



CHAPTER III

RESULTS AND DATA

The observed antimicrobial activities of four extracts, diethyl ether, acetone, ethyl alcohol, and water, of 329 samples belonging to 85 families were tested against 3 species of bacteria: *Staphylococcus aureus*, *Escherichia coli*, *Bacillus subtilis*, and 2 fungi: *Aspergillus niger* and *Penicillium chrysogenum*. The results are indicated in Table 4 pp. 40-112.

The other 4 additional samples of lower plants and fungi *Angiopteris evecta* Hoffm., *Monascus purpureus* Went., *Poria cocos* Wolf., and *Xylaria nigripes*, not included in the higher plants, were tested along this work. The results obtained are shown in Table 5 p. 113.

The positive and negative results of the antimicrobial activities from some plant extracts against bacteria and fungi are shown in Figures 1 to 20. Diethyl ether, acetone, and ethyl alcohol extracts of roots of *Plumbago zeylanica* L. (Fig.19 p.133) and acetone, ethyl alcohol, and water extracts from seeds of *Camellia sasanqua* Thunb. (Fig.20 p.133) indicated marked activities against *Penicillium chrysogenum*. Figures 13 to 16 p.132 show various patterns of the antimicrobial activities of 4 plant samples against *Aspergillus niger*. The relatively marked

activities of diethyl ether and acetone extracts from wood of *Euphorbia antiquorum* L. are sharply appeared in inhibition of spore formation of *Aspergillus niger* (Fig. 15 p. 132).

The irregular pattern of growth inside the zone of inhibition is found only in *Plumbago rosea* L. against *Bacillus subtilis* (Fig. 23 p. 134).

However, it is interesting to note that 63.8 % and 14.6 % of 329 samples of tested plant parts show some level of antimicrobial and antifungal activities respectively (Table 7 and 8 pp. 115-118). Of those, many samples are found to have activities by producing relatively high diameter of inhibition zones against all tested bacteria and/or fungi. (Table 9 p. 119).

Table 4

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	* Plant part	** Sol- vent	***Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
ACANTHACEAE								
NGUAG-PLA-MOR, CHA-KRENG เหงอกปลาหมอ จะเกร็ง	<i>Acanthus ebracteatus</i> Wall. (Spiny Bears Breech, Sea Holly)	ap	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	+++	-	-
			dw	-	-	++++	-	-

* an = anther	pu = pulp	** ac = acetone
ap = aerial parts	rh = rhizome	al = ethyl alcohol
ar = aril	rt = root	et = diethyl ether
bs = balsam	sb = stem bark	ot = (other plant)
bu = bulb	sd = seed	dw = distilled water
co = corm	st = stem	*** - = no inhibition zone
ep = epicarp	sw = stem wood	+ = inhibition zone over 9-12 mm
fl = flower	th = thorn	++ = inhibition zone over 12-12 mm
fr = fruit	tu = tuber	+++ = inhibition zone over 15-20 mm
lf = leaf	wp = whole plant	++++ = inhibition zone greater than 20 mm
pc = pericarp		

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
	ACANTHACEAE (cont.)							
SA-NIAD เสนียด	<i>Adhatoda vasica</i> Nees. (Malabar Nut Tree, Vasica)	lf	et ac al dw	- + + -	- - + +	- - - -	- - - -	- - - -
NAM-LAI-PHANG-PHORN น้ำลายพังพอน	<i>Andrographis paniculata</i> Andres. (King of Bitters)	ap	et ac al dw	+ + - -	- + + -	- + ++ -	- - - -	- - - -
BAI-NGUAN-BAI-THONG ใบเงินใบทอง	<i>Graptophyllum pictum</i> Griff. (Caricature Plant)	lf	et ac al dw	- - - -	- - - -	- - - -	- - - -	- - - -
TOI-TING-NA ต้อยติ่งนา	<i>Hygrophila quadrivalvis</i> Nees.	lf	et ac al dw	- - - -	- - - -	- - ++++ ++++	- - - -	- - - -
THONG-PHAN-CHANG ทองพันชั่ง	<i>Rhinacanthus nasutus</i> Kurz.	lf	et ac al dw	- - - -	- + + -	+ - - -	- - - -	- - - -

