

An Analysis of Local Knowledge of *Phit-Samdaeng* in Yang Sisurat District, Maha Sarakham Province and The Medicinal Plants Used to Relieve Its Symptoms

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ABSTRACT

Introduction: "*Phit-Samdaeng*" is a Thai term often used to refer to an illness of eating unsuitable foods. However, its use in a diagnosis is limited due to the unclear definition and description. This study aimed to compare knowledge of *Phit-Samdaeng* symptoms and treatments in Northeastern folk medicine, Thai Traditional Medicine, and medicinal plants in the Yang Sisurat District of Thailand. **Methods:** Semi-structured interviews and participatory observations were used to collect data from 12 folk healers. Questions were designed to obtain local knowledge of *Phit-Samdaeng* and medicinal plants. The data was analyzed using descriptive statistics, comparison and interpretation. **Results:** Some symptoms of *Phit-Samdaeng* in the nine scriptures of Thai Traditional Medicine, *Tumraya Silajaruek Watprachethupon*, and of *Kin-Phit* and *Phit-Kaboon*, in *Tamraya Boran Isan*, were similar in Yang Sisurat. However, the names were different. There were also differences in species and the recipes of herbal remedies among folk healers and in the textbooks. The most used plants to treat *Phit-Samdaeng* by folk healers were *Clerodendrum paniculatum* L. and *Clausena wallichii* Oliv. var. *guillauminii* (Tanaka) Molino. Only nine species had pharmacological effects relating to *Phit-Samdaeng* treatment. **Conclusions:** The knowledge of *Phit-Samdaeng* symptoms in Yang Sisurat District were consistent with the Northeast folk medicine and Thai Traditional Medicine. The most commonly used species were native plants of Thailand. However, information on the medicinal taste and property from scriptures and pharmacological evidence is lacking. Therefore, the pharmacological activity and toxicity of herbal remedies should be further investigated for efficacy and safety.

Key words: Alternative medicine, Folk knowledge, Herbal medicine, *Phit-Samdaeng*.

INTRODUCTION

Phit-Samdaeng (a Thai phrase) refers to an illness that occurs after eating certain types of food. *Phit-Samdaeng* is categorized as a unclassified health condition with symptoms such as headache, stomach ache, dizziness, vomiting, diarrhea and fever.¹ In Yang Sisurat District, Maha Sarakham Province, *Phit-Samdaeng* symptoms were found mostly in women who had delivered. *Phit-Samdaeng* is an illness caused by eating and/or smelling odorous food, such as *Phak kha* [*Acacia pennata* (L.) Willd.], Kaffir lime leaf (*Citrus hystrix* DC.), and Striped catfish. The symptoms of *Phit-Samdaeng* appear in various physiological systems. The most common symptoms are dizziness, nausea, vomiting, headache, fatigue, loss of appetite and feeling feverish.²

Maha Sarakham Province has been an important medical hub since ancient times. There is archaeological evidence of the use of two drug treatments referred to by the courts as *Aro khaya san*, or *Ku Bankhawao* and *Ku Santarat*.³ Folk healers in some communities and villages still use this treatment.

Recently, the incidence of non-communicable diseases in Thailand has increased, leading to higher healthcare expenses. Hence, Thai Traditional Medicine and folk medicine should be promoted as primary healthcare.⁴ Folk medicine

is an informal healthcare system and folk healers have unique methods of treatment. Local knowledge is shared and transferred to the next generation using verbal communication. Thai folk medicine is closely related to Thai Traditional Medicine. Basic beliefs of Thai Traditional Medicine have developed over time developed and its practice is controlled by the law and standards of practice.⁵ In order to validate the knowledge of folk medicine, it should be systematically studied in various fields such as traditional medicine, botany and pharmacology.

The objectives of this study are to analyze perceptions of *Phit-Samdaeng* symptoms among folk healers in Yang Sisurat District by comparing local knowledge with Thai Traditional Medicine and Northeastern folk medicine, and to document the medicinal plants used for treatment.

MATERIALS AND METHODS

Study area

The study site was in Yang Sisurat District, Maha Sarakham Province, northeastern Thailand (Figure 1). The district has a total area of 242 km².⁸ The geography consists of mostly plateaus. In this area, the deciduous dipterocarp forest is prevalent. The climate is tropical wet-dry, with an average annual temperature of 27.98°C and 118 mm of precipitation.⁹ The major occupation of the residents is agriculture.

