

Study on knowledge of medicinal plants used of Tay ethnic minority in Na Hang special-use forest, Tuyen Quang Province

Nghiên cứu tri thức sử dụng cây thuốc của đồng bào người Tày tại khu bảo tồn rừng đặc dụng Na Hang, tỉnh Tuyên Quang

Research article

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Tay ethnic minority using Tay - Thai language is the biggest population in Na Hang district (ca. 51.6%), Tuyen Quang province. Their knowledge and experience of using medicinal plants have been preserved and passed down through many generations. Medicinal plant resources in Na Hang special-use forests (SUF) have been contributing to the work of health care and treatment of communities in the region. Research results showed that the composition of medicinal plants used by Tay ethnic minority in Na Hang SUF included 223 vascular plant species, belonging to 4 phyla which were mainly belonging to Magnoliophyta, accounting for 90.0% of families; 94.97% of genera, and 95.92% of species. Among these 223 plant species, 9 species were ranked at different levels of endangered status. These are rare and precious gene sources that need to be strictly protected and conserved. 53 diseases/symptoms belonging to 7 groups of diseases can be treated with medicinal plants from Tay ethnic minority in Na Hang SUF. Particularly, 14 diseases to be treated by various medicinal herbs.

Dân tộc Tày là một cộng đồng thuộc ngôn ngữ Tày - Thái và có dân số đông nhất ở huyện Na Hang, tỉnh Tuyên Quang, chiếm 51,6% tổng dân số toàn huyện. Những tri thức và kinh nghiệm sử dụng những loài cây để chữa bệnh đã được người dân địa phương gìn giữ và lưu truyền lại qua nhiều đời, thế hệ sau. Nguồn tài nguyên cây thuốc ở rừng đặc dụng Na Hang đã và đang đóng góp vào công tác chăm sóc sức khỏe và chữa bệnh của các cộng đồng trong khu vực. Kết quả điều tra cho thấy thành phần loài cây thuốc được người dân tộc Tày sử dụng gồm 223 loài thuộc 4 ngành thực vật bậc cao có mạch, chủ yếu thuộc ngành Mộc Lan (Magnoliophyta), chiếm 90,0% tổng số họ; 94,97% tổng số chi và 95,52% tổng số loài. Trong số 223 loài cây thuốc này, có 9 loài được xếp ở các cấp độ nguy cấp khác nhau. Đây là nguồn gen quý hiếm, cần có biện pháp bảo tồn nghiêm ngặt. Có 53 bệnh/triệu chứng bệnh thuộc 7 nhóm bệnh có thể chữa bằng cây thuốc tại rừng đặc dụng Na Hang từ người dân tộc Tày. Đặc biệt, 14 bệnh có thể chữa được bằng nhiều loại cây thuốc khác nhau.

Keywords: medicinal plants, Na Hang special-use forest, Tay ethnic minority

1. Introduction

Na Hang special-use forest (SUF), formerly Tat Ke – Ban Bung Nature reserve, was found by the decision of The Tuyen Quang province People's Committee on May 9th, 1994 (Decision 274/QĐ-UB). It locates on the area of Khau Tinh, Con Lon, Son Phu, Thanh Tuong communes, Na

Hang district, Tuyen Quang province. Na Hang SUF covers approximately 22,401.5 hectares, in which elevation less than 300 m alt. covers ca. 30% area, elevation less from 300 to 800 m alt. covers ca. 60%, and above 900 m alt. covers ca. 10%. The average temperature in winter is from 15°C to 20°C, and in summer is 30°C. There are two major rivers flowing through this area, Gam river (west of

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Tat Ke) and Nang river (east Na Hang). Currently, water from Na Hang SUF is distributed, conditioned by the reservoir system and Na Hang dam.

The flora of Na Hang SUF comprised 1162 vascular plant species, belonging to 604 genera, 159 families, 4 phyla. In which Angiospermae comprised 1083 species, 570 genera, 135 families; Gymnospermae comprised 11 species, 8 genera, 5 families; Polypodiophyta comprised 63 species, 34 genera, 17 families; and Lycopodiophyta comprised 5 species, 2 genera, 2 families. 558 vascular plant species in Na Hang SUF were recognized as medicinal plants [14].

