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Native Plants Commonly Used as Single Body-Tonic Herbs in the Southernmost part of Thailand: Pattani Province

Sasithorn Pangsuban,[1*] Wipat Thavarorith[2]

Abstract

Introduction: In Thailand we have a variety of traditional medicine systems that provides us with clues as to how these plants can serve as therapeutic agent and can be used in the treatment of diseases. This traditional knowledge has been vocally passed on through a number of generations; therefore these traditional remedies are still in practice. Nowadays, there is an extensive literature on the uses of particular plants for medicinal purposes. However, the data from the southernmost part of Thailand was miscellaneous because of the insecurity of this region. So, this research work on the native plants which can serve as body-tonic herbs for the people in Sai-Khao subdistrict, Pattani Province, Southernmost part of Thailand. **Method:** The ethnobiological survey was conducted in the year 2016. Data from the in-depth interview was collected from five herbalists, mostly around 60 years old, whose knowledge of medicinal plants was both extraordinary and valuable. **Result:** 27 Families 31 native plant species reported by informants to have tonic properties. The people in this area used these plants by not concentrating only in a few families and genera. Rhizomes are the most frequently used plant part. Most of the plants were prepared as decoction. **Conclusion:** several scientific studies have proven that these plants possessed medicinal properties. Thereby, we hope that this work will stimulate both chemical and biological researchers to find interest in the native species of each locality, Because these may provide a source for novel drug compounds.

Keywords: Body-tonic herbs, Folk wisdom, Ethnomedicinal uses and phytochemical constituent

[1] Ph.D., Lecturer, Division of Biology, Faculty of science technology and agriculture, Yala Rajabhat University, Thailand.

[2] Assist. Prof. Lecturer, Division of Biology, Faculty of science technology and agriculture, Yala Rajabhat University, Thailand.

*corresponding author: 133 Thesabal 3 Road, Tambol Sateng, Division of Biology, Faculty of Science technology and agriculture, Yala Rajabhat University, Thailand. E-mail: Sasithorn.p@yru.ac.th.

1. Introduction

"Thailand Represents a Healthy Community and a Healthcare Center of Asia" is one of the six goals of the bio-economy development in Thailand (Waramit, 2012). In brief, bio-economy is defined as "the knowledge-based production and utilization of biological resources to provide products, processes and services in all sectors of trade and industry within the framework of a sustainable economic system" (German Bio-economy Council, 2015). This economy uses new scientific knowledge and emerging technologies for the development of bio-based processed and the transformation of natural resources into sustainable products and services. The bio-based product is made from biological materials in whole or in some important part derived from living organisms. Hence, the research and innovation in the biological sciences are powerful tools playing an important role to achieve their goals of this economy. Several biological studies have proven that most of the plant possessed medicinal properties for their biological activities ranging from antimicrobial to antitumor. Remarkably, herbs are the sources of crude drugs that are used to treat pathologic conditions, often chronic in nature, or to achieve or retain a state of improved health.

The human body is a complex and highly interconnected system, which is dynamically regulated within boundaries, the so-called homeostasis. Healing plants, such as herbs, provide the human body with many essential nutritive elements, including proteins, vitamins, minerals, antioxidants and other phytonutrients which can beneficially assist us. The utility of wild plants as healing remedies is inherent in the southernmost part of Thailand. In general, herbalists and other complementary therapy practitioners is a tendency to blend several herbs into combination therapies. However the theory of this combination is not always fully understood. Moreover, these sometimes use single herb therapies. The single wild or native plants were usually simple botanicals employed in more or less their crude form following the ethnomedicinal approach.

Traditional pharmacopoeia and the use of wild and cultivated plant species in different areas of Thailand have been investigated by some authors. (*Ex.* Mahidol et al., 1994, Srichaikul et. al., 2012, Neamsuvan et al., 2015) However, data from the southernmost part of Thailand, this was miscellaneous because of the insecurity from Patani separatist groups. This research was conducted in Sai Khao subdistricts, Pattani Province. Most people of this region have faith in the use of medicinal plants and herbal recipes for treating diseases, and knowledge that are being passed from generation to generation. Therefore, this study was undertaken in order to compose detailed documentation on native single tonic herbs based on ethnobotanical knowledge in a locality.