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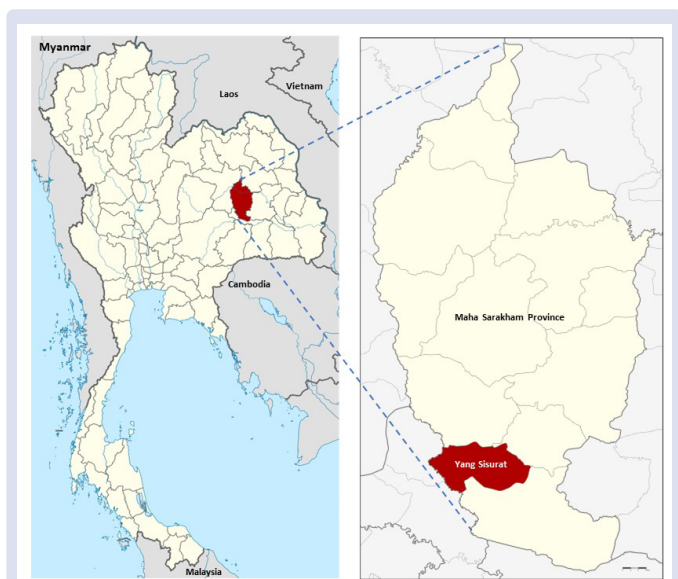


Figure 1: Map of Thailand showing the study area of Yang Sisurat District, Maha Sarakham Province.^{6,7}

Table 1: Demographic data of folk healers.

Demographic features	N (%)
Gender	
• Males	11 (91.7%)
• Females	1 (8.3%)
Age	
• 40–60 years old	2 (16.7%)
• > 60 years old	10 (83.3%)
Clinical experience (year)	
• 20-29 years	4 (33.3%)
• 30-39 years	3 (25%)
• 40-49 years	2 (16.7%)
• 50-59 years	2 (16.7%)
• 60-69 years	1 (8.3%)
Training	
• Ancestor	7 (58.3%) *
• Teacher	5 (41.7%) *
• Self-taught	1 (8.3%)

*One folk healer received knowledge from ancestors and teachers.

Informants

A purposive sampling technique was used to select informants.^{10,11} Twelve folk healers (11 males and one female), (Table 1), were included in the study based on the criteria of living in Yang Sisurat District and having at least 20 years of consistent clinical practice in *Phit-Samdaeng*. In addition, they must have been acknowledged as herbal experts by the community and Maha Sarakham Provincial Public Health Office. Folk healers had a range of clinical experience between 20 and 64 years, but most healers had experience in the range of 20-29 years. Seven folk healers acquired their skills through knowledge transfer from their ancestors (58.3%), five learned from teachers (41.7%), and one was self-taught from textbooks. Most folk healers were above the age of 60, and none had any student or successor. Loss of folk knowledge is a concerning situation as the young generation has shown little interest in it. Hence, the passing of folk healers is a major loss of knowledge.⁴ Ethical approval for this study was obtained from the Siriraj Institutional Review Board, Faculty of Medicine Siriraj Hospital, Mahidol University (Si 156/2018).

Field survey

The field survey for collecting plants or crude drug specimens and documentation of *Phit-Samdaeng* was carried out from March 2018 to March 2020. A semi-structured interview and participatory observations were also conducted. The main questions addressed the formulas of herbal ingredients, materials used, and treatment techniques. Medicinal plants and crude drugs were photographed and collected to prepare voucher specimens when available. The voucher specimens were deposited at the herbarium of Mahidol University (PBM), Project of Institute Establishment for Sireeruckhachati Nature Learning Park, Mahidol University. The botanical names of medicinal plants were identified using taxonomic keys in the Flora of Thailand and Flora of China, Flora Malesiana and taxonomic articles, and compared against herbal monographs in the Thai Herbal Pharmacopoeia.

Analysis of *Phit-Samdaeng* symptoms using the four elements theory

The symptoms, and their causes, were analyzed to elucidate the mechanisms of disease according to Thai Traditional Medicine theory. The analysis used the principle of four elements as the framework, including Patthawi Dhatu (Earth element), Arpo Dhatu (water element), Wayo Dhatu (wind element), and Techo Dhatu (fire element). The analysis was based on the location and function of the elements in the body, as well as the symptoms when elements were abnormal.

Comparison with Northeastern folk medicine and Thai Traditional Medicine

The knowledge of *Phit-Samdaeng*, including symptoms, causes, population at risk and treatment was compared with scriptures of Thai Traditional Medicine (Table 2). In addition, knowledge of *Phit-Samdaeng* was compared with five medicinal textbooks from Northeastern Thailand (Table 2).

Terms used for searches included *Phit-Samdaeng* and its synonym *Phit-Samlaeng*¹², *Kin-Phit*, which means illness caused by eating, and *Kaboon*, or *Phit-Kaboon* as it is referred to in Yang Sisurat District.

Data analysis

The data was analyzed using descriptive statistics and interpretation. Scientific reports of relevant pharmacological activities according to herbal remedies used in treatment were examined to confirm relevant utilization.

