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Ethnobotanical study on medicinal plants around Limu Mountains of Hainan Island, China

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ABSTRACT

Aim of the study: The main objectives were to document traditional knowledge on the use of medicinal plants and compare medicinal plant traditions between Li and Hmong living around Limu Mountains of Hainan Island.

Material and methods: Information was obtained from semi-structured interviews, personal conversation and guided fieldtrips with herbalists. Quantitative methods, such as the coefficient of similarity (*S*), Chi-square analysis and the 'informant agreement ratio' were applied for the comparison of medicinal plant tradition between Li and Hmong.

Results: In all, 224 plant species grown in the study areas are still traditionally used for the treatment of various diseases. Euphorbiaceae (17 species), Rubiaceae (16 species), Papilionaceae and Poaceae (11 species, respectively), Verbenaceae (10 species) and Compositae (7 species) are predominant families used by herbalists. The most species were reported to be used for injuries (25.1% of all the medicinal use-reports), digestive system disorders (24.8%), infections/infestations (14.7%) and muscular-skeletal system disorders (12.3%). The coefficient of similarity (29.0%) shows a relatively high overlap of medicinal plants used by Li and Hmong. Using Chi-square analysis, it was found that habit mentions were dependent upon the culture. Infections/infestations, injuries and muscular-skeletal system disorders scored high IAR value and mention in both Li and Hmong communities.

Conclusions: Medicinal plants are of importance to indigenous people around Limu Mountains who still rely on medicinal plants to treat a wide range of illnesses. There is a close relationship of medicinal plant tradition between Li and Hmong who are culturally distinct.

1. Introduction

Hainan Island is remarkable for its rich biodiversity that it is an important source of medicinal plants especially for native people. Li and Hmong are two of the most predominant minorities of Hainan. It was believed that Li were the first settlers of Hainan Island who migrated from Guangdong and Guangxi long before the Qin Dynasty (221–206 B.C.) (Wang, 2004). Hmong who were also called Miao in China wildly spread all over the world especially in Southern China, Vietnam, Laos and Thailand (Michaud, 1997). The main origin of Hmong of Hainan Island were descendants of soldiers immigrated from Guangxi Province about 600 years ago (Lian et al., 2004). In Hainan, the population of Li is about 1.25 million which is much larger than that of Hmong of about 60 thousand (Wang, 2004).

During field investigations on medicinal plants used by Li people (Zheng et al., 2008; Zheng and Xing, 2009), it was noticed that some Hmong villages located not far from the Li villages. Besides, key informants from Li quite frequently told us that there were experts of traditional medicine from Hmong villages. However, traditional knowledge of medicinal plants used by Hmong of Hainan has not received enough attention yet. Furthermore, ethnobotanical investigation on medicinal plants used by indigenous people around Limu Mountains which is one of the most famous mountain range of Hainan is rarely performed. Consequently, there is an urgent need to record medicinal plants knowledge of native people before its disappearance. Also, it is important to compare the medicinal plants traditions of these two culturally distinct ethnic groups living in similar natural conditions. The present study aims to not only document indigenous medicinal plants knowledge but also make a comparison of medicinal plants traditions between Li and Hmong around Limu Mountains.

2. Methodology

2.1. Study areas and population

Limu Mountains lie in the middle of Hainan Island. The zone is between latitudes 19°07′22″–19°14′03″N and longitudes 109°39′

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05″–109°48′31″E, with a total area of about 129 km^2. The climate there is tropical monsoon with an average yearly temperature of 22.5 °C. It is the headstream of Nandu River, Changhua River and Wanquan River that are the three greatest rivers of Hainan. Mt.Yinggeling and Mt. Limuling are two of the highest mountains of Limu Mountains with the altitude of 1 811 m and 1 411 m (Wang et al., 2004). A large area of pristine tropical rainforest is well preserved in Limu Mountains. The natural vegetation consistes of mossy dwarf forest, tropical montane rain forest, ravine rain forest, evergreen seasonal rain forest and tropical semi-deciduous monsoon forest. Parasite plants, epiphytes, vines and lianas are abundant and make up a significant proportion of the vegetation (Huang et al., 1991). There are about 2000 plant species in this region, including 172 species which are endemic to Hainan (Dong, 2007; Zhang et al., 2007). Euphorbiaceae, Rubiaceae, Fabaceae, Lauraceae, Myrsinaceae, Fagaceae and Annonaceae are dominant families of the flora (Zhang et al., 2007).

The study areas include six indigenous villages which are located around Limu Mountains (Fig. 1). Among them, Buwen, Langlun and Qiantie are Li villages while Baobai, Nanpen and Bulun are Hmong villages. All of the villages are remote from cities. Buwen and Baobai which are consisted of 809 people in 193 households and 508 people in 93 households with one healer, respectively are in the south of Dongfang City. Langlun and Qiantie which are made up of about 269 people in 65 households and 500 people in 118 households with two healers, respectively, are in the south of Changjiang County. Nanpen is in the north of Ledong County with a population of 800 people in 135 households with two healers. Bulun is in the north of Wuzhishan City with a population of 260 people in 40 households with one healer.

In Li villages, the inhabitants speak their own language which belongs to the Zhuang–Dong Austronesia of the Chinese–Tibetan Phylum (Wang, 2004) and some of them can speak mandarin as well, especially the young people. The Hmong villagers can speak not only Kim Mun language but also Li language and mandarin.

The villagers are mostly farmers who practice highland agriculture and grow rice. However, wild plant resources are of great importance for local people who still rely on rainforest for food, herbs and firewood etc. Generally, villagers are more willing to collect vegetables from the wild rather than cultivate them. Many plants are used as wild vegetables, including *Oenanthe javanica* (Blume) DC., *Costus speciosus* (J. Koenig) Sm., *Sauropus androgynous* (L.) Merr., *Portulaca oleracea* L. and *Centella asiatica* (L.) Urb. which are very popular in local communities (Zheng, et al., 2012). Besides, due to the poor health and medical conditions, local people usually utilize herbs to treat diseases especially for those are prevalent in the villages, such as cold, fracture, injuries and digestive system disorders. During the interviews with local

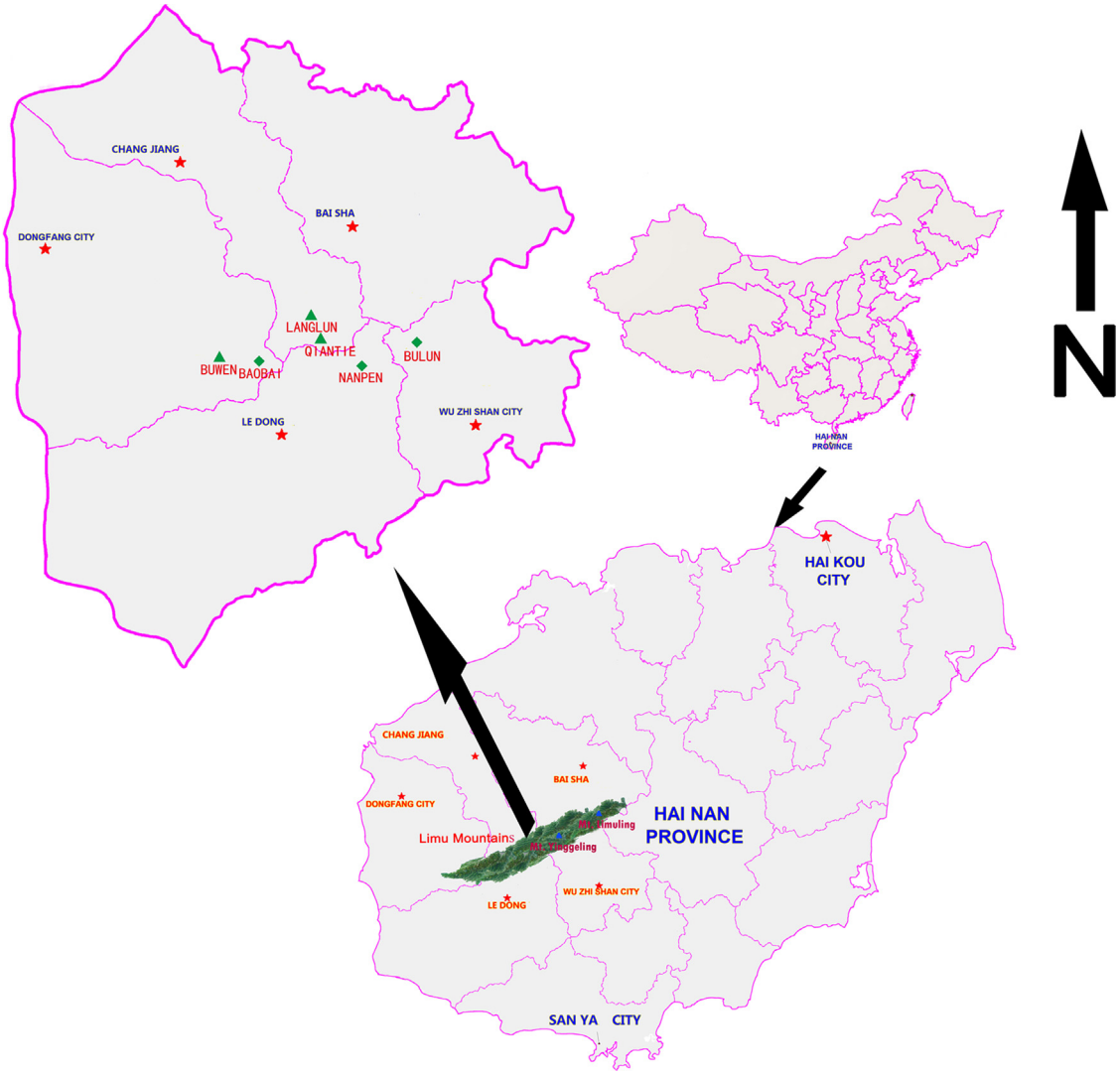

Fig. 1. Location of study areas: ▲Li villages ◆Hmong villages.