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genus
	ACANTHACEAE (cont.)							
THONG-PHAN-CHANG ทองพันชั่ง	<i>Rhinacanthus nasutus</i> Kurz.	fl	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
TOI-TING, ANG-KARB-FA-RANG ตอยติง อังกาบฝรั่ง	<i>Ruellia tuberosa</i> L.	sd	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
	AGAVACEAE							
MARK-PHOO-MARK-MIA หมากยูหมากเม็ย	<i>Cordyline fruticosa</i> Goepfert. (<i>Dracaena Palm</i>)	lf	et	-	-	-	++++	-
			ac	-	-	-	++++	-
			al	-	-	-	++++	-
			dw	-	-	-	-	-
CHAN-DAENG ชันตนแดง	<i>Dracaena lowrieri</i> Gagnep.	sw	et	++++	+++	+++	-	-
			ac	++++	+++	++	-	-
			al	++++	++	++	-	-
			dw	-	-	-	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
	ALANGIACEAE							
PROO ปรี	<i>Alangium salviifolium</i> Wang.	sw	et	+++	+	+++	-	++++
			ac	+++	+	+++	-	++++
			al	+++	+	++++	-	++++
			dw	++	-	+++	-	-
	AMARANTHACEAE							
YAR-PHAN-NGOO หญ้าพันงู	<i>Achyranthes aspera</i> L. (Prickly Chaff-Flower)	ap	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
PHAK-KOME-NARM ผักโขมหนาม	<i>Amaranthus spinosus</i> L. (Spiny Pigweed)	ap	et	-	+	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
	AMARYLLIDACEAE							
HOM-LEK หอมเล็ก	<i>Allium ascalonicum</i> L. (Shallot)	bu	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	+	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
AMARYLLIDACEAE (cont.)								
HOM-YAI หอมใหญ่	<i>Allium cepa</i> L. (Onion)	bu	et	-	-	-	-	-
			ac	-	+	+	-	-
			al	-	+	+	-	-
			dw	-	-	-	-	-
GRA-THIAM กระเทียม	<i>A. sativum</i> L. (Garlic, Clown's Treacle)	bu	et	++++	++++	++++	-	-
			ac	++++	++++	++++	-	-
			al	++++	++++	++++	-	-
			dw	++++	++++	++++	-	-
ANACARDIACEAE								
MA-MUANG-HIM-PHARN มะม่วงหิมพานต์	<i>Anacardium occidentale</i> L. (Cashew Nut Tree)	lf	et	+	-	-	-	-
			ac	+	-	-	-	-
			al	+	-	-	-	-
			dw	-	-	-	-	-
MA-PRANG มะปราง	<i>Bouea burmanica</i> Griff. (Burmese Plums)	sw	et	-	-	+	-	-
			ac	-	-	+	-	-
			al	-	-	+	-	-
			dw	-	-	+	-	-
MA-MUANG มะม่วง	<i>Mangifera indica</i> L. (Mango)	lf	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
ANNONACEAE								
NOI-NA น้อยหน่า	<i>Annona squamosa</i> L. (Sugar Apple, Sweet Sop)	lf	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
GRA-DANG-NGA กระดังงา	<i>Canarium odoratum</i> Bail. (Cananga, Ylang-Ylang)	fl	et	-	-	-	-	-
			ac	+	-	+	-	-
			al	-	-	+	-	-
			dw	-	-	-	-	-
LAM-DUAN ลำตวน	<i>Polyalthia aberrans</i> Maingay. (<i>Sphaerocoryne claviceps</i> Craib)	fl	et	+	+	+	-	++++
			ac	++	+	++++	-	++++
			al	+	+	+	-	++++
			dw	+	-	-	-	-
APOCYNACEAE								
PHA-YA-SAT-TA-BAN พญาสัตบรรณ	<i>Alstonia scholaris</i> (L.) R.Br. (Dita Tree)	lf	et	-	+	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
PHANG-PHUAY- FA-RANG พังพวยฝรั่ง	<i>Catharanthus roseus</i> G.Don. (Madagascar Periwinkle)	ap	et	-	-	-	-	-
			ac	+	-	+	-	-
			al	+	-	+	-	-
			dw	-	-	+	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
	APOCYNACEAE (cont.)							
TEEN-PED-NAM ตีนเป็ดน้ำ	<i>Cerbera odollam</i> Gaertn.	lf	et	-	-	++++	-	-
			ac	-	-	++++	-	-
			al	-	-	++++	-	-
			dw	-	-	++++	-	-
MOKE-LUANG โมกหลวง	<i>Holarrhena antidysenterica</i> Wall. (Kurchi Plant)	sb	et	-	-	-	-	-
			ac	-	+++	+++	-	-
			al	-	+++	++++	-	-
			dw	-	+++	++++	-	-
RA-YORM ระยอ	<i>Rauvolfia serpentina</i> Benth. (Insanity Herb)	rt	et	-	-	-	-	-
			ac	-	+	++	-	-
			al	-	+	++	-	-
			dw	-	+	++	-	-
TEEN-PED-LEK ตีนเป็ดเล็ก	<i>R. sumatrana</i> Jack.	lf	et	-	-	-	-	-
			ac	-	-	++	-	-
			al	-	-	++	-	-
			dw	-	-	-	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
	APOCYNACEAE (cont.)							
HOM-PE-NANG หอมเป็้ง	<i>Strophanthus gratus</i> Franch.	lf	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
		fl	et	-	-	-	-	-
			ac	-	-	-	-	-
MOKE-BARN โมกษำ	<i>Wrightia religiosa</i> Benth.	lf	et	++	-	+	-	-
			ac	++++	-	-	-	-
			al	++	-	-	-	-
			dw	-	-	-	-	-
	ARACEAE							
WAN-NAM ว่านน้ำ	<i>Acorus calamus</i> L. (Sweetflag)	rh	et	+	+	++	-	+
			ac	+	+	+++	+	++++
			al	-	+	++	-	++++
			dw	-	-	++++	-	-
SING-HA-MO-RA สิงโสมรา	<i>Cyrtosperma johnsonii</i> N.E.Br.	lf	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
	ARACEAE (cont.)							
UTTA-PHID อุตพิต	<i>Typhonium trilobatum</i> Schott.	bu	et ac al dw	- - - -	- - - -	- - - -	- - - -	- - - -
	ARALIACEAE							
NUAD-PLA-MUEK หนวดปลาหมึก	<i>Brassaia actinophylla</i> F.Muell.	lf	et ac al dw	- - - -	- - - -	- - - -	- - - -	- - - +
NEW-MUE- PHRA-NA-RAI นิ้วมือพระนารายณ์	<i>Schefflera cuneata</i> Craib.	lf	et ac al dw	- - - -	- - - -	- - - -	- - - -	- - - -
	ASCLEPIADACEAE							
RAK-DOG-MUANG รักดอกม่วง	<i>Calotropis gigantea</i> R.Br. (Purple Giant Milkweed)	lf	et ac al dw	- - - -	- - - -	- - - -	- - - -	- - - -

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
ASCLEPIADACEAE (cont.)								
RAK-DOG-MUANG รักดอกม่วง	<i>Calotropis gigantea</i> R.Br. (Purple Giant Milkweed)	fl	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
THAO-HUA-DUAN เถาหัวควน	<i>Sarcostemma acidum</i> Voigt.	ap	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
AVERRHOACEAE								
MA-FUENG มะเฟือง	<i>Averrhoa carambola</i> L. (Carambola)	sw	et	-	-	-	-	-
			ac	-	-	+	-	-
			al	-	-	+	-	-
			dw	-	-	+	-	-
BALSAMINACEAE								
THIAN-BARN เทียนบ้าน	<i>Impatiens balsamina</i> L. (Touch-Me-Not, Garden Balsam)	ap	et	++++	++++	++++	++++	++++
			ac	++++	++++	++++	++++	++++
			al	++++	++++	++++	++++	++++
			dw	++++	++++	++++	++++	++++

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
	BARRINGTONIACEAE							
JIG จิก	<i>Barringtonia acutangula</i> Gaertn.	lf	et ac al dw	- ++ - -	- - - -	- - - -	- - - -	- - - -
	BIGNONIACEAE							
GRA-THIAM-THAO กระเทียมเถา	<i>Cydista aequinoctialis</i> Miers. (Garlic Vine)	lf	et ac al dw	- - - -	- - - -	+ + + -	- - - -	- - - -
PEEB ตู	<i>Millingtonia hortensis</i> L. (Indian Cork Tree)	lf	et ac al dw	++ +++ +++ ++	- - - -	+ + + +	- - - -	- - - -
		fl	et ac al dw	- - - -	- - - -	+ - - +	- - - -	- - - -