However, so far there have been no studies on the distribution characteristics, capacity for regeneration of medicinal plants, especially promising species in Na Hang SUF. Study on knowledge of medicinal plants used of Tay ethnic minority in Na Hang SUF in order to initially assess the distribution characteristics and regeneration capacity of promising medicinal plants in that area.

Tay ethnic minority uses Tay - Thai language and it is the biggest population in Na Hang district (ca. 51.6%). In Na

Hang, Tay ethnic minority lives in intermingled area with other ethnic groups along streams concentrated in Thanh Tuong, Phu Son, Khau Tinh communes. The herb doctors in Tay ethnic minority collect and use varieties of medicinal plants. The knowledge and experience of using the medicinal plants have been preserved and passed down through many generations. Nowadays, Tay ethnic people, especially herb doctors, have planted many kinds of medicinal plants in their garden while medicinal plants resources gradually scarce. However, with certain amount of medicinal plants planted in the garden, and many medicinal plant species could not be planted, Tay ethnic people still collect and use the medicinal plant resources from natural forest.

2. Materials and methods

2.1. Study sites

Studies were carried out in Thanh Tuong, Son Phu, Khau Tinh communes, Na Hang district, Tuyen Quang province (table 1).

Table 1. Time and study sites

| No. | Study sites | Time | Co-ordinates | Altitude |
|-----|--|--|------------------------------------|-------------|
| 1 | Khuoi Boc village, Thanh Tuong commune, Na Hang district | May, 23th-24 th , 2014 | N: 22.17'33,4"; E: 105.24'38,1" | 120 m |
| 2 | Bung village, Thanh Tuong commune, Na Hang district | May, 20th-22th, 2014 October, 10th-12th, 2014 April, 10th-15th, 2015 | N: 22.15'44,2"; E: 105.25'48,5" | 349 m-432 m |
| 3 | Chu village, Son Phu commune, Na Hang district | October, 13th-15th, 2014 | N: 22.20'54,1"; E: 105.25'45,5" | 259 m |
| 4 | Thac Mo village, Son Phu commune, Na Hang district | May, 25th-26th, 2014 October, 16th-18th, 2014 | N: 22.21'08,2"; E: 105.25'11,7" | 194 m-418 m |
| 5 | Nà Tang village, Khau Tinh commune, Na Hang district | October, 19th-22th, 2014 | N: 22.27'52,2"; E: 105.26'19,4" | 774 m-891 m |

2.2. Materials

The medicinal plants were investigated and collected in the study sites and were kept in The Herbarium, Institute of Ecology and Biological Resources, Vietnam Academy of Science and Technology, Hanoi, Vietnam.

2.3. Methods

Using participant observation and semi-structured interview, data on the local knowledge in collecting and using medicinal plants by Tay ethnic people in Na Hang SUF.

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 on morphological characters.

3. Results and discussion

3.1. Medicinal plants diversity in Na Hang SUF, Tuyen Quang province

Based on the results of our studies on medicinal plants in Na Hang SUF and considering carefully previous studies, we have recorded 275 medicinal plant species, belonging to 204 genera, 96 families of vascular plants which have been used by local people in that area (Table 2).

Table 2 showed that, the composition of medicinal plants in Na Hang SUF was mainly belonging to Magnoliophyta, accounting for 90.63% of families; 95.59% of genera, and 96.00% of species. In other phyla, the number of families, genera and medicinal plant species were smaller. In Magnoliophyta, Magnoliopsida comprised 73.96% of families, 78.43% of genera and 80.00% of species; and Liliopsida comprised 16.67% of families, 17.16% of genera, 16.00% of species.

Table 2. Composition of medicinal plants in Na Hang SUF

| No. | Phyla | Families | | Genera | | Species | |
|-----|----------------|-------------------|------------|------------------|------------|-------------------|------------|
| | | Number of speices | Percentage | Number of genera | Percentage | Number of species | Percentage |
| 1 | Lycopodiophyta | 1 | 1,04 | 1 | 0,49 | 2 | 0.73 |
| 2 | Polypodiophyta | 7 | 7,29 | 7 | 3,43 | 8 | 2.91 |
| 3 | Pinophyta | 1 | 1,04 | 1 | 0,49 | 1 | 0.36 |
| 4 | Magnoliophyta | 87 | 90,63 | 195 | 95,59 | 264 | 96.00 |
| | Total | 96 | | 204 | | 275 | |

There were 10 families, which comprised numerous medicinal plant species as: Rubiaceae (20 species), Urticaceae (19 species), Acanthaceae (9 species), Euphorbiaceae (9 species), Araceae, (9 species), Zingiberaceae (9 species), Verbenaceae (8 species), Moraceae (7 species), Asteraceae (7 species), Convallariaceae (7 species). And there were 4 genera, which comprised numerous medicinal plant species as: *Ficus* (6 species), *Piper* (5 species), *Elastostema* (5 species), *Clerodendrum* (5 species).

3.2. Composition of medicinal plants used by Tay ethnic minority in Na Hang SUF

Table 3 shows that, the composition of medicinal plants used by Tay ethnic minority in Na Hang SUF included 223 vascular plant species, belonging to 4 phyla which were mainly belonging to Magnoliophyta, accounting for 90.0% of families; 94.97% of genera, and 95.92% of species. In other phyla, the number of families, genera and medicinal

plant species were smaller. In Magnoliophyta, Magnoliopsida comprised 72.22% of families, 77.09% of genera and 78.03% of species; and Liliopsida comprised 17.78% of families, 17.88% of genera, 17.49% of species.

There were 12 families, which comprised numerous medicinal plant species used by Tay ethnic minority as: Rubiaceae (18 species), Urticaceae (15 species), Acanthaceae (9 species), Euphorbiaceae (9 species), Zingiberaceae (9 species), Asteraceae (7 species), Araceae (7 species), Piperaceae (6 species), Menispermaceae (5 species), Myrsinaceae (5 species), Rutaceae (5 species), Vitaceae (5 species). And there were 3 genera, which comprised numerous medicinal plant species used by Tay ethnic minority as: *Piper* (5 species), *Elastostema* (5 species), *Psychotria* (4 species).

The comparison between the number of medicinal plant species used by Tay ethnic minority with total medicinal plant species in Na Hang SUF was shown in table 4.

Table 3. Composition of medicinal plants used by Tay ethnic minority in Na Hang SUF

| No. | Phyla | Families | | Genera | | Species | |
|-----|----------------|-------------------|------------|------------------|------------|-------------------|------------|
| | | Number of speices | Percentage | Number of genera | Percentage | Number of species | Percentage |
| 1 | Lycopodiophyta | 1 | 1,10 | 1 | 0,56 | 2 | 0.90 |
| 2 | Polypodiophyta | 7 | 7,78 | 7 | 3,91 | 7 | 3.14 |
| 3 | Pinophyta | 1 | 1,11 | 1 | 0,56 | 1 | 0.45 |
| 4 | Magnoliophyta | 81 | 90,0 | 170 | 94,97 | 213 | 95.52 |
| | Total | 90 | | 179 | | 223 | |

Table 4. Proportion of medicinal plant species used by Tay ethnic minority

| No. | Phyla | Total species in Na Hang | Total species used by Tay ethnic people | |
|-----|----------------|--------------------------|---|--------------|
| | | | Number of species | Percentage |
| 1 | Lycopodiophyta | 2 | 2 | 0.73 |
| 2 | Polypodiophyta | 7 | 7 | 2.55 |
| 3 | Pinophyta | 1 | 1 | 0.36 |
| 4 | Magnoliophyta | 265 | 213 | 77.45 |
| | Total | 275 | 223 | 81.09 |

3.3. Endangered medicinal plant species

There were 7 endangered medicinal plant species in Na Hang SUF listed in Vietnam Red Data Book (2007) – Part II: Plants. In which, 4 species were ranked at Endangered (EN) level, and 3 species were ranked at Vulnerable (VU) level. 9 endangered medicinal plant species in Na Hang

SUF were listed in The Red List of Medicinal Plants of Vietnam (2006): 1 species was ranked at Critically Endangered level (CR), 4 species were ranked at Endangered (EN) level, and 4 species were ranked in Vulnerable (VU) level. 2 endangered medicinal plant species in Na Hang SUF were listed in Degree 32/2006/NĐ-CP (Appendix II, those are species that are not necessarily threatened with extinction, but limited exploitation or use for commercial purposes) (Table 5).