2. Materials and Methods

Research area

Sai Khao subdistricts is located in the Khok Pho district of Pattani Province (6° 43′ 46″ N and 101° 5′ 46″ E). (Fig 1)

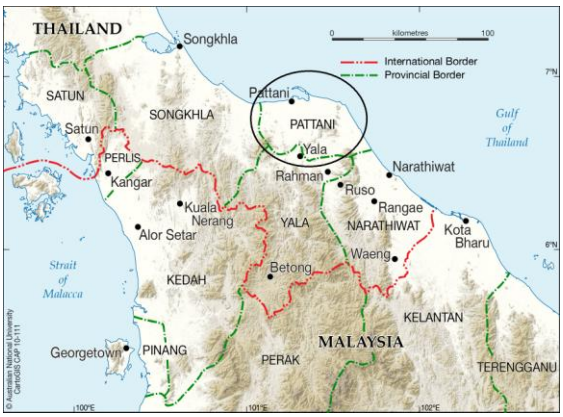

Figure 1: The map of Pattani Province.
Source: Adapted from http://asiapacific.anu.edu.au/mapsonline/base-maps/malaysia-thailand-border

Ethnobiological survey for single body-tonic herbs

The survey was conducted during January-November 2016. Data was collected from 5 folk herbalists, mostly around 60 years old, whose knowledge of medicinal plants was both extraordinary and valuable.

The plants were collected during our visits to the research area. In the first phase of investigation, these people were asked to list all the plants they use (or know were used by their parents or grandparents). More specific information was recorded later on in the second phase of investigation by means of a detailed interview with specific questions. This data provided us with precise information on the specific vegetative phase that the plant was collected in, which plant parts were used, and precise ways for preparing herbal remedies and the means for consuming them. All data was immediately documented in field notebooks. In this study we considered only native flora. The plants collected were identified. Species were botanically identified by taxonomists from the Division of Biology, Yala Rajabhat

University. Botanical naming of family and species follows "Flora of Thailand" (Bangkok Forest Herbarium). Voucher specimens were deposited at the Herbarium of Yala Rajabhat University, Thailand.

3. Results and Discussion

In this survey, a total of 31 native plant species in 26 Families were reported by informants to have body-tonic properties which have been recorded (Table 1, in alphabetical order of family). Their scientific name and common names (Thai name and English name), the parts used, preparation and some examples in their ethnomedicinal uses and phytochemical constituent from some references are given as well.

Dominant family was Fabaceae. They were three species in this family. The rest of the families was represented by a single or two species which showed that native body-tonic plants used by the people in this area were not concentrated only in a few families and genera. Multiple studies have shown that these plant also exhibited significant result in maintaining good health such as antioxidant, antitumor, anticancer, and antimicrobials.

Rhizome was the most frequently used plant part (22.86%) followed by fruits (20%) and flowers (17.14%) (Fig 2). This pattern is often found in ethnobotanical studies. Bensky et al. (2004) suggested that underground parts normally play an important role for Traditional Chinese medicine preparations maybe because of the high content of bioactive compounds. Most of the plants were prepared as decoction (67.86%) and eating raw (14.29%) followed by boiling (7.14%), infusion with honey (7.14%) as well as crushed and infusion with honey (3.57%) (Fig 3). Thus, the most commonly administered method was drinking decoction or eating the plant raw.

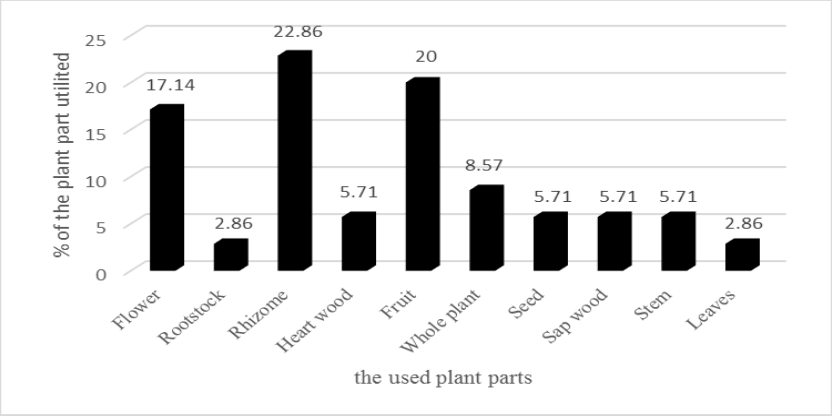

Figure 2: The percentage of used plant parts.

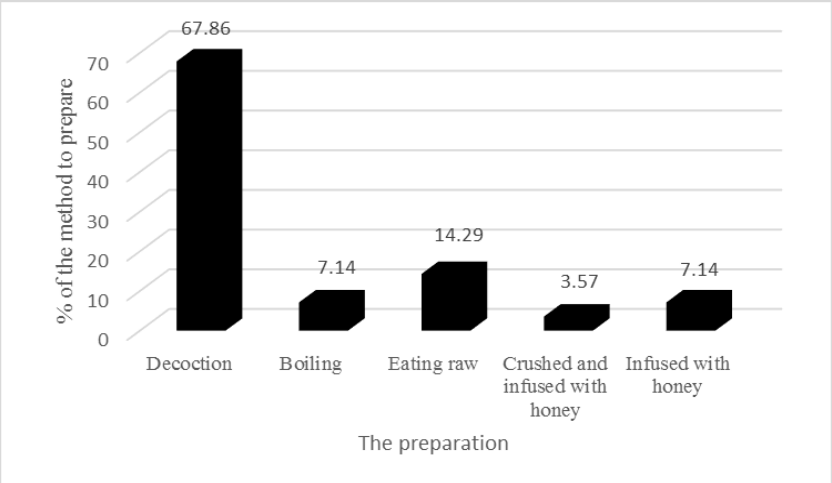

Figure 3: The percentage of the preparation.

Table 1. A list of native plants used as single body-tonic herbs.

Family	Scientific name	Thai name	English name	Part used /Preparation	References in ethnomedicinal uses and phytochemical constituent
Annonaceae	*Cananga odorata* (Lam.) Hook.f. & Thomson	กระดังงา	Ylang-ylang	Flower /Decoction	Husain et al., 2012
Araceae	*Amorphophallus* sp.	บุก	Elephant food yam	Rootstock/ Decoction	Behera et al., 2014
Arecaceae	*Borassus flabellifer* Linn.	ตาลโตนด	Palmyra palm	Fruit/ Decoction	Singchai et al., 2015
	Cocos nucifera L.	มะพร้าว	Coconut tree	Coconut water/ Eating raw	Lima et al., 2015
Asteraceae	*Elephantopus scaber* L.	โต่ไม่รู้ล้ม	Crowfoot Grass, Crab Grass	Rhizome/ Decoction	Ahmad et al., 2009
Cucurbitaceae	*Cucurbita moschata* Duchesne.	ฟักทอง	Pumpkin	Fruit/ Boiling	Eleiwa et al., 2014
Cyperaceae	*Cyperus rotundus* L.	หญ้าแห้วหมู	Nut grass	Rhizome/ Decoction	Pirzada et al., 2016
Euphorbiaceae	*Acalypha indica* L.	ตำแยแมว	Indian copperleaf	Rhizome/ Decoction	Komathi et al., 2013
	Euphorbia hirta L.	น้ำนมราชสีห์	Pillpod sandmat	Whole plant/ Decoction	Basma et al., 2011
Fabaceae	*Arachis hypogaea* L.	ถั่วลิสง	Peanut	Seed/ Boiling	Al-Snafi et al., 2014
	Cassia alata (L.) Roxb.	ชุมเห็ดเทศ	Emperor's candlestick	Rhizome/ Decoction	Archana et al., 2012
	Cassia siamea Lam.	ขี้เหล็ก	Siamese cassia	Heart wood/ Decoction	Smith, 2009
Gentianaceae	*Fagraea fragrans* Roxb.	กันเกรา	Tembusu	Heart wood/ Decoction	Jonville et al., 2008
Hypoxidaceae	*Molineria latifolia* Herb. ex Kurz	ว่านสากเหล็ก	Palm grass, Weevil lily	Whole plant/ Decoction	Ooi et al., 2016

Family	Scientific name	Thai name	English name	Part used /Preparation	References in ethnomedicinal uses and phytochemical constituent
Magnoliaceae	*Magnolia champaca* (L.) Baill. ex Pierre	จำปา	Swarna Champa	Flower/ Decoction	Hossain et al., 2009
	Michelia alba DC.	จำปี	White Champaca	Flower/ Decoction	Lee et al., 2009
Malvaceae	*Hibiscus sabdariffa* Linn.	กระเจี๊ยบ	Hibiscus, Red tea	Flower and fruit/ Decoction	Mahadevan et al., 2009
Meliaceae	*Azadirachta indica* A. Juss. var. siamensis Valeton	สะเดา	Siamese neem	Sap wood/ Decoction	Kitdamrongtham et al., 2014
Menispermaceae	*Tinospora crispa* L.	บอระเพ็ด	Heartleaf moonseed	Stem/ Infused with honey	Ahmad et al., 2014
Moraceae	*Artocarpus heterophyllus* Lam.	ขนุน	Jackfruit	Fruit/ Eating raw	Baliga et. al. 2011
Musaceae	*Musa sapientum Linn.*	กล้วยน้ำว้า	Dessert banana	Fruit/ Infused with honey	Rao et al., 2014
Oleaceae	*Jasminum sambac* (L.) Aiton	มะลิ	Arabian jasmine	Flower, fruit and seed/ Decoction	Mittal et. al. 2011
Pandanaceae	*Pandanus amaryllifolius* Roxb.	เตยหอม	Pandan	leaves/ Decoction	Gopalkrishnan et al., 2015
Piperaceae	*Piper longum* L.	ดีปลีเชือก	Long pepper	Flower/ Crushed and infused with honey	Zaveri et al., 2010
	Piper sarmentosum Roxb.	ชะพลู	Wild Pepper	Rhizome/ Decoction	Rahman et al., 2016
Poaceae	*Saccharum officinarum* L.	อ้อย	Sugarcane	Stem/ Eating raw	Feng et al., 2014
Primulaceae	*Ardisia crenata Sims.*	ตาเป็ดตาไก่	Coral berry, Spice berry.	Rhizome/ Decoction	de Mejía et al., 2011

Family	Scientific name	Thai name	English name	Part used /Preparation	References in ethnomedicinal uses and phytochemical constituent
Simaroubaceae	*Eurycoma longifolia Jack*.	ปลาไหลเผือก	Tongkat Ali	Rhizome/ Decoction	Mohamed et al., 2015
Thymelaeaceae	*Aquilaria crassna* Pierre ex Lec.	กฤษณา	Eagle Wood	Sap wood/ Decoction	Ray et al., 2010
Umbelliferae	*Centella asiatica* (L.) Urb.	บัวบก	Centella	Whole plant/ Eating raw	Joshi and Chaturvedi, 2009
Zingiberaceae	*Boesenbergia rotunda* (L.) Mansf.	กระชาย	Chinese Ginger, Fingerroot	Rhizome/ Decoction	Jing et al., 2010

4. Conclusions

By the ethnobiological survey for single body-tonic plants, 31 native species representing 26 families has been reported. Many of these plants are sold as crude drugs in local markets. Interestingly, several scientific studies have proven that these native plants possessed medicinal properties such as, antioxidant, antitumor, anticancer, and antimicrobials. Therefore, we hope that this work will stimulate both chemical and biological researchers to find interest in the native species of each locality. Because these may provide a source for novel drug compounds. Furthermore, future study aim to measure informant agreement on native plants used in different localities.

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