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
BIGNONIACEAE (cont.)								
PHE-GAR, LIN-FAR เพกา ลินฟ้า	<i>Oroxylum indicum</i> Vent. (Indian Trumpet Flower)	sd	et	+	+	+	-	-
			ac	++	+++	++	-	++++
			al	++	+++	++	-	++++
			dw	-	-	++	-	-
CHOM-POO-PHAN-THIP ชมพูพันทิพย์	<i>Tabebuia pentaphylla</i> Hemsl.	lf	et	+	-	+	-	-
			ac	+	-	+	-	-
			al	-	-	+	-	-
			dw	+	+	+	-	-
BIXACEAE								
KAM-SAD คำแสด	<i>Bixa orellana</i> L. (Annatto)	lf	et	-	-	-	-	-
			ac	++	+	++	-	-
			al	+	+++	-	-	-
			dw	++	+	+	-	-
		sd	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
	BOMBACACEAE							
NGEW ฝักรัก	<i>Bombax malabaricum</i> DC. (Red Silk Cotton Tree)	fl	et	-	-	-	-	-
			ac	-	-	+	-	-
			al dw	+	-	+	-	-
NGAO ฝักรัก	<i>Ceiba pentandra</i> Gaertn. (Silk Cotton Tree, Kapok Tree)	lf	et	-	-	-	-	-
			ac	-	-	-	-	-
			al dw	-	-	-	-	-
		fl	et	-	-	-	-	-
			ac	-	-	+	-	-
			al dw	-	-	-	-	-
THU-RIAN ทุเรียน	<i>Durio zebethinus</i> L. (Durian Tree)	lf	et	-	-	-	-	-
			ac	-	-	-	-	-
			al dw	-	-	-	-	-
		ep	et	-	-	-	-	-
			ac	-	-	-	-	-
			al dw	-	-	-	-	-
		sd	et	-	-	-	-	-
			ac	-	-	-	-	-
			al dw	-	-	-	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
	CAESALPINIACEAE							
SA-WAD สวาด	<i>Caesalpinia crista</i> L.	lf	et	+	-	++	-	-
			ac	+	-	++	-	-
			al	+	-	+++	-	-
			dw	-	-	+	-	-
		sd	et	-	-	-	-	-
			ac al dw	- - -	- - -	- - -	- - -	- - -
FANG ฝาง	<i>C. sappan</i> L. (Sappan)	sw	et	+	+	+	-	-
			ac	+++	++	++	-	-
			al	++	++	++	-	-
			dw	+	-	-	-	-
MA-KARM-KAEK มะขามแขก	<i>Cassia acutifolia</i> Delile. (Senna)	lf	et	+	-	++	-	-
			ac	++	-	+++	-	-
			al	+	-	+++	-	-
			dw	-	-	++	-	-
CHOOM-HED-THED ช่อมืดเทศ	<i>C. alata</i> L. (Seven-Golden-Candle-Stick, Candle Bush)	lf	et	++	-	+	-	-
			ac	++	+	+	-	-
			al	++	+	-	-	-
			dw	-	-	-	-	-

Table 4 (cont.)

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Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
	CAESALPINIACEAE (cont.)							
KOON กูน	<i>Cassia fistula</i> L. (Indian Laburnum, Golden Shower)	lf	et	+	-	+	-	-
			ac	++	-	+	-	-
			al	++	-	+	-	-
			dw	-	-	-	-	-
		fl	et	+	-	++	-	-
			ac	+	-	++	-	-
			al	+	-	++	-	-
			dw	+	-	++	-	-
SA-MAE-SARN แสมสาร	<i>C. garrettiana</i> L.	lf	et	+	-	+	-	-
			ac	+	-	+	-	-
			al	+	-	+	-	-
			dw	-	-	-	-	-
KEE-LEK ขี้เหล็ก	<i>C. siamea</i> Lamk. (Simese Cassia)	lf	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
		fl	et	-	-	-	-	-
			ac	+	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-

Table 4 (cont.)

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Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
	CAESALPINIACEAE (cont.)							
KED เค็ด	<i>Cassia sophora</i> L. (Senna Sophora)	lf	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	++
		fr	et	++	-	++	-	-
			ac	-	-	+	-	-
KEE-LEK-LUED ขี้เหล็กเลือด	<i>C. timoriensis</i> DC.	lf&fl	et	-	-	-	-	-
			ac	-	-	+	-	-
			al	-	-	-	-	-
			dw	+	-	-	-	-
		sd	et	++	-	++	-	-
			ac	+++	-	++	-	-
CHOOM-HED-THAI ขุมเค็ดไทย	<i>C. tora</i> L. (Foetid Cassia)	lf	et	-	-	-	-	-
			ac	+	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
		sd	et	++	-	++	-	-
			ac	+++	-	++	-	-
			al	+++	-	++	-	-
			dw	++	-	++	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
	CAESALPINIACEAE (cont.)							
HANG-NOK-YOONG FA-RANG ทางนกกยงฝรั่ง	<i>Delonix regia</i> (Boj.) Rafin. (Flamboyant, Flame Tree, Gold Mohur Tree)	fl	et ac al dw	- - - +	- - - -	- ++ + ++	- - - -	- - - -
CHAO-KAK เจ้าก๊ก (จีน)	<i>Gleditschia sinensis</i> Lamk.	fr	et ac al dw	- - - -	- - - -	- + + -	- - - -	- - - -
SU-WAN-PHOO-SA สุวรรณภูษา	<i>Parkinsonia aculeata</i> L. (Cloth-of-Gold)	fl	et ac al dw	- - - -	- - - -	- + + +	- - - -	- - - -
NON-SEE นนทรี	<i>Peltophorum inerme</i> Llonos. (Copper Pod Tree)	fl	et ac al dw	- - - -	- - - -	- + + -	- - - -	- - - -