Table 5. Endangered medicinal plant species in Na Hang SUF

| No. | Latin name | Vietnamese/Tay names | Vietnam Red Data Book (2007) | Degree 32/2006/NĐ-CP (2006) | The Red List of Medicinal Plants of Vietnam (2006) |
|-----|--|------------------------------|------------------------------|-----------------------------|--|
| 1 | <i>Asarum balansae</i> Franch. (Aristolochiaceae)** | Tế tân balansa/Muầu đin | EN A1c,d, B1+2b,c | IIA | CR A1c,d. B1+2b,c |
| 2 | <i>Asarum caudigerum</i> Hance (Aristolochiaceae) | Tế tân | VU A1c,d | IIA | VU A1a,c,d |
| 3 | <i>Balanophora laxiflora</i> Hesml. (Balanophoraceae) | Dương đài (Tòa dương)/Pi đin | EN B1+2b,c,e | | VU A1c,d |
| 4 | <i>Podophyllum tonkinensis</i> Gagnep. (Berberidaceae) | Bát giác liên/Bầu chất cooc | EN A1a,c,d | | EN A1 c,d |
| 5 | <i>Gynostemma pentaphyllum</i> (Thunb.) Makino (Cucurbitaceae) | Giảo cổ lam/Pyắc dạ; Lầy im | EN A1a,c,d | | EN A1a,c,d |
| 6 | <i>Ardisia silvestris</i> Pitard (Myrsinaceae) | Lá khô | VU A1a,c,d+2d | | VU A1c,d |
| 7 | <i>Kadsura coccinea</i> (Lem.) A.C. Smith (Schisandraceae) | Na rừng/Thau nôm noa | | | EN A1c,d |
| 8 | <i>Disporopsis longifolia</i> Craib (Liliaceae) | Hoàng tinh cách/Ca lài | | | EN A1a,c,d |
| 9 | <i>Drynaria bonii</i> Christ. (Polypodiaceae) | Tắc kè đá/Rằng ca veng | VU A1c,d | | VU A1a,c,d |

Note: in the brackets are family names of plant

3.4. Diversity in life-form of medicinal plants used by Tay ethnic minority in Na Hang SUF

Table 6. Life-form of medicinal plants used by Tay ethnic minority in Na Hang SUF

| No | Life-form | Number of speices | Percentage |
|----|--------------|-------------------|------------|
| 1 | Trees | 36 | 16.14 |
| 2 | Shrub | 48 | 21.52 |
| 3 | Climber | 33 | 14.80 |
| 4 | Herbs | 102 | 45.74 |
| 5 | Epiphyte | 3 | 1.35 |
| 6 | Parasite | 1 | 0.45 |
| | Total | 223 | |

The vascular plants in Na Hang SUF, Tuyen Quang province had diverse life-forms. And most of medicinal plants used by Tay ethnic minority in Na Hang SUF were herbs, with 102 species (accounting for 45.74% of the total number of species) and shrub (accounting for 21.52%); trees and climber were used fewer (16.14% and 14.80%, respectively); epiphyte and parasite account for a very low percent. This accurately reflected on usage of medicinal plants of the peoples in Vietnam, in general herbs and shrub are still life-forms which are used as medicines most (Table 6).

3.5. Parts used for medicines

There are 9 plant parts listed in method of using medicinal plants of Tay ethnic minority in Na Hang Special-use Forest, Tuyen Quang province (Table 7). Where, the most

commonly used parts were Stem (accounting for 29,69%), Leaves (25,0%) and Root (17,58%); number of species which had all parts used for medicines accounted for 18,36%, other parts such as tuber, seed, plant hairs, stem bark and root bark were used less commonly.

Table 7. Plant parts used as medicines of Tay ethnic minority

| No. | Part used | Number of species | Percentage |
|-----|--------------|-------------------|------------|
| 1 | Whole plant | 47 | 18.36 |
| 2 | Stem | 76 | 29.69 |
| 3 | Leaves | 64 | 25.0 |
| 4 | Root | 45 | 17.58 |
| 5 | Tuber | 9 | 3.52 |
| 6 | Fruit | 5 | 1.95 |
| 7 | Seed | 5 | 1.95 |
| 8 | Plant hairs | 1 | 0.39 |
| 9 | Stem bark | 4 | 1.56 |
| | Total | 256 | |

3.6. Usage of medicinal plants

Usage of medicinal plants of Tay ethnic minority in Na Hang Special-use Forest was quite diverse. Among 9 usages identified (Table 8), where, oral administration was major (148 species, accounting for 66.37%), dressing (41 species, 18.39%) and bath, shampoo (34 species, 15.25%); Number of species which only had one usage was 164 species (73.54%), number of species with 2 usages was 59 species (26.46%).

Table 8. List of medicinal plant usages of Tay ethnic minority in Na Hang SUF, Tuyen Quang province

| No. | Usage | Frequency | Percentage |
|------------|----------------------------------|------------|------------|
| I | EXTERNAL ADMINISTRATION | | |
| 1 | Dressing | 41 | 18.39 |
| 2 | Bath, shampoo | 34 | 15.25 |
| 3 | Holding in mouth | 7 | 3.14 |
| 4 | Nose, eye, ear drops | 3 | 1.35 |
| 5 | Massage | 4 | 1.79 |
| 6 | Apply a thin layer, a spot | 16 | 7.17 |
| 7 | Steam bath | 3 | 1.35 |
| II | INTERNAL ADMINISTRATION | | 0.00 |
| 8 | Drinking | 148 | 66.37 |
| 9 | Eating | 5 | 2.24 |
| III | Number of species with 1 usage | 164 | 73.54 |
| | Number of species with 02 usages | 59 | 26.46 |
| | Total | 223 | |

3.7. Use value of medicinal plants

Medicinal plant resources in Na Hang special-use forests, Tuyen Quang province has been contributing to the work of health care and treatment of communities in the region. There are a lot of herb doctors practicing to treat diseases for people. With experience from the past, they use medicinal plants to treat various diseases effectively. According to the Classification of Diseases by Doctor Vu Quoc Trung

[16], it is divided into 7 groups of diseases, including 53 diseases/symptoms that can be treated with medicinal plants from Tay ethnic minority in Na Hang special-use forest, Tuyen Quang province. Particularly, 14 diseases to be treated by various medicinal herbs are: Liver tonic, Hepatitis B, Cirrhosis; Cough, asthma; Kidney diseases; Headache; yellow red urine; arthritis; rheumatology; Pimples, rashes; Snakebite; postnatal diseases; tooth decay; sore; health supplement and heat release (Table 9).

Table 9. List of diseases, symptoms which may be treated by medicinal plants in Na Hang special-use forests, Tuyen Quang province (put in order)

| No. | Name of disease/ symptom | Number of species | Percentage |
|----------|--|-------------------|------------|
| I | INTERNAL DISEASES | | |
| | <i>Diseases caused by climate</i> | | |
| 1 | - Fever, malaria, flu | 10 | 4.48 |
| | <i>Epidemic diseases</i> | | |
| 2 | - Diphtheria, pertussis, tetanus | 2 | 0.90 |
| | <i>Heart diseases</i> | | |
| 3 | - Blood pressure | 7 | 3.14 |
| 4 | - Heart disease | 3 | 1.35 |
| | <i>Hepato-biliary diseases</i> | | |
| 5 | - Liver tonic, Hepatitis B, Cirrhosis | 22 | 9.87 |
| | <i>Digestive diseases</i> | | |
| 6 | - Vomiting, heartburn | 2 | 0.90 |
| 7 | - Abdominal pain & Diarrhea | 4 | 1.79 |
| 8 | - Dysentery | 5 | 2.24 |
| | <i>Respiratory diseases</i> | | |
| 9 | - Cough, asthma | 12 | 5.38 |
| | <i>Kidney diseases</i> | | |
| 10 | - Kidney disease | 36 | 16.14 |
| | <i>Neurological diseases</i> | | |
| 11 | - Sedation, insomnia | 3 | 1.35 |
| 12 | - Neurasthenia | 2 | 0.90 |
| | <i>Diseases of headache, dizziness</i> | | |
| 13 | - Headache | 13 | 5.83 |
| | <i>Urinary diseases</i> | | |
| 14 | - Diabetes | 3 | 1.35 |
| 15 | - Diuretic | 5 | 2.24 |
| 16 | - Yellow red urine | 17 | 7.62 |
| 17 | - Orchitis | 2 | 0.90 |
| 18 | - Impotentia coeundi | 2 | 0.90 |
| | <i>Rheumatism diseases</i> | | |
| 19 | - Rheumatism, pain | 12 | 5.38 |
| 20 | - Rheumatology | 11 | 4.93 |
| 21 | - Gout | 2 | 0.90 |

| | | | |
|------------|--|----|-------|
| II | EXTERNAL DISEASES | | |
| | <i>Pimples, inflammation</i> | | |
| 22 | - Pimples, rashes | 31 | 13.90 |
| | <i>Anal disease</i> | | |
| 23 | - Hemorrhoids, anal fistula | 3 | 1.35 |
| | <i>Diseases caused by worm (parasites)</i> | | |
| 24 | - Worm infection | 2 | 0.90 |
| | <i>Snakebite, burns, necrosis</i> | | |
| 25 | - Snakebite | 8 | 3.59 |
| 26 | - Burns | 7 | 3.14 |
| III | GYNECOLOGICAL DISEASES | | |
| | <i>Menstrual diseases</i> | | |
| 27 | - Menstrual disorders | 9 | 4.04 |
| | <i>Leucorrhoea</i> | | |
| 28 | - Leucorrhoea | 1 | 0.45 |
| | <i>Diseases in pregnancy</i> | | |
| 29 | - Miscarriage | 2 | 0.90 |
| 30 | - Threatened miscarriage | 2 | 0.90 |
| 31 | - Fetal death | 3 | 1.35 |
| | <i>Postpartum diseases</i> | | |
| 32 | - Postpartum diseases | 9 | 4.04 |
| 33 | - Breastfeeding support | 4 | 1.79 |
| IV | PEDIATRIC DISEASES | | |
| | <i>Diseases in children</i> | | |
| 34 | - Mumps | 5 | 2.24 |
| 35 | - Sweating | 4 | 1.79 |
| V | DISEASES OF THE FIVE SENSES | | |
| | <i>Ear diseases</i> | | |
| 36 | - Inflammation of the parotid | 2 | 0.90 |
| | <i>Nose diseases</i> | | |
| 37 | - Sinusitis | 3 | 1.35 |
| | <i>Dental diseases</i> | | |
| 38 | - Cavities | 12 | 5.38 |
| | <i>Eye diseases</i> | | |
| 39 | - Pink eye | 1 | 0.45 |
| VI | SKIN, VENEREAL DISEASES | | |
| | <i>Skin diseases</i> | | |
| 40 | - Tinea versicolor | 3 | 1.35 |
| 41 | - Jaundice | 1 | 0.45 |
| 42 | - Ulcer disease | 10 | 4.48 |
| 43 | - Scabies | 6 | 2.69 |
| 44 | - Dermatophytosis, Psoriasis | 4 | 1.79 |
| 45 | - Cheek eczema | 2 | 0.90 |
| VII | OTHER GROUPS OF DISEASES | | |
| 46 | - Detoxifying | 4 | 1.79 |
| 47 | - Hemostasis | 6 | 2.69 |
| 48 | - Stomachache | 7 | 3.14 |
| 49 | - Broken limbs, sprains | 4 | 1.79 |
| 50 | - Health supplement | 17 | 7.62 |
| 51 | - heath release | 19 | 8.52 |
| 52 | - Allergy to paint | 2 | 0.90 |
| 53 | - Poliomyelitis | 4 | 1.79 |

4. Conclusion

Na Hang SUF, Tuyen Quang Province has a diverse resource of medicinal plants which are currently known to have 275 species, belonging to 96 families, 204 genera, 4 phyla; of which, the number of medicinal plants that Tay ethnic minority use are 223 species, belonging to 90 families, 179 genera, 4 phyla of vascular plants. Among 223 species, 09 species need to be protected that are listed in the Vietnam Red Data Book, Red List of Medicinal Plants of Vietnam and Decree 32 of the Government.

The medicinal plant resources have been contributing to the work of health care of the community with 53 diseases/symptoms. Tay and Dao ethnic minorities use medicinal plants to treat diseases such as: Liver tonic, Hepatitis B, Cirrhosis; Cough, asthma; Kidney diseases; Headache; yellow red urine; arthritis; rheumatology; Pimples, rashes; Snakebite; postnatal diseases; tooth decay; sore; health supplement and heat release through oral administration (148 species, accounting for 66,37%), dressing (41 species, 18.39%) and bath, shampoo (34 species, 15.25%).

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