RESULTS AND DISCUSSION

Phit-Samdaeng symptoms in Yang Sisurat District

Phit-Samdaeng is known as *Phit-Kaboon* in Yang Sisurat District. *Kaboon* refers to the uterus in Isan, or the language of Northeastern Thailand. *Phit-Kaboon* is an illness that appears in women who experience abnormal blood and wind in the uterus, and it manifests through a strong odor or trigger food. If the illness appears in men, the folk healer and people in Yang Sisurat also refer to it as *Phit-Kaboon*. The most common symptoms of *Phit-Samdaeng* are dizziness, nausea, vomiting, body ache, headache, and eye pain.² In *Tamraya Boran Isan*, the symptoms and causes of *Phit-Samdaeng* are similar to *Kin-Phit* and *Phit-Kaboon*. Some symptoms of *Phit-Samdaeng* in Thai traditional scriptures and symptoms of *Phit-Kaboon* and *Kin-Phit* in folk medical textbooks of Northeastern Thailand are similar to *Phit-Samdaeng* symptoms or *Phit-Kaboon* symptoms according to folk healers and people in Yang Sisurat. The most common symptoms are vomiting (n=6), fever (n=5), and diarrhea (n=4).

Table 2: List of scriptures and textbooks of medicine.

The scriptures of Thai Traditional Medicine	The medicinal textbooks of Northeast Thailand
1.Khamphi Samutthanwinitchai	1.Tumraya Wat Srisomphon Chiang Yuen District, Maha Sarakham Province
2.Khamphi Rognithan	2.Tumraya Wat Mahachai Mueang District, Maha Sarakham Province volume 1-5
3.Khamphi Thatwiphang	3.Tumraya Kantharawichai District, Maha Sarakham Province
4.Khamphi Thatwiwon	4.Tumraya Kosum Phisai District and Na Chueak District, Maha Sarakham Province
5. Tamraya Boran Esan	5.Tamraya Boran Esan
6.Khamphi Chanthasat	
7.Khamphi Mahachotarat	
8.Khamphi Chalanasangkhaha - Khamphi Thatbanchop	
9.Khamphi Mutchapakkhantika	
10.Khamphi Chawadan	
11.Khamphi Takkasila	
12.Khamphi Kasai	
13.Khamphi Sapphrakhunya	
14.Khamphi Matchusanrawichian	
15.Khamphi Worayokkhasan	
16.Tamra Wetsueksa	
17.Tumraya Silajaruek Watprachethupon	

Table 3: List of medicinal plants used for Phit sam daeng treatment.

Family	Scientific names (Voucher No.)	Local name	Habit ¹	Part of uses ²	Preparation ³	Type of uses ⁴	Use reports
Apocynaceae	<i>Urceola minutiflora</i> (Pierre) Mabb. (C034)	Cha muak khao	C	S	S	C	1
Apiaceae	<i>Conioselinum anthriscoides</i> (H.Boissieu) Pimenov & Kljuykov. (C009)	Wan to ra hod	H	Rh	S	C	6
Acathaceae	<i>Thunbergia laurifolia</i> Lindl. (HW069/ PMB No.005936)	Rang chuet	C	S,L	D,S	S	1
Annonaceae	<i>Uvaria micrantha</i> (A.DC.) Hook.f. & Thomson	Pha ya mi rit	C	S	S	C	1
	<i>Polyalthia evecta</i> (Pierre) Finet & Gagnep (HW008/PBM No.005946)	Tong laeng	T	R	D	C	1
	N/A (C006)	Kao nang ni	C	R,S	S	C	1
Asparagaceae	<i>Dracaena cochinchinensis</i> (Lour.) S.C.Chen (C005)	Chan daeng	S	W	S	C	6
Asteraceae	<i>Chromolaena odorata</i> (L.) R.M.King & H.Rob. (HW018/ PBM No.005948)	Sap suea	H	R	D,S	C	3
Bignoniaceae	<i>Dolichandrone serrulata</i> Seem. (HW054/ PBM No.005970)	Khae ao	T	W	D	C	2
Boraginaceae	<i>Ehretia laevis</i> Roxb.	Phu kom	T	S	S	C	1
Bovidae	<i>Capricornis</i> sp.	Liangpha	-	Horn	S	C	1
Celastraceae	<i>Salacia</i> sp.	Ta kuang	C	S	S	C	1
	<i>Salacia chinensis</i> L. (C002, HW029)	Ta kai	ScanS	S	D,S	C	4
Combretaceae	<i>Terminalia chebula</i> Retz.(HW053)	Sa mo thai	T	W	S	C	1
Convolvulaceae	<i>Erycibe</i> sp.	Now duean ha	ScanS	S	S	C	1
Ebenaceae	<i>Diospyros venosa</i> Wall. (C011)	Chan dam	T	W, R	S	C	4
	<i>D. ehretioides</i> Wall. ex G.Don (HW006)	Tub tao ton	T	W	D	C	1
Equidae	<i>Equus</i> sp.	Ma	-	Bone	S	C	1
Euphorbiaceae	<i>Suregada multiflora</i> Baill. (HW026/ PBM No.005956)	Duk sai	T	R, S	D,S	C	3
	<i>Trigonostemon reidioides</i> (Kurz) Craib	Nang saeng	S	S	S	C	1
Fabaceae	<i>Aphyllodium biarticulatum</i> (L.) Gagnep. (HW061/ PBM No.005930)	Duk ueng	S	R	D	C	1
	<i>Caesalpinia sappan</i> L. (C022)	Fang, Fang daeng	T	W	S	C	3
	<i>C. decapetala</i> (Roth) Alston (HW058/ PBM No.005972)	Kra chai, Kra chai lueat	ScanS	R,S	D,S	C	4
	<i>Butea superba</i> Roxb.	Kwao kruea daeng	C	S	S	C	1
	<i>Pterocarpus macrocarpus</i> Kurz (HW060/ PBM No.005924)	Pra du	T	W	D	C	1
	<i>Lysiphyllum strychnifolium</i> (Craib) A.Schmitz (HW039/ PBM No.005922)	Ya nang daeng	C	R,S	D,S	S,C	4
Lamiaceae	<i>Clerodendrum paniculatum</i> L. (HW043/ PBM No.005964)	Phuang phi	S	S,R	D,S	C	8
Lauraceae	<i>Cinnamomum ilicioides</i> A.Chev.	Kha ton, Khing khai ton	T	S,B	S	C	2

Family	Scientific names (Voucher No.)	Local name	Habit ¹	Part of uses ²	Preparation ³	Type of uses ⁴	Use reports
	<i>C. bejolghota</i> (Buch.-Ham.) Sweet (C023)	Khing khai ton	T	S,B	S	C	2
Leporidae	<i>Litsea</i> sp. (C036, HW022/ PBM No.005954)	Ya rak diaw	T	R,S,L	D,S	S	1
	<i>Lepus peguensis</i> Blyth	Kratai	-	Bone	S	C	1
Loganiaceae	<i>Strychnos wallichiana</i> Steud. ex A.DC.	Pha ya mue lek	C	S	S	C	1
	<i>Strychnos nux-blanda</i> A.W.Hill (HW040/ PBM No.005920)	Tum ka	T	W	S	C	1
Loranthaceae	<i>Dendrophthoe pentandra</i> (L.) Miq. (HW072)	Ka fak huad kha	PaS	S	S	C	1
Malpighiaceae	<i>Hiptage candicans</i> Hook.f. (HW067/ PBM No.005929)	Tub Tao Kruea	S	W	D	C	1
Melastomataceae	<i>Osbeckia stellata</i> Buch.-Ham. ex D.Don (HW020/ PBM No.005950)	En a	H	R	D	C	1
	<i>Memecylon edule</i> Roxb. (HW032 / PMB No.005934)	Mueat ae	T	W	S	C	1
Ochnaceae	<i>Gomphia serrata</i> (Gaertn.) Kanis/ (HW050/ PBM No.005968)	Khem daeng	S	R	S	C	2
Phyllanthaceae	<i>Aporosa villosa</i> (Wall. ex Lindl.) Bail./ (HW031)	Mueat tup khwai	S	W	S	C	1
	<i>Breynia androgyna</i> (L.) Chakrab. & N.P.Balacr. (HW035/ PBM No.005928)	Pak wan ban	S	S,R	S	C	3
Piperaceae	<i>Piper retrofractum</i> Vahl (HW048/ PBM No.005966)	Sa di pli	C	R	S	C	1
Plumbaginaceae	<i>Plumbago indica</i> L. (HW046)	Pit pio daeng	S	R	S	C	1
	<i>P. zeylanica</i> L. (HW07/ PBM No.005944)	Pit pio khao	S	R	S	C	1
Poaceae	<i>Acorus calamus</i> L. (C033)	Wan kuay mai	H	Rh	S	C	1
Rhamnaceae	<i>Colubrina asiatica</i> (L.) Brongn. (HW065/ PBM No.005932)	Pak kan trong	S	WP	S	C	1
Rubiaceae	<i>Oxyceros horridus</i> Lour. (HW071/ PBM No.005940)	Khat khao	ScanS	R	D,S	C	2
	<i>Ixora finlaysoniana</i> Wall. ex G.Don (HW070/ PBM No.005938)	Khem khao	S	R	S	C	1
	<i>Prismatomeris tetrandra</i> K.Schum. (HW030/ PBM No.005960)	Kiang puen	S	R	S	C	1
Rutaceae	<i>Micromelum minutum</i> (G.Forst.) Wight & Arn. (HW021/ PBM No.005952)	Sa mat noi	S	S,R	D,S	C	1
	<i>Clauseana excavata</i> Burm.f. (HW037/ PBM No.005926)	Sa mat yai, Sa mat noi	S	R,S,W	D,S	C	6
	<i>C. wallichii</i> Oliv. var. <i>guillauminii</i> (Tanaka) Molino (HW042/ PBM No.005962)	Song fa	S	S,R	D,S	C	7
Salicaceae	<i>Casearia grewiiifolia</i> Vent. (HW028/ PBM No.005958)	Kho lan	T	W	S	C	1
Simaroubaceae	<i>Eurycoma longifolia</i> Jack (C020)	Pla lai phueak	S	R	S	C	2
	<i>Scleropyrum pentandrum</i> (Dennst.) Mabb. (C010)	Nom wua	T	W	S	C	1
Symplocaceae	<i>Symplocos racemosa</i> Roxb. (HW033)	Mueat dok kao	S	W	S	C	1

Abbreviation: Habit1: ScanS- Scandent shrub, T-Tree, S-Shrub, C-Climber, PaS-Parasitic shrub; Part of used2: W-Wood, R-Root, S-Stem, B-bark, WP-Whole plant, Rh-Rhizome, L-leave; Preparation3: Scrape with water, D-Decoction; Type of uses4: S-single, C-compound

Different causes of *Phit-Samdaeng* symptoms in Yang Sisurat District were linked to eating and smelling. The most common triggers (*Salaeng* food in Thai) were strong odorous foods, such as *Phak kha* (*Acacia pennata*), and Kaffir lime leaf (*Citrus hystrix*). The types of food that cause *Phit-Samdaeng* as mentioned in the four scriptures of Thai Traditional Medicine include hot and spicy food (*Khamphi Prathomchinda*), cold and sweet food (*Khamphi Thatwiwon*), meat dishes and dessert (*Khamphi Mutchapakkhantika*), and butter (*Khamphi Sappakhunya*). *Phit-Samdaeng* caused by eating is more common than through smell. Some folk healers have stated that symptoms caused by smell are more serious or difficult to treat than those caused by eating. In contrast, scriptures in Thai Traditional Medicine do not mention smell as a symptom. *Tamraya Boran Isan* states that some postpartum women may get a headache, blurred vision, dizziness, or even become unconsciously smelling the *Phak kha*.¹³

Comparing the mechanisms of disease with Thai Traditional Medicine theory

In Thai Traditional Medicine theory, the human body consists of four elements, including Patthawi Dhatu (Earth element), Arpo Dhatu (water element), Wayo Dhatu (wind element), and Techo Dhatu (fire element). Each element represents different functions in the body. The Earth element represents structural organs of the body, the water element represents all liquids, phlegm, and semisolids in the body, the wind element represents energy which controls movement in the body, and the fire element represents vital heat energy. When comparing the mechanisms of disease with Thai Traditional Medicine theory, *Phit-Samdaeng* symptoms start from an abnormal Earth element caused by trauma. It can be found in both males and females. However, in females, the cause is often an abnormality of the uterus due to childbirth. An

Table 4: Unidentified medicinal plants.

No.	Local name (Voucher No.)	Part used	Preparation	Type of uses	Use report
1	Chan hom (C017)	Wood	Scrape with water	Compound	2
2	Chan lueang (C013)	Wood	Scrape with water	Compound	3
3	Hang Hon (C035)	Wood	Scrape with water	Compound	1
4	Hang Hon	Wood	Scrape with water	Compound	1
5	I tu ton (C027)	Bark	Scrape with water	Compound	1
6	I tu ton	Stem	Scrape with water	Compound	1
7	Ka fak chan dok daeng (C024)	Stem	Scrape with water	Compound	1
8	Kao chi	Wood	Decoction, Scrape with water	Compound	1
9	Kha min ton	Wood	Scrape with water	Compound	1
10	Khae sai	Wood	Decoction, Scrape with water	Compound	1
11	Khang kwai	Root	Scrape with water	Compound	1
12	Khat khao	Root	Decoction, Scrape with water	Compound	1
13	Khem Yai	Wood	Scrape with water	Compound	1
14	Kra chai	Wood	Decoction, Scrape with water	Compound	1
15	Mak mao noi	Wood	Scrape with water	Compound	1
16	Nang wan	Wood	Decoction, Scrape with water	Compound	1
17	Nom sao (HW063, C008)	Wood, Stem, Root	Decoction, Scrape with water	Compound	4
18	Sa mat yai	Root	Scrape with water	Compound	1
19	Tum ka kruea	Stem	Scrape with water	Compound	1
20	Yang chued (C025)	Root	Scrape with water	Compound	1

Table 5: Known pharmacological activities of medicinal plants used to treat Phit-Samdaeng.

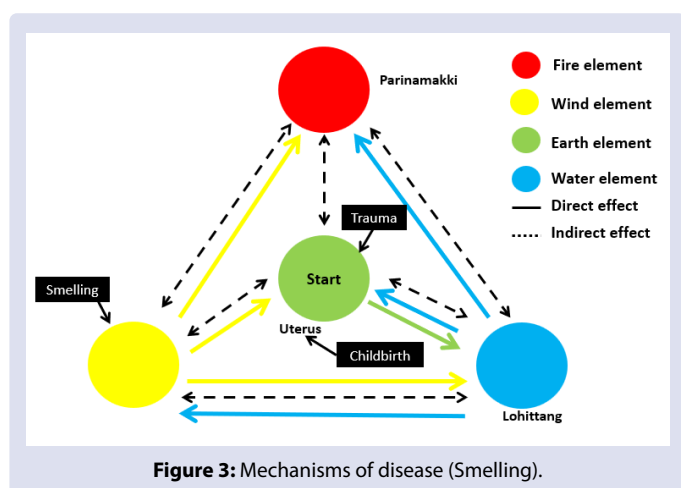
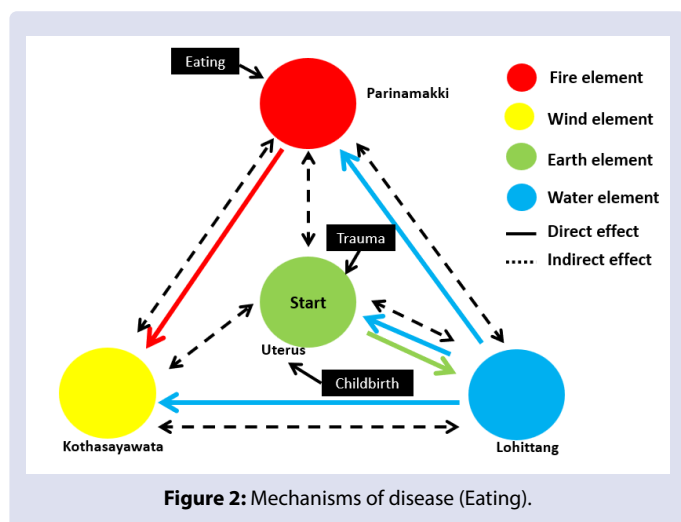
No.	Scientific name	Part used	Active component	Pharmacological activities
1	<i>Acorus calamus</i>	Rhizome	β - asarone	Anti-inflammatory ¹⁵ , Vascular modulator ¹⁶
2	<i>Biancaea sappan</i>	Wood	brazilin, hematoxylin, episappanol, protosappanin C, (iso-)protosappanin B, sappanol	Anti-inflammatory ¹⁷⁻¹⁹ , Analgesic ¹⁷ , Vasorelaxation ¹⁷⁻¹⁸
3	<i>Dracaena cochinchinensis</i>	Wood	flavones	Anti-inflammatory ²⁰ , Analgesic ²⁰⁻²²
4	<i>Eurycoma longifolia</i>	Root	β - carboline alkaloid 7-MCPA(7-methoxy-(9H- -carbolin-1-yl) -(E)-1-propenoic acid) Eurycomalactone, 14,15 -dihydroklaieanone 13,21-dehydroeurycomanone	Anti-inflammatory ²³
5	<i>Plumbago indica</i>	Root	plumbagin	Anti-inflammatory ²⁴ , Analgesic ²⁴
6	<i>Plumbago zeylanica</i>	Root	plumbagin	Anti-inflammatory ²⁴⁻²⁷ , Analgesic ^{24,26}
7	<i>Suregada multiflora</i>	Stem	helioscopinolide A	Anti-inflammatory ²⁸
8	<i>Thunbergia laurifolia</i>	Leaf	apigenin	Anti-inflammatory ²⁹⁻³⁰
9	<i>Trigonostemon reidioides</i>	Stem	redicoid A	Anti-inflammatory ³¹⁻³²

abnormal Earth element affects other elements, especially the *Lohittang* (blood). When the body has abnormal blood, it becomes vulnerable to illness. For example, when a patient eats *Salaeng* food, it stimulates the *Parinamakki* (fire element for digestion). An increase of *Parinamakki* induces an abnormality in the *Kotthasayawata* (wind element that flows in the bowel). Subsequently, an increase in *Kotthasayawata* results in nausea, vomiting, and flatulence. Besides, there are other wind-element symptoms such as pain, numbness, and dizziness. When the wind and fire elements are abnormal, they affect the balance of other elements in the body. The symptoms caused by an abnormal fire element includes fever, shivering, and sore mouth. An abnormal water element causes excessive mucous in the upper respiratory tract, excessive sweating, dry eyes, and nasal mucous (Figure 2). For the stimulating factor via smell,

it directly affects the wind element which results in nausea, vomiting, headache, and dizziness. Subsequently, it affects the abnormality of other elements and results in other symptoms such as fever, diarrhea, and poor appetite (Figure 3).

Phit-Samdaeng treatment in Yang Sisurat District

Nineteen herbal remedies or 75 medicinal plants are used to treat *Phit-Samdaeng* (Wipanso et al.,2021). A total of 55 species of crude drugs were identified (Table 3). Twenty medicinal plants remain unidentified because of incomplete information and inaccessible material (Table 4). The most used plants to treat *Phit-Samdaeng* were *Phuang phi* (*Clerodendrum paniculatum* L.) (n=8), *Song fa* (*Clausena wallichii* Oliv. var. *guillauminii* (Tanaka) Molino) (n=7), *Wan thorahot*



(*Conioselinum anthriscoides* (H.Boissieu) Pimenov & Kljuykov) (n=6), and *Chan daeng* (*Dracaena cochinchinensis* (Lour.) S.C.Chen (n=6). The most-used species are all native to Thailand, except *Wan thorahot* (*Conioselinum anthriscoides*) and *Sap suea* (*Chromolaena odorata* (L.) R.M.King & H.Rob).

All herbal remedies in this study tasted fragrant. Most folk healers were unable to provide information about the taste of each individual ingredient because they did not know. In Thai Traditional Medicine, the crude drugs are compounded into a recipe. The taste of the whole remedy is called “Rot Prathan”, which includes cold, hot and gentle tastes.¹⁴ In addition, each single herb has its own taste. The taste of single herbs can be classified into nine tastes. In TTM, the taste of drugs is related to their medicinal properties. Fragrant taste is among the nine tastes and its property is heart tonic.¹⁴ The fragrant taste is often used to relieve *Lom kong la-iat* (fine wind). When *Lom kong la-iat* is abnormal, some symptoms of *Phit-Samdaeng* occur, such as dizziness and fatigue. During the study, the researchers tasted some herbal remedies and found it cold and fragrant. However, only 41% of all crude drugs in the scriptures of Thai Traditional Medicine and Northeastern folk medicine have this taste and property. Furthermore, the confusion of local names of crude drugs may affect verification of botanical sources used in the herbal remedies.

Three single herbs were used for *Phit-Samdaeng*, namely *Ya nang daeng* (*Lysiphylum strychnifolium* (Craib) A.Schmitz), *Ya rak diao* (*Litsea* sp.) and *Rang chuet* (*Thunbergia laurifolia* Lindl). However, the scriptures of Thai Traditional Medicine and medicinal textbooks of Northeastern

Thailand do not have any records of a single herbal remedy. Instead, 17 and 35 remedies in the scriptures of Thai Traditional Medicine and medicinal textbooks of Northeastern Thailand were recorded, respectively. There are also instances of different compositions of herbal remedies between folk healers and textbooks. In the textbooks, medicinal plants used most frequently were *Chan daeng* (n=10), *Chan hom* (n=8), *Kan tong* (n=6), and *Ngio dam* (n=6).

Pharmacological evidence of medicinal plants used to treat *Phit-Samdaeng*

Phit-Samdaeng is related to eating food that is not compatible with the elements. The most common symptoms are dizziness, nausea, vomiting, headache, fatigue, loss of appetite, and feeling feverish. Therefore, it is not clear which pharmacological effects are related to *Phit-Samdaeng* treatment. Four medicinal plants exhibited an analgesic effect, and nine plants showed an anti-inflammatory effect. The analgesic and anti-inflammatory properties are important to relieve pain and fever (Table 5). *Acorus calamus* L. and *Biancaea sappan* (L.) Tod. possess a vascular modulatory and vasorelaxation effect, respectively. They increase cerebral blood flow and may relieve dizziness and headache.

CONCLUSION

Knowledge of *Phit-Samdaeng* symptoms in Yang Sisurat District is consistent with Northeastern folk medicine and Thai Traditional Medicine. The native species affect the variety of herbal remedies and are heavily utilized. However, information on the medicinal taste and property from scriptures and pharmacological evidence is lacking. Furthermore, pharmacological activity and toxicity of these herbal remedies should be determined to gain more insight in folk medicinal practice and to provide more information on the safety and efficacy of *Phit-Samdaeng* treatment.

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REFERENCES

- Virapongse A. Ethnomedicine and materia medica used by Kui traditional healers in northeast Thailand: Khon Kaen University; 2006.
- Wipanso H, Akarasereenont P, Booranasubkajorn S, Siriboonsong P, Tiyaoranant S, Bongcheewin B. A study of Thai folk knowledge of “Phit-Samdaeng” symptoms in Yang Sisurat District, Maha Sarakham Province. Proceedings of the ARUCON 2021; 2021 Dec 16-17; Phranakhon Si Ayutthaya Rajabhat University, Thailand. Ayutthaya; 2021.
- Shewasukthaworn W, Panin O. The Change of Chapel of Arogayasala’s Usage Patterns: A Case Study of Northeastern Thailand NAJUA: Architecture, Design and Built Environment. 2015;12:46-69.
- Nitphanit S. Thai Public Health Report of Thai Traditional Medicine, Indigenous Medicine and Alternative Medicine 2011-2013. Nonthaburi; 2013.
- Kulsomboon S. Current Situations and Development in Thai Indigenous Medicine Thailand: The Bureau of Thai Indigenous Medicine, Department for Development of Thai Traditional and Alternative Medicine, Ministry of Public Health; 2012.
- NordNordWest. Locator map of Maha Sarakham Province, Thailand. In: Locator map of Maha Sarakham Province T, editor. 2009.
- Potapt. Map of Maha Sarakham province, Thailand, highlighting Amphoe Yang Sisurat In: Map of Maha Sarakham province T, highlighting Amphoe Yang Sisurat editor. 2014.

8. <http://www.e-report.energy.go.th/area/Mahsarakham.htm>[homepage on the Internet]. The area of Maha Sarakham province. National News Bureau of Thailand. [updated 2008; cited 2021 Jul 23].
9. <http://www.mahasarakham.go.th/mkweb/new-data/238>[homepage on the Internet].
10. General Information of Mahasarakham Province. Mahasarakham Provincial Office. [updated 2019; cited 2020 Jul 26].
11. Etikan I, Musa SA, Alkassim RS. Comparison of convenience sampling and purposive sampling. *Am J Theor Appl Stat.* 2016;5(1):1-4.
12. Tongco MDC. Purposive sampling as a tool for informant selection. *Ethnobot. Res. Appl.* 2007;5:147-58.
13. The Royal Institute. Thai Dictionary of Royal Institute 2011. Bangkok: The Royal Institute 2013.
14. Phinthong P. Tamraya Boran Isan(ตำรายาโบราณอีสาน). Ubonratchathani: Siritham Office; 1994.
15. Foundation for the Promotion of Thai Traditional Medicine ATSCoATTM, editor. Tamra Kanphaet Thaidoem (Phaetthayasat Songkhro Chabap Anurak). Bangkok: Supphawanit Kanphim; 2007.
16. Singh R, Sharma PK, Malviya R. Pharmacological properties and ayurvedic value of Indian buch plant (*Acorus calamus*): a short review. *Adv Biol Res.* 2011;5(3):145-54.
17. Shah AJ, Gilani AH. Blood Pressure-lowering and Vascular Modulator Effects of *Acorus calamus* Extract Are Mediated Through Multiple Pathways. *J Cardiovasc Pharmacol.* 2009;54(1):38-46.
18. Pawar CR, Landge AD, Surana SJ. Phytochemical and pharmacological aspects of *Caesalpinia sappan*. *J Pharm Res.* 2008;1(2):131-8.
19. Nirmal NP, Rajput MS, Prasad RG, Ahmad M. Brazilin from *Caesalpinia sappan* heartwood and its pharmacological activities: A review. *Asian Pac J Trop Med.* 2015;8(6):421-30.
20. Mueller M, Weinmann D, Toegel S, Holzer W, Unger FM, Viernstein H. Compounds from *Caesalpinia sappan* with anti-inflammatory properties in macrophages and chondrocytes. *Food Funct.* 2016;7(3):1671-9.
21. Sun J, Liu J-N, Fan B, Chen X-N, Pang D-R, Zheng J, *et al.* Phenolic constituents, pharmacological activities, quality control, and metabolism of *Dracaena* species: A review. *J Ethnopharmacol.* 2019;244:112138.
22. Fan J-Y, Yi T, Sze-To C-M, Zhu L, Peng W-L, Zhang Y-Z, *et al.* A systematic review of the botanical, phytochemical and pharmacological profile of *Dracaena cochinchinensis*, a plant source of the ethnomedicine "Dragon's Blood". *Molecules.* 2014;19(7):10650-69.
23. Gupta D, Bleakley B, Gupta RK. Dragon's blood: botany, chemistry and therapeutic uses. *J Ethnopharmacol.* 2008;115(3):361-80.
24. Rehman SU, Choe K, Yoo HH. Review on a traditional herbal medicine, *Eurycoma longifolia* Jack (Tongkat Ali): its traditional uses, chemistry, evidence-based pharmacology and toxicology. *Molecules.* 2016;21(3):331.
25. Luo P, Wong YF, Ge L, Zhang ZF, Liu Y, Liu L, *et al.* Anti-inflammatory and analgesic effect of plumbagin through inhibition of nuclear factor- κ B activation. *J Pharmacol Exp Ther.* 2010;335(3):735-42.
26. SIL SK. A Review on pharmacological profiles of *Plumbago indica* L. and *P. zeylanica* L. *Ind J Physiol & Allied Sci.* 20s15;69(3).
27. Pravin B, Tushar D, Vijay P, Kishanchnad K. Review on plumbagin obtained from *Plumbago zeylanica* Linn. *Int J Pharm Sci Rev Res.* 2013;18:116-20.
28. Yuvaraj D, Sunil SJ. A comprehensive review on *Plumbago zeylanica* Linn. *Afr J Pharm Pharmacol.* 2011;5(25):2738-47.
29. Tewtrakul S, Subhadhirasakul S, Cheenpracha S, Yodsauoe O, Ponglimanont C, Karalai C. Anti-inflammatory principles of *Suregada multiflora* against nitric oxide and prostaglandin E2 releases. *J Ethnopharmacol.* 2011;133(1):63-6.
30. Chan EW, Eng SY, Tan YP, Wong ZC. Phytochemistry and pharmacological properties of *Thunbergia laurifolia*: A Review. *Pharmacogn J.* 2011;3(24):1-6.
31. Ginwala R, Bhavsar R, Chigbu DGI, Jain P, Khan ZK. Potential role of flavonoids in treating chronic inflammatory diseases with a special focus on the anti-inflammatory activity of apigenin. *Antioxidants.* 2019;8(2):35.
32. Shin JY, Kang JS, Byun HW, Ahn EK. Regulatory effects and molecular mechanism of *Trigonostemon reidioides* on lipopolysaccharide-induced inflammatory responses in RAW264. 7 cells. *Mol Med Rep.* 2017;16(4):5137-42.
33. Xu J-B, Yue J-M. Recent studies on the chemical constituents of *Trigonostemon* plants. *Org Chem Front.* 2014;1(10):1225-52.

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