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
	CAESALPINIACEAE (cont.)							
MA-KARM มะขาม	<i>Tamarindus indica</i> L. (Tamarind Tree)	lf	et	-	-	-	-	-
			ac	+	++++	+++	-	-
			al	+	++++	+++	-	-
			dw	++++	++++	+++	-	-
		pu	et	-	-	-	-	-
			ac	-	-	-	-	-
	CAPPARIDACEAE							
PHAK-SIAN-PA ผักเสี้ยนป่า	<i>Cleome chelidonii</i> L.	l&	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
PHAK-SIAN-PHEE ผักเสี้ยนผี	<i>C. viscosa</i> L. (Stinking Cleome)	ap	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	+	-	-	-	-
			dw	+	-	-	-	-
AM-PHUR อำเภอบ	<i>Crataeva hygrophila</i> Kurz.	lf	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	+	-	-	-	-
			dw	-	-	+	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
	CARICACEAE							
MA-LA-KOR มะละกอ	<i>Carica papaya</i> L. (Papaya, Papaw)	lf	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
		sd	et	++	++	+	+	++++
			ac	++	++	++	+	++++
			al	++	++	+++	+	++++
			dw	++	++	-	+	++++
	COMBRETACEAE							
GROD กรวด	<i>Combretum trifoliatum</i> Vent.	lf	et	-	-	-	-	-
			ac	+	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
SA-MOR-PHI-PHEK สมอพิเภก	<i>Terminalia belerica</i> Roxb. (Beleric Myrobalans)	fr	et	-	-	+	-	-
			ac	++	++	++	-	-
			al	+	+++	+	-	-
			dw	+	-	+	-	-
SA-MOR-THAI สมอไทย	<i>T. chebula</i> Retz. (Chebolic Myrobalans)	fr	et	-	-	-	-	-
			ac	+	+	-	-	-
			al	+	+	-	-	-
			dw	+	+	+	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
	COMBRETACEAE (cont.)							
SA-MOR-DEE-NGOO สมอติง	<i>Terminalia citrina</i> Roxb.	lf	et ac al dw	- +++ +++ +++	- +++ ++ +++	++ +++ ++ +++	- - - -	- - - -
	COMMELINACEAE							
WAN-KARB-HOI ว่านกาบหอย	<i>Rhoeo discolor</i> Hance. (Moses-in-the-Cradle, Boat Lily)	lf	et ac al dw	- - - -	- - - -	- - - -	- - - -	- - - -
	COMPOSITAE							
KODE-KA-MAO โกฐฐีเขมา	<i>Atractylodes lyrata</i> Sieb.	rt	et ac al dw	- - + -	- - - -	- ++ + -	- - - -	++ +++ +++ -
NARD หนาด	<i>Blumea balsamifera</i> DC. (Ngai Camphor Tree)	lf	et ac al dw	- - - -	- - - -	+ - - +	- - - -	- - - -

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
COMPOSITAE (cont.)								
KAM-FOI คำฝอย	<i>Carthamus tinctorius</i> L. (False Saffron, Safflower)	fl	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	+	-	+	-	-
			dw	-	-	-	-	-
GRA-MENG กระเม็ง	<i>Eclipta alba</i> Hassk.	ap	et	-	-	-	-	-
			ac	+	-	+	-	-
			al	-	-	+	-	-
			dw	-	-	-	-	-
HOO-PLA-CHORN หูลาซอน	<i>Emilia sonchifolia</i> (L.) DC.	ap	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	++++	-	-
			dw	-	-	-	-	-
PHAK-BOONG-RUAM ผักบุ้งรวม	<i>Enhydra fluctuans</i> Lour.	ap	et	++	-	+	-	-
			ac	++	-	+	-	-
			al	+	-	+	-	-
			dw	-	-	-	-	-
WAN-MA-HA-KARN ว่านมหาภาพ	<i>Gynura pseudochina</i> DC.	rt	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
	COMPOSITAE (cont.)							
KODE-GRA-DOOK โถงกระดูก	<i>Saussurea lappa</i> C.B.Clarke.	rt	et	++	-	+	-	+++
			ac	++	-	++	-	+++
			al	+++	-	++	-	+++
			dw	+	-	+	-	+
	CONVOLVULACEAE							
FOI-THONG ฝอยทอง	<i>Cuscuta chinensis</i> Lamk.	lf	et	+	-	-	-	-
			ac	+++	++	++	-	-
			al	++	+	+	-	-
			dw	-	-	-	-	-
PHAK-BOONG-THA-LAE ผักบุ้งทะเล	<i>Ipomoea pes-carprae</i> Roth.	ap	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	+	-
CHING-CHOR-LIUM จิงจ้อเหลี่ยม	<i>I. turpethum</i> R.Br. (Indian Jalap)	ap	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
	CRUCIFERAE							
PHAK-KARD (MA-LET-DAM) ผักกาด (เมล็ดดำ)	<i>Brassica nigra</i> Koch. (Black Mustard Plant)	sd	et ac al dw	- - - -	- - - -	- - - -	- - - -	- - - -
GRA-LAM-PLEE กะหล่ำปลี	<i>B. oleracea</i> L. var. <i>capitata</i> L. (Cabbage)	lf	et ac al dw	- - - -	- - - -	- - - -	- - - -	- - - -
PHAK-KARD-NOK ผักกาดหนก	<i>Nasturtium benghalense</i> DC.	ap	et ac al dw	+++ ++ ++++ -	+++ +++ +++ -	+ + + -	++++ ++++ ++++ -	++++ ++++ ++++ -
PHAK-KARD-HUA ผักกาดหัว	<i>Raphanus sativus</i> L. (Radish)	rt	et ac al dw	- - - -	- - + +	+ + + +	- - - -	+ + - -

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
	CUCURBITACEAE							
GRA-DORM กระตอม	<i>Gynopetalum cochinchinense</i> Kurz.	fr	et ac al dw	- - - -	- - - -	- - - -	- - - -	- - - -
NAM-TAO น้ำเต้า	<i>Lagenaria leucantha</i> Rusby. (Bottle Gourd)	lf	et ac al dw	- - - -	- - - -	- - - -	- - - -	- - - -
MA-RA, PHAK-HAI มะระ ผักไห่	<i>Momordica charantia</i> L. (Bitter Gourd)	fr	et ac al dw	- - - -	- - - -	- - - ++	- - - -	- - - -
MA-RA-CHINE มะระจีน	<i>Momordica charantia</i> L. (Chinese Bitter Gourd)	fr	et ac al dw	- - - -	- - - -	- - - -	- - - -	- - - -
FAK-KAO, KEE-GAR-FAI ผักข่า ขี้กาไฟ	<i>M. cochinchinensis</i> Spreng.	st	et ac al dw	- - - -	- - - -	- - - -	- - - -	- - - -

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
CUCURBITACEAE (cont.)								
KEE-GAR-WAN, LOH-HANG-KUAY ขี้กาหวาน หล่ออังกาย (จีน)	<i>Momordica grosvenori</i> Swingle.	fr	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
KEE-GAR-DAENG ขี้กาแดง	<i>Trichosanthes bracteata</i> Voigt.	fr	et	-	-	-	-	-
			ac	+	+	-	-	-
			al	+	-	-	-	-
			dw	-	-	-	-	-
BUAB-KOM บวบขม	<i>T. cucumerina</i> L.	fr	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
CYPERACEAE								
HAEW-MOO แห้วหมู	<i>Cyperus rotundus</i> L. (Nutsgrass)	rh	et	-	-	+	-	-
			ac	-	-	+	-	-
			al	-	-	+	-	-
			dw	-	-	-	-	-



Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
	DILLENIACEAE							
MA-TARD มะตาด	<i>Dillenia indica</i> L.	lf	et ac al dw	- - - -	- - - -	- - - -	- - - -	- - - -
	DIOSCOREACEAE							
KLOY กลอย	<i>Dioscorea hispida</i> Dennst. (Wild Yam)	rt	et ac al dw	- - - -	- - - -	- - - -	- - - -	- - - -
	DIPTEROCARPACEAE							
YANG-KAO ยางขาว	<i>Dipterocarpus alatus</i> Roxb. (Gurjun Tree)	lf	et ac al dw	+ + + -	+ + + -	- - - -	- - - -	- - - -
	EBENACEAE							
MA-KLUA มะเกลือ	<i>Diospyros mollis</i> Griff. (Ebony)	fr	et ac al dw	- - - -	- - - -	- - - -	- - - -	- - - -

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
	ERYTHROXYLACEAE							
COCA โคคา (อังกฤษ)	<i>Erythroxylon coca</i> Lamk. (Coca)	lf	et ac al dw	- - - -	- - - -	- - - -	- - - -	- - - -
	EUPHORBIACEAE							
TAM-YAE-MAEW ตำแยแมว	<i>Acalypha indica</i> L. (Three-Seeded Mercury, Indian Acalypha)	lf&fr	et ac al dw	- - - -	- - - -	- - - -	- - - -	- - - -
MA-GAR มะกา	<i>Bridelia siamensis</i> Craib.	lf	et ac al dw	- - - -	- - - -	- - - -	- - - -	- - - -
SA-LORD สลอต	<i>Croton tiglium</i> L. (Purging Croton)	lf	et ac al dw	- - - -	- - - -	- - - -	- - - -	- - - -

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
EUPHORBIACEAE (cont.)								
SA-LAD-DAI-PA สลัดโตป่า	<i>Euphorbia antiquorum</i> L. (Triangular Spurge)	sw	et	+	-	+++	+++	+++
			ac	+	-	+++	+++	+++
			al	+	-	+++	+++	+++
			dw	-	-	-	+++	+++
NAM-NOM-RAJA-SEE น้ำนมราชสีห์	<i>E. hirta</i> L. (Ashma Weed)	wp	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
NAM-NOM-RAJA-SEE- LEK น้ำนมราชสีห์เล็ก	<i>E. thymifolia</i> Burm.	wp	et	-	-	-	-	-
			ac	+	+	-	-	-
			al	+	++	-	-	-
			dw	+	+	-	-	-
PHA-YA-RAI-BAI พญาไร้ใบ	<i>E. tirucalli</i> L. (Milk Bush)	ap	et	-	+	-	-	-
			ac	-	-	-	-	-
			al	+	+	-	-	-
			dw	-	-	-	-	-
WAN-PHRA-CHIM, KAO-KA ว่านพระนิม เข้าคำ	<i>E. sessiliflora</i> Roxb.	rt	et	+	-	+	-	-
			ac	+	-	+	-	-
			al	+	-	+	-	-
			dw	-	-	-	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
EUPHORBIACEAE (cont.)								
GRA-BUE-CHE-D-TUA, BAI-THONG-DAENG กระปือเจ็ดสี ใบทองแดง	<i>Excoecaria bicolor</i> Hassk.	lf	et	-	-	-	-	-
			ac	++	++	-	-	-
			al	+++	-	+	-	-
			dw	++	-	+	-	-
YANG-PHA-RA ยางพารา	<i>Hevea brasiliensis</i> Muell. Arg. (Para-Rubber Tree)	sd	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
GRA-YAEK กระแต้ยก	<i>Pedilanthus tithymaloides</i> Poit. (Slipper Plant, Slipper Spurge Bird Cactus, Jew Bush)	lf	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	+	-	-
			dw	+	-	-	-	-
MA-YOM มะยม	<i>Phyllanthus distichus</i> Muell. Arg. (Star Gooseberry, Otaheite, Gooseberry Tree)	lf	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
MA-KARM-POM มะขามป้อม	<i>P. emblica</i> L. (Emblic Myrobalans, Indian Gooseberry)	lf	et	-	-	-	-	-
			ac	++	-	+	-	-
			al	++	++	-	-	-
			dw	++	-	-	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
EUPHORBIACEAE (cont.)								
MA-KARM-POM มะขามป้อม	<i>Phyllanthus emblica</i> L.	fr	et	-	-	-	-	-
			ac	++	+	++	-	-
			al	+	++	+	-	-
			dw	+	+	+	-	-
LOOK-TAI-BAI (LOOK-RIAB) ลูกใต้ใบ (ลูกเรียม)	<i>P. niruri</i> L.	ap	et	-	-	-	-	-
			ac	+	-	+++	-	-
			al	+	-	+++	-	-
			dw	-	-	+++	-	-
LOOK-TAI-BAI (LOOK-KRU-KRA) ลูกใต้ใบ (ลูกขจรขระ)	<i>P. urinaria</i> L.	ap	et	+	-	-	-	-
			ac	++	-	+	-	-
			al	++	-	+	-	-
			dw	++	-	+++	-	-
MA-KAM-KAI มะคำไก่	<i>Putranjiva roxburghii</i> Wall.	lf	et	-	-	-	-	-
			ac	++	-	-	-	-
			al	++	++	-	-	-
			dw	-	-	-	-	-
GRAMINEAE								
TA-KRAI ตะไคร้	<i>Cymbopogon citratus</i> Stapf. (Lemon-Grass)	ap	et	-	-	+++	-	-
			ac	-	-	+++	-	-
			al	-	-	-	-	-
			dw	-	-	+++	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
	GRAMINEAE (cont.)							
YA-PARK-KUAY หญ้าปากควาย	<i>Dactyloctenium aegyptiacum</i> Willd.	rh	et	-	-	-	-	-
			ac	-	-	+	-	-
			al	-	-	+	-	-
			dw	-	-	+	-	-
YA-TEEN-GAR หญ้าตีนกา	<i>Eleusine indica</i> Gaertn. (Goose Grass)	rh	et	-	-	-	-	-
			ac	-	-	+	-	-
			al	-	-	+	-	-
			dw	-	-	+	-	-
YA-GAR หญ้าคา	<i>Imperata cylindrica</i> Beauv.	rh	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
YA-CHAN-GARD หญ้าชันกาด	<i>Panicum repens</i> L.	rh	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
FAG-HOM แฝกหอม	<i>Vetiveria zizanioides</i> Stapf. (Vetivera)	rh	et	+	-	+	-	-
			ac	++	-	++	-	+++
			al	++	-	++	-	+++
			dw	-	-	-	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
	GUTTIFERAE							
GRA-THING กระพิง	<i>Calophyllum inophyllum</i> L. (Borneo Mahogany, Alexandrian Laurel)	lf	et	+	-	+++	-	-
			ac	+	-	+++	-	-
			al	+	-	+	-	-
			dw	-	-	-	-	-
MANG-KOOT มังคุด	<i>Garcinia mangostana</i> L. (Mangosteen)	lf	et	+	-	+	-	-
			ac	++	-	+	-	-
			al	+	-	+	-	-
			dw	-	-	-	-	-
MA-DAN มะดัน	<i>G. schomburgkiana</i> Pierre.	lf	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
		fr	et	-	-	-	-	-
			ac	-	-	++	-	-
			al	-	-	++	-	-
			dw	++	++	++++	-	-
BOON-NARK บุณฑริก	<i>Mesua ferrea</i> L. (Indian Rose Chesnut, Iron Wood)	fl	et	+++	-	++	-	-
			ac	+++	-	+++	-	-
			al	++	-	++	-	-
			dw	++	-	-	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
GUTTIFERAE (cont.)								
SA-RA-PHEE สารภี	<i>Ochrocarpus siamensis</i> T.& And.	lf	et	++	-	+++	-	-
			ac	++	-	+++	-	-
			al	+	-	+++	-	-
			dw	-	-	-	-	-
		fl	et	++	-	+++	-	-
			ac	+	-	+++	-	-
HYDROCHARITACEAE								
LAM-PHAN-HANG- MOO ลำพันทางหมู	<i>Enhalus acoroides</i> Zolls.	rh	et	-	-	+	-	-
			ac	-	-	+	-	-
			al	-	-	+	-	-
			dw	-	-	-	-	-
ILLICIACEAE								
CHAN-PAD-KLEEB, POI-KAK จันทร์แปดกลีบ โป้ยักษ์ (จีน)	<i>Illicium verum</i> Hook.f. (Chinese Star Anise)	fr	et	+	+	-	-	-
			ac	+	+	-	-	-
			al	+	+	-	-	-
			dw	+	+	-	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
	IRIDACEAE							
WAN-HANG-CHANG ว่านหางจระเข้	<i>Belamcanda chinensis</i> (L.) DC. (Blackberry Lily, Leopard Flower)	rt	et	-	-	-	-	-
			ac	+	+	+	-	-
			al	+	+	+	-	-
			dw	-	-	-	-	-
HOM-DAENG หอมแดง	<i>Eleutherine palmaefolia</i> Murr.	bu	et	+++	+	++++	+++	+++
			ac	+++	+	++++	+++	++++
			al	+++	+	++++	+++	++++
			dw	+	-	+++	-	-
	LABIATAE							
YA-HUA-TO หญ้าหัวโต	<i>Leucas aspera</i> (Willd.) Spreng.	rh	et	-	-	++	-	-
			ac	-	-	+++	-	-
			al	-	-	-	-	-
			dw	-	-	++	-	-
SA-RA-NAE สะระแหน่	<i>Mentha arvensis</i> L. (Field Mint, Marsh Mint)	lf	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	+	++	-	-
			dw	-	-	-	-	+
GRA-PHRAO กระเพรา	<i>Ocimum sanctum</i> L. (Sacred Basil)	lf	et	-	-	++	+	+
			ac	-	-	++	-	+
			al	-	-	-	-	-
			dw	-	-	++	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
	LAURACEAE							
OB-CHEI-YUAN อบเชยญวน	<i>Cinnamomum loureirii</i> Nees. (Saigon Cinnamon)	sb	et	-	-	+	-	++
			ac	-	-	+	-	++
			al	+	-	++	-	++
			dw	-	-	-	-	-
	LILIACEAE							
WAN-HANG-JORA-KE ว่านหางจระเข้	<i>Aloe indica</i> Royle. (Crocodile's Tongue)	lf	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
RAK-SAM-SIB รากสามสิบ	<i>Asparagus racemosus</i> Willd.	rt	et	-	-	-	-	-
			ac	+	-	+	-	-
			al	+	-	+	-	-
			dw	-	-	-	-	-
DONG-DUNG-HUA-KWAN ทองตั้งหัวขวาน	<i>Gloriosa superba</i> L. (Superb Lily, Climbing Lily)	lf	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
	LYTHRACEAE							
TA-BAEK ตะแบก	<i>Lagerstroemia floribunda</i> Jack.	lf	et ac al dw	- + + -	- + - -	- - - -	- - - -	- - - -
IN-THA-NIN-NAM อินทนิลน้ำ	<i>L. speciosa</i> Pers.	lf	et ac al dw	- + + +	- + - -	- +++ ++ ++	- - - -	- - - -
SA-LAO เสลา	<i>L. tomentosa</i> Presl.	lf	et ac al dw	- +++ ++ ++	- +++ ++ ++	- +++ +++ +++	- - - -	- - - -
THIAN-KING (DOK-KAO) เทียนกิ่ง(ดอกขาว)	<i>Lawsonia inermis</i> L. var. <i>alba</i> Hassk. (Henna Tree)	lf	et ac al dw	+ +++ ++ +	- + + -	+++ +++ ++ +++	- - - -	- - - -
		fr	et ac al dw	- - - -	- - - -	- - - +++	- - - -	- - - -

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
	MAGNOLIACEAE							
CHAM-PA จำปา	<i>Michelia champaca</i> L.	lf	et	+	+	-	-	-
			ac	+	+	-	-	-
			al	+	-	-	-	-
			dw	-	-	-	-	-
		fl	et	++	-	+	-	-
			ac	+++	+	+	-	-
CHAM-PEE จำปี	<i>M. longifolia</i> Blume.	lf	et	-	+	+	-	-
			ac	+	+	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
		fl	et	-	-	-	-	-
			ac	-	-	-	-	-
	MALVACEAE							
PHONG-PHANG, KROB-FUN-SEE โพงพาง ครอบหินสี	<i>Abutilon indicum</i> G. Don. (Country Mallow)	lf	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
	MALVACEAE							
FAI ฝ้าย	<i>Gossypium herbaceum</i> L. (Cotton Plant)	lf	et	+	-	+	-	-
			ac	-	-	+	-	-
			al	-	-	+	-	-
			dw	-	-	-	-	-
GRA-JIAB, MA-KUA-MORN กระเจี๊ยบ มะเขือมอญ	<i>Hibiscus esculentus</i> L. (Ladies' Fingers, Okra)	fr	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
GRA-JIAB-PRIEW กระเจี๊ยบเปรี้ยว	<i>H. sabdariffa</i> L. (Roselle, Jamaica Sorrel, Roxella, Red Sorrel)	lf	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	+	-	++	-	-
		fr	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	++	-	-	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
MELIACEAE (cont.)								
PRA-YONG ประยงค์	<i>Aglaia odorata</i> Lour. (Chinese Rice Flower)	lf	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
SA-DAO-INDIA สะเดาอินเดีย	<i>Azadirachta indica</i> A.Juss. (Margosa, Neem Tree)	lf	et	+++	-	++	-	+
			ac	+++	-	++	-	+
			al	+++	-	+++	-	+
			dw	+++	-	++	-	+
SA-DAO สะเดา	<i>A. indica</i> A.Juss. var. <i>siamensis</i> Valetton.	fr	et	+	-	+	-	-
			ac	+	-	+	-	-
			al	+	-	+	-	-
			dw	-	-	-	-	-
LIAN-DOK-MUANG เลี่ยนดอกม่วง	<i>Melia azadirach</i> L. (Persian Lilac)	lf	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
MA-HOG-GA-NEE (BAI-YAI) มะฮอกกาณี(ใบใหญ่)	<i>Swietenia macrophylla</i> King. (Honduras Mahogany, Mexican Mahogany)	lf	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
	MENISPERMACEAE							
KA-MIN-KRUA ขมิ้นเครือ	<i>Fibraurea tinctoria</i> Lour.	sw	et	-	-	-	-	-
			ac	++	++	+	-	-
			al	+	+	-	-	-
			dw	-	+	+++	-	-
BAI-KONE-PID ใบก้นปัด	<i>Stephania hernandifolia</i> Walp.	lf	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
BUA-BOKE บัวบก	<i>S. erecta</i> Craib.	co	et	-	-	+	-	-
			ac	+	++++	++++	-	-
			al	+	+++	++	-	-
			dw	+	-	++	-	-
YA-NANG ย่านาง	<i>Tiliacora triandra</i> Diels.	lf	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
CHING-CHA-CHA-LEE ชิงช้าชาลี	<i>Tinospora cordifolia</i> Miers.	lf	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
	MENISPERMACEAE (cont.)							
BO-RA-PHED บรเพ็ด	<i>Tinospora tuberculata</i> Beumee.	st	et ac al	- - -	- - -	- - -	- - -	- - -
	MIMOSACEAE							
SOM-POI ส้มป่อย	<i>Acacia concinna</i> DC.	fr	et ac al dw	- + + +	- + + +	- + - +	- - - -	- + + +
GRA-THIN-NA-RONG กระถินณรงค์	<i>A. auriculaeformis</i> A.Cunn.	lf&fl	et ac al dw	- - - -	- - - -	- - - -	- - - -	- - - -
MA-KLAM-TA-CHANG มะกล่ำตาช้าง	<i>Adenanthera pavonina</i> L. (False Red Sandal)	lf	et ac al dw	- - - -	- - - -	- - - -	- - - -	- - - -

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
	MIMOSACEAE (cont.)							
JAM-JU-REE จามจุรี	<i>Albizzia lebbek</i> Benth. (East Indian Walnut, Siris Tree)	lf	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
		fl	et	-	-	-	-	-
			ac	-	-	+	-	-
THING-THORN ทึงถ่อน	<i>A. procera</i> Benth.	sb	et	-	-	+	-	-
			ac	+	-	+	-	-
			al	+	-	-	-	-
			dw	+	-	-	-	-
SA-BA-MORN สะบ้ามอญ	<i>Entada scandens</i> Benth. (St. Thomas Bean, Sea Bean)	sd	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
GRA-THIN กระถิน	<i>Leucaena glauca</i> L.	lf	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
	MIMOSACEAE (cont.)							
MAI-YA-RAP ไมยราพ	<i>Mimosa pudica</i> L. (Sensitive Plant)	wp	et	-	-	-	-	-
			ac	-	-	+	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
SA-TOR สะตอ	<i>Parkia speciosa</i> Hassk.	sd	et	-	-	-	-	-
			ac	-	-	+++	-	-
			al	-	-	++	-	-
			dw	-	-	++	-	-
MA-KARM-THED มะขามเทศ	<i>Pithecolobium dulce</i> Benth.	lf	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
NIANG, CHA-NIANG เนียง ชะเนียง	<i>P. jiringa</i> Prain	sd	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
MIMOSACEAE (cont.)								
KARM-POO, CHAM-CHA ก้ามปู ฉ่ำฉ่ำ	<i>Samanea saman</i> (Jacq.) Murr. (Rain Tree)	lf	et	-	-	-	-	-
			ac	-	++	+	-	+
			al	-	++	+	-	+
			dw	+	++	+	?	++
		fl	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
dw	-	-	+	-	-			
MORACEAE								
KA-NOON ขมิ้น	<i>Artocarpus heterophyllus</i> Lamk. (Jack-Fruit Tree)	lf	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
SAI ไทร	<i>Ficus benjamina</i> L.	lf	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
MORN หมื่น	<i>Morus alba</i> L. (White Mulberry)	lf	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
	MORACEAE (cont.)							
KOI ข่อย	<i>Streblus asper</i> Lour.	lf	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
	MORINGACEAE							
MA-ROOM มะรุม	<i>Moringa oleifera</i> Lamk. (Horse-Radish Tree)	lf	et	++++	+	+	-	-
			ac	++++	++	++	-	-
			al	+++	+	+	-	-
			dw	-	-	-	-	-
		fl	et	+++	++	+	-	-
			ac	++++	++++	+++	-	-
			al	++++	++++	++++	-	-
			dw	++++	++++	+++	-	-
	MYRISTICACEAE							
CHAN-THED จันทน์เทศ	<i>Myristica fragrans</i> Houtt. (Nutmeg Tree)	ar	et	+	-	+	-	-
			ac	+	-	+	-	-
			al	+	-	+	-	-
			dw	-	-	+	-	-
		sd	et	+	-	+	-	-
			ac	++	+	++	-	-
			al	++	+	++	-	-
			dw	-	-	-	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
	MYRSINACEAE							
PHI-LANG-KA-SA พื้งกาสา	<i>Ardisia colorata</i> Roxb.	fr	et	-	-	-	-	-
			ac	+	-	+	-	-
			al	+	-	+	-	-
			dw	-	-	+	-	-
	MYRTACEAE							
KARN-PHLOO กานพลู	<i>Eugenia caryophyllata</i> Thunb. (Clove Tree)	fl	et	+++	++++	++++	++++	++++
			ac	+++	++++	++++	++++	++++
			al	+++	+++	++++	++++	++++
			dw	-	-	++++	++++	++++
WA ทว่า	<i>E. cumini</i> (L.) Druce. (Black Plum)	lf	et	+	+	-	-	-
			ac	+	+	-	-	-
			al	+	+	-	-	-
			dw	+	-	-	-	-
FA-RANG ฝรั่ง	<i>Psidium guajava</i> L. (Guava Tree)	lf	et	+++	-	++	-	-
			ac	+++	-	++	-	-
			al	+++	-	+	-	-
			dw	+	-	-	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
	NYCTAGINACEAE							
PHAK-KOME-HIN ผักโขมหิน	<i>Boerhaavia diffusa</i> L. (Spreading Hog-Weed)	wp	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
BARN-YEN บานเย็น	<i>Mirabilis jalapa</i> L. (Four O'clock, Marvel of Peru)	ap	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
	NYMPHAEACEAE							
BUA-LUANG บัวหลวง	<i>Nelumbo nucifera</i> Gaertn. (Egyptian Lotus)	lf	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
		an	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
		rt	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
	OLEACEAE							
MA-LI มะลิ	<i>Jasminum sambac</i> Ait. (Jasmine)	fl	et	+	-	-	-	-
			ac	+	-	-	-	-
			al	+	+	-	-	-
			dw	-	-	-	-	-
	OXALIDACEAE							
SOM-KOB สมอท	<i>Oxalis repens</i> Thunb. (Wood Sorrel)	wp	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
	PANDANACEAE							
LAM-JIAK ลำเจียก	<i>Pandanus tectorius</i> Sol. (Screw-Pine)	fl	et	-	-	+	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	+	-	-
	PALMAE							
MARK-SONG หมากสง	<i>Areca catechu</i> L. (Betel Nut Palm, Areca Palm)	sd	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	+	-	-	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
PAPILIONACEAE								
THONG-KWAO, THONG ทองกวาว ทอง	<i>Butea frondosa</i> Roxb. (Flame of the Forest)	lf	et	-	+	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
		fl	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	+	-	-
			dw	-	-	-	-	-
UN-CHAN ชัญชัญ	<i>Clitoria ternatea</i> L. (Butterfly Pea)	lf	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
THOB-THAEB ถอบแถบ	<i>Derris trifoliata</i> Lour.	st	et	-	-	+	-	-
			ac	-	-	+	-	-
			al	-	-	+	-	-
			dw	-	-	++++	-	-
THONG-LANG ทองแดง	<i>Erythrina indica</i> Lamk.	lf	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	+	-	-	-	-
			dw	-	-	-	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
PAPILIONACEAE (cont.)								
THONG-LANG-LAI ทองกลางลาย	<i>Erythrina variegata</i> Lamk. var. <i>picta</i> Hort. (Coral Tree)	lf	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
CHA-AIM-CHINE ชะเอมจีน	<i>Glycyrrhiza uralensis</i> Fisch. (Chinese Licorice Plant)	rt	et	+++	+	+++	-	-
			ac	+++	+	+++	-	-
			al	+++	+	+++	-	-
			dw	+++	++	+++	-	-
PRA-DOO ประดู่	<i>Pterocarpus indicus</i> Willd. (Padank)	lf	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
KWAO-KRUA กวาวเครือ	<i>Pueraria mirifica</i> Shaw et Suvatabandhu	rt	et	+	-	+	-	-
			ac	-	-	+	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
SA-MEE ส้ม	<i>Sesbania aegyptiaca</i> Pers.	lf	et	+	-	-	-	-
			ac	+	-	+	-	-
			al	+	-	+	-	-
			dw	+++	-	+	+++	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
	PAPILIONACEAE (cont.)							
LOOK-SAD ลูกชืด	<i>Trigonella foenum-graecum</i> L. (Foenugreek Plant)	sd	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
	PASSIFLORACEAE							
YA-ROK-CHANG, THAO-SING-TO พญารกช้าง เถาสิงโต	<i>Passiflora foetida</i> L. (Foetid Passion Plant)	ap	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
	PIPERACEAE							
PHAK-GRA-SANG ผักกระสัง	<i>Peperomia pellucida</i> H.B.K.	wp	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
PLOO พลู	<i>Piper betel</i> L. (Betel-Leaf Vine)	lf	et	++++	++++	++	-	++++
			ac	++++	++++	+	-	++++
			al	++++	+++	+	-	++++
			dw	-	-	-	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. <i>aureus</i>	E. <i>coli</i>	B.sub- <i>tilis</i>	A. <i>niger</i>	P.chryso- genum
	PIPERACEAE (cont.)							
PRICK-HANG พริกหาง	<i>Piper cubeba</i> L. (Tailed Pepper Vine)	fr	et	+	-	++	-	-
			ac	+	-	++	-	-
			al	+	-	+	-	-
			dw	+	-	+++	-	-
DEE-PLÉE ดีปลี	<i>P. longum</i> L. (Indian Long Pepper Vine)	fr	et	-	-	++	-	-
			ac	+	-	+	-	-
			al	+	-	-	-	-
			dw	+	-	-	-	-
PRICK-THAI พริกไทย	<i>P. nigrum</i> L. (Pepper Vine)	fr	et	+	-	+	+	+
			ac	+	+	+	+	+
			al	+	+	+	+	+
			dw	-	-	+	-	-
CHA-PHLOO ชะพลู	<i>P. rostratum</i> Roxb.	lf	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
	PLANTAGINACEAE							
PHAK-GARD-NAM ผักกาดน้ำ	<i>Plantago major</i> L. (Common Plantain)	wp	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
	PLUMBAGINACEAE							
JETA-MOON-PHLOENG- DAENG เจตมูลเพลิงแดง	<i>Plumbago rosea</i> L. (Rosy Leadwort)	rt	et	++++	++	++++	+++	++++
			ac	++++	+++	++++	+	++++
			al	++++	++	++++	-	++++
			dw	++++	+	+++	-	++++
JETA-MOON-PHLOENG- KAO เจตมูลเพลิงขาว	<i>P. zeylanica</i> L. (Ceylon Leadwort, White Leadwort)	rt	et	+	+	++	-	++++
			ac	++	+	++	-	++++
			al	++	+	++	-	++++
			dw	-	-	+	-	-
	POLYGONACEAE							
UANG-PHED-MA เอื้องเพ็ชร์	<i>Polygonum chinensis</i> L. (Smartweed)	ap	et	-	-	+	-	-
			ac	-	-	-	-	-
			al	-	-	+	-	-
			dw	-	-	+	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
	POLYGONACEