worship the god.

Another example is the "Mu thu do" god worshipping forest which is located on the lower basin of the village. The Mu thu do god takes care of the reproduction of agriculture and of generations of Hani. The Mu thu do god's day of worship is during the "Horse Day" which occurs in March of every year. Each year, the sacred forest is opened only on the day after the day of worship.

The "Ga ma do" sacred forest protects the fate and the water resource of the village. On the other hand, The "Mu Thu do" forest blesses the village with abundant reproduction. The earth god "Thu ty" forest is located on the right of the village, and for the worship of the founder of the village.

The entertaining forest is one of the forbidden forests, located under the village, near the road which leads the village. In this forest, activities that tend to exploit the forests are prohibited. An altar and a swing pole for festival are placed in this forest. Every year on "the day of the dog" (the dragon day) on June, the Hani groups often hold the "khu gia gia" (Vietnamese pronunciation) festival in this forest. The forbidden forest and sacred forest of Hani community play an important role in forest protection. Hani groups never cut down the trees or pick small tree branches except on worshipping day or forest opening day.

In addition to the forbidden and sacred forest, each village of the Hani groups also has a communal forest. This forest is often large and provides essential materials for households. The communal forest's utilisation is managed under the umbrella of the general policies and rules for the forests' sustainability.

In forbidden and sacred forest, the "Ga ma do" god forest has a special meaning. Therefore, the religious teacher or the village leader always defines the parameters of forest before building the village. The leader of the village throws an egg toward the village then establishes the border line between the village and the forest by determining where the egg drops. This places becomes the basis of the borders. Around the sacred forest, they plant hemp gloves trees (*Randia canthioides* Champ. Ex Benth) to build the barriers between forest and the residential areas. The Hani groups believe that the hemp gloves trees (*Randia canthioides* Champ. Ex Benth) can protect them from the forest ghost. Towards the end of the village is the "Mu thu do" forest.

The arrangement of these two forest is quite scientific. The "Ga ma do" forest on the upper basin will protect the water resource, regulate the weather and prevent erosion from flood. While the "Mu thu do" forest at the end of the village regulates the water resource for rice fields and prevents erosion.

c. Develop village regulation based on respect of the indigenous ethnic knowledge and practices

Developing village regulation for forest management and utilisation is a continuous process for the areas inhabited by the ethnic minority groups in Northern Vietnam. On the other hand, the village regulations of the Hani groups are so unique because it is a combination of respecting the ethnic indigenous knowledge and following the rules of national forest management.

The regulation of forest protection

- The forbidden and sacred forests are properties and under the protection of the community. Each village of the Hani groups chooses two people to be the forest leaders who are in charge of the conduct of the worship ceremonies and the protection of the forests annually. The community officially suggests five or six people to be its forest leader. The leader must be of good health, faithful and whose son and daughter are also healthy and have a happy family

- Harvesting of forest products in the forbidden and sacred forest is regulated strictly. The forest leaders are the ones who decide if more plants need to be planted around the forests and prevent others from cutting down trees. Villagers can only enter the forest on “forest day” or during the opening day of the forest. On this day, they are allowed to pick the branches from the ground. On ordinary days, if the villagers see branches find branches and twigs outside the forbidden and sacred forests, then they have to pick these and put them back in the forest.
- The economic forests are protected by households and the trees that are cut down are utilised for widening the rice field or to develop the land for planting. Before the villagers can do this however, they need to ask permission from the forest leaders and managers.
- The villagers can get medicinal plants, vegetables or other materials from the forests which are protected by community without asking permission from the leaders and forest managers. If they cut down the small trees, they need the permission of the leaders. On the other hand, if they want to cut down the big trees, they need the permission of the village people’s committee.
- Letting out the cattles near the water resource, cutting down the big trees near the village, hunting small cattles , and hunting animals are also strictly prohibited.
- The villagers and the forest managers are in charge of protecting the national primeval forests by following national regulations.

Punishments in violating the village regulations

- Persons who cut down trees without permission from the community or forest managers are punished. Part of the punishment is to offer sacrifices of 36 kilos of pork, 36 litres of alcohol, 20 kilos of rice. They also need to provide the ingredients for food of the members who will witness the ceremony during the punishment.
- If they do not offer these sacrifices, then they are no longer allowed to attend the forest god worship ceremony. This is the highest level of the punishment so they do not dare to break the regulation again nor will refuse to offer sacrifices.
- The above-mentioned village regulations of Black Hani groups in Y ty commune, Bat xat, Lao Cai therefore can be considered as unique and are therefore effective in protecting the forests. These regulations, benefit both the community and the individual households. The punishment, a combination of spiritual concepts (prohibition of attendance to the worship ceremony) and material value (pork, rice, alcohol) is also effective in preventing people from breaking the regulations. Moreover, the regulation helps to protect the forests which are inhabited areas by following the national laws.

IV. CONCLUSION

- Ninety-six (96) plant species which are utilised in the daily lives of the Hani groups were identified. These include 40 species of edible plants, 8 species for husbandry, 44 species of medicinal plants, and 4 species utilised for dyeing. Further research on the study site will identify more plant species which can be utilised for medicines and food. Among the recorded natural utilisation of experiences and knowledge, the knowledge of using medicinal plants for arthritic pain has great practical value and this need to be researched further on how can this be put in practical use. Furthermore, establishing whether the area is a sacred or forbidden forest has a deep anthropological implications to the biodiversity and the process of the protecting these areas.

The regulations followed by the villages are based on the combination of ethnic knowledge which

are both beneficial to the community and the forest areas and this combination is seen as distinct and unique among the Hani groups. This combination of the ethnic and the national has been proven to be effective. It is then highly recommended by this study that this framework be developed or followed by the other ethnic minority groups of Vietnam.

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Appendix 01. Useful plants used in the Hani Communities at Y ty region in Laocai province, Vietnam.

(Investigations in 2013, Ngoc Anh LD. *et al.*)

No.	Latin Name	Vernacular Name	Hani name	Family	Wild/Cult.	Plant part	Method used
1.	<i>Eranthemum pulchellum</i> Andr.	Tinh hoa đẹp	Chù tạy	Acanthaceae	W	Leaf	Poultice for bone fracture.
2.	<i>Strobilanthes cusia</i> Kuntz.	Chàm Mèo		Acanthaceae	C	Leaf	Indigo dyeing
3.	<i>Sagittaria trifolia</i> L.	Rau mác	Nha ca	Alismataceae	W	Whole plant	Feeding pigs
4.	<i>Amaranthus spinosus</i> L.	Dền gai	Kha thè xa	Amaranthaceae	W	Young leaf	Vegetable: Boiling or cooking soup.
5.	<i>Chenopodium album</i> L.	Rau muối	Nỏ xứ nỏ nhi	Amaranthaceae	W	Young twig leaf	Frying with oil and onion
6.	<i>Angiopteris confertinervia</i> Chingex C. Chr. & Tardieu	Móng ngựa	Dây đám bò	Angiopteridaceae	W	Root and young stem	Hard boiling, after that frying with meat and cooking fat.
7.	<i>Centella asiatica</i> (L.) Urb	Rau má	A khur phà gà	Apiaceae	W	Whole plant	Eating fresh leaves (salad), boiling, cooking soup.
8.	<i>Oenanthe javanica</i> (Blume) DC.	Rau cần dại	Chứ vọ	Apiaceae	W	Whole plant	Feeding pigs
9.	<i>Amorphophallus tonkinensis</i> Engl. & Gehrm.	Nưa bắc bộ	Xa chừ nhê	Araceae	W, C	Tuber	Collecting to sell in China border
10.	<i>Arisaema erubescens</i> (Wall.) Schott	Nam tinh không lông	Me bu	Araceae	W	Tuber	Tuber juice is applied at the site of snake bite.
11.	<i>Pothos chinensis</i> (Raf.) Merr.	Ráy leo trung quốc	Dùy pe	Araceae	W	Leaf	Poultice for bone fracture
12.	<i>Rhaphidophora laichauensis</i> Gagnep.	Trâm dài lai châu	Xà gá	Araceae	W	Stem	Poultice for bone fracture
13.	<i>Arenga pinnata</i> (Wurmb.) Merr.	Búng báng	Hà đàng	Arecaceae	W	Stem	Hard boiling, pouring out water, after that frying with oil or meat.
14.	<i>Ageratum conyzoides</i> L.	Cây bù xích	Bẹ ha bẹ me	Asteraceae	W	Young leaf	Washing and hand-roll, cooking with fish and shrimp paste

No.	Latin Name	Vernacular Name	Hani name	Family	Wild/Cult.	Plant part	Method used
15.	<i>Bidens pilosa</i> L.	Đơn buốt	Hả gúm mà pi cha	Asteraceae	W	Young leaf and stem	Vegetable, cooking soup or frying with meat
16.	<i>Blumea lacera</i> (Burm. F) DC.	Cải ma	Gụ ma	Asteraceae	W	Young leaf and stem	Vegetable, cooking soup or frying with meat
17.	<i>Crassocephalum crepidioides</i> (Benth.) S.Moore	Rau tàu bay	Gụ ma	Asteraceae	W	Young leaf and stem	Using fresh leaves for making salad or cooking soup
18.	<i>Emilia sonchifolia</i> (L.) DC.	Rau má tía	Gụ ma	Asteraceae	W	Young leaf and stem	Using fresh leaves for making salad
19.	<i>Eupatorium coelestinum</i> L.	Cỏ lào tím	Bờ đê cha	Asteraceae	W	Whole plant	Poultice for bone fracture.
20.	<i>Galinsoga parviflora</i> Cav.	Vi cúc	Xỏ pạ	Asteraceae	w	Whole plant	Poultice for bone fracture.
21.	<i>Stevia rebaudiana</i> (Bert.) Hemsl.	Cỏ ngọt		Asteraceae	W	Whole plant	Using fresh leaves for salad
22.	<i>Diplazium esculentum</i> (Retz.) SW	Rau dớn	Hà đa đá bừ	Athyriaceae	W	Young leaf	Vegetable
23.	<i>Begonia chapaensis</i> Irmsch. Sec. Phamh.	Thu hải đường Sa Pa		Begoniaceae	W	Upper ground	Making soya curd, Leaves juice used filtrate to coagulate soya bean.
24.	<i>Begonia grandes</i> Dryand.	Thu hải đường to	Tha khu nhì	Begoniaceae	W	Whole plant	Cutting, drying and boiling to drink for healthy
25.	<i>Begonia labordei</i> Levl.	Thu hải đường lá tim	Bát dừ	Begoniaceae	W	Whole plant	Boiling and bathing to cure allergic.
26.	<i>Begonia pedatifida</i> Lévl.	Thu hải đường xẻ		Begoniaceae	W	Under ground	Making soya bean
27.	<i>Mahonia</i> sp.	Cây mật gấu	Xe dó phà lìn	Berberidaceae	W	Stem, root	Soaking in wine, drink for curing pain in back
28.	<i>Alnus nepalensis</i> D. Don	Tổng quán sủ	Cây thần chủ	Betulaceae	C		For worship
29.	<i>Brassica juncea</i> (L.) Czern. et Coss	Cải xanh		Brassicaceae	C	Leaf	Vegetable
30.	<i>Capsella bursa</i> Raf.	Tề thái	Hà bra khu chạ	Brassicaceae	W	Whole plant	Vegetable, bitter soup

No.	Latin Name	Vernacular Name	Hani name	Family	Wild/Cult.	Plant part	Method used
31.	<i>Nasturtium officinale</i> W.T. Aiton	Cải xoong	Gụ chur	Brassicaceae	W	Whole plant	Vegetable
32.	<i>Buddleja officinalis</i>	Mật mông		Buddlejaceae	W	Flower	Coloring sticky rice in Mar.
33.	<i>Pentaphragma sinense</i> Hemsl. Et Wils.	Rau tai voi	Nhỏ mi	Campanulaceae	W	Whole plant	Collecting to sell for China.
34.	<i>Cleome gynandra</i> L.	Màn màn trắng	Hầu nua pi gia	Capparaceae	W	Leaf, young twig	Preserving in salts.
35.	<i>Garcinia multiflora</i> Champ.ex Benth.	Dọc	Hót to a bứ	Clusiaceae		Young leaf, fruit	Sour, for cooking soup or making soya curd
36.	<i>Hodgsonia macrocarpa</i> (Blume) Cogn.	Đại hái	U di thù du	Cucurbitaceae	W	Fruit	Fresh fruit used to cooking sour soup.
37.	<i>Cyathea podophylla</i> (Hook.) Copel	Dương xỉ mọc	Nẹ gie nè	Cyatheaceae	W	Young leaf	Vegetable, boiling or frying
38.	<i>Dracaena angustifolia</i> Roxb.	Bồng bồng	Me nhi mè dê xừ	Dracaenaceae	W	Root	Soaking in wine, for osteoarthopathy
39.	<i>Euphorbia chrysocoma</i> Levl. & Vaniot	Cỏ sữa lông vàng		Euphorbiaceae	W	Whole plant	Grinding, Poultice for bone fracture.
40.	<i>Vigna</i> spp.	Đậu		Fabaceae	C	Fruit, seed	Cooking
41.	<i>Aeschynanthus garrettii</i> Craib.	Má đào garret	Mẹ pa nhi	Gesneriaceae	W	Whole plant	Drying, boiling and drink when have bone fracture, Broken bone is healed quickly.
42.	<i>Hypericum japonicum</i> Thunb.	Nọc sởi	Na nà kê pha cho	Hypericaceae	W	Young twig leaf	Use fresh leaves, twigs, grinding and mix with water for curing measles
43.	<i>Hypericum uralum</i> Buch.-Ham.ex D. Don	Cỏ vỏ lúa	Ha nè nết	Hypericaceae	W	Whole plant	Curing colic
44.	<i>Elsholtzia penduliflora</i> W.W.Smith	Kinh giới rủ	Bờ dê dê na	Lamiaceae	W	Whole plant	Bone fracture
45.	<i>Prunella vulgaris</i> L.	Hạ khô thảo	Hà xu	Lamiaceae	W	Whole plant	Boiling whole plant and applying totally to cure bone fracture

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46.	<i>Lycopodium complatatum</i> L.	Thạch tùng đẹp	Nẹ ma cha lua	Lycopodiaceae	W	Whole plant	Feeding pigs, impulse fermental process in indigo, spread on bottom of jars
47.	<i>Lycopodium complatatum</i> L.	Thạch tùng đẹp	Bụt hà ná	Lycopodiaceae	W	Whole plant	Bone fracture
48.	<i>Rotala rotundifolia</i> (Willd.) Koehne	Vây ốc	Mọ mlai	Lythraceae	W	Young twig leaf	Vegetable, paste twig is applied to treat wound.
49.	<i>Gossypium herbaceum</i> L.	Bông vải		Malvaceae	W	Fruit	Cotton
50.	<i>Blastus eglandulosus</i> Stapf ex Spare	Bo rừng không tuyến	Mò xu nhì	Melastomataceae	w	Fruit	Edible plant
51.	<i>Medinilla petelotii</i> Merr.	Minh điền petelot	Nẹ ma xút xu	Melastomataceae	W	Stem, root	Boiling, bone fracture
52.	<i>Sonerila finetii</i> Guillaum	Son linh finet	Gụ thê	Melastomataceae	W	Root	Grinding, bone fracture
53.	<i>Sporoxeia sciadophila</i> W.W.Smith	Vi tử rập		Melastomataceae	W	Young twig	Young twig is boiled and grinded, applying totally to curing bone fracture
54.	<i>Ficus racemosa</i> L.	Sung	Lạ hụ	Moraceae	W	Leaf, fruit	Eating fresh leaves, scroll with fresh fish. Old leaves for pig keeping.
55.	<i>Musa paradisiaca</i> L.	Chuối tiêu	Azdo đi	Musaceae	C	Sheath column	Feeding pigs
56.	<i>Musa saguinea</i> Hook.f.	Chuối hoa đỏ	A do do nhì	Musaceae	W	Sheath column	Feeding pigs
57.	<i>Ardisia</i> sp.	Trọng đũa	Bừ đê la xừ	Myrsinaceae	W	Fruit	Edible
58.	<i>Embelia laeta</i> (L.) Mez	Chua méo	Hắc cun	Myrsinaceae	W	Leaf	Cooking fish soup
59.	<i>Rhodomyrtus tomentosa</i> (Ait.) Hassk.	Sim	Pạ chê	Myrtaceae	W	Fruit	Edible
60.	<i>Padanus</i> sp.	Dứa dại	Ma bờ xu	Pandanaceae	W	Stem, root	Boiling, taking orally to treat bone fracture
61.	<i>Plantago asiatica</i> L.	Mã đề á	Hà pa gù chạ	Plantaginaceae	W	Leaf	Young leaves are fried or cooking soups

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62.	<i>Bambusa</i> sp.	Măng tre	Hạc phương mùy	Poaceae	C	Stem	Vegetable
63.	<i>Oryza sativa</i> L.	Lúa gạo		Poaceae	C	Rice Screening	As a mordant, rice screening is boiled with textile before dyeing
64.	<i>Saccharum arundinaceum</i> Retz	Lau	Phứ	Poaceae	W		God tree
65.	<i>Thysanoloena maxima</i> O. Kuntze	Chít	Trzung	Poaceae	W		God tree
66.	<i>Zea mays</i> L.	Ngô		Poaceae	C	Seed	Seeds is boiled with textile before dyeing
67.	<i>Polygala tenuiflorum</i>	Viễn chí	Ha ma ha phứ ha chữ	Polygalaceae	W	Stem	Tonic, Drying and selling in markets for healthy
68.	<i>Fagopyrum esculentum</i> Moench.	Mạch ba góc	A jun a zê nhi	Polygonaceae	C	Whole plant	Grinding fresh leaves, poultice for bone fracture
69.	<i>Polygonum alatum</i> Buch-Ham ex D. Don	Nghế nêpal	Chi mà la go	Polygonaceae	W	Stem, leaf	Feeding pigs
70.	<i>Polygonum chinense</i> L.	Thồm lồm	A khur chê bự, chi ma lộn	Polygonaceae	W	Stem, fruit	Eating fruit, stem is feed for pig
71.	<i>Reynoutria japonica</i> Houtt.	Cốt khí củ	A dừ	Polygonaceae	C	Tuber	Boiling tuber and taking orally for Induced labor
72.	<i>Monochoria varigalis</i> (Burm.) Presl.	Rau mác bao	A bê a bệ	Pontederiacae	W	Leaf	Vegetable
73.	<i>Talinum paniculatum</i> (Jacq.) Gaertn.	Sâm mùng tơi	Nhiu cạ là ma	Portulacaceae	W	Tuber	For strong bone
74.	<i>Docynia indica</i> (Wall.) Decne	Táo mèo, chua chat	Cây Chua chát	Rosaceae	C	Live tree	God tree of Guardian forest. Edible (fruit), soaking in wine.
75.	<i>Randia canthioides</i> Champ. Ex Benth	Găng gai		Rubiaceae	C		Trees stop ghost's forest
76.	<i>Randia henryi</i> E. Pritz	Găng gai henry		Rubiaceae	C		Trees stop ghost's forest. Planting to border ancestral forest in Village.

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77.	<i>Houttuynia cordata</i> Thunb.	Rau diếp cá	Đà bo san no	Saurauraceae	C	Stem, leaf	Spices
78.	<i>Kadsura heteroclita</i> (Roxb.) Craib	Xun xe tạt	A ju nhe	Schisandra ceae	W	Fruit	Edible
79.	<i>Kadsura induta</i> A. C. Smith	Na rừng	Mò suy sì	Schisandra ceae	W	Stem, fruit	Soaking in wine for drinking
80.	<i>Kadsura longipedunculata</i> Fin. & Gagnep.	Ngũ vị nam	Mì suy xì	Schisandra ceae	W	Stem, root	Soaking in wine, drink for good health
81.	<i>Kadsura</i> sp.		Chè la mè bu	Schisandra ceae	W	Fruit	Edible
82.	<i>Schisandra perulata</i> Ganep.	Ngũ vị vảy chồi	Agiun nà ia xừ	Schisandra ceae	W	Leaf	Curing dogs when having flu.
83.	<i>Smilax</i> sp.	Thổ phục linh	E di	Smilacaceae	W	Tuber	Diarrohea
84.	<i>Solanum nigrum</i> L.	Lu lu đực	The	Solanaceae	C	Fruit	Cooking soup, edible
85.	<i>Buettneria andamensis</i> Kurz	Bích nữ andaman	Ca chê	Sterculiaceae	W	Leaf	Cooking soup
86.	<i>Pseudophegopteris pyrriorachis</i> (Kunze) Ching	Ráng thư đực sống	Chiếc ghê pa	Thelypteridaceae	W	Young twif leaf	Bone fracture
87.	<i>Paris</i> sp.	Bày lá 1 hoa	A mi ta tệt	Trilliaceae	W	Steam, leaf	Rare plants in Red book. Collecting for sell to China, Diarrohea
88.	<i>Gonostegia hirta</i> (Blume ex Hassk.) Miq.	Thuốc dòi lông	Ủn thô	Urticaceae	W	Young twig leaf	Vegetable, cooking soup
89.	<i>Callicarpa longifolia</i> Lamk.	Tử châu lá dài	O hừ O ry	Verbenaceae	W	Whole plant	Epilepsy
90.	<i>Viola arcuata</i> Blume	Hoa tím cong	Pạ chu	Violaceae	W	Whole plant	Grinding whole plant, applying to broken bone directly
91.	<i>Alpinia conchigera</i> Griff.	Riềng rừng	Ngà chí áp pa	Zingiberaceae	W	Root	Bath for curing diarrohea
92.	<i>Alpinia globosa</i> (Lour.) Horan.	Sẹ		Zingiberaceae	W	Root	Curing horse disease
93.	<i>Alpinia hainanensis</i> K.	Riềng hải nam	Nệ ma cha đu	Zingiberaceae	W	Root	Drying, soaking in wine, good for bone

No.	Latin Name	Vernacular Name	Hani name	Family	Wild/Cult.	Plant part	Method used
	Schum.						and joint
94.	<i>Amomum</i> sp.	Gừng	Dự me	Zingiberaceae	W	Leaf, root	Spice Leaves is forage for cow in winter
95.	<i>Curcuma</i> sp.	Nghệ gù	Xa la me xự	Zingiberaceae	W	Root	Treating wound
96.	<i>Curcuma</i> sp.	Nghệ gù	xa la me xự	Zingiberaceae	W	Young leaf	Paste of leaves is applied topically to treat wound
97.	<i>Stahlianthus campanulatus</i> (Nees) Kuntze	Tà liên chuông	Me xà bu	Zingiberaceae	W	Root	Spice, tuber paste is applied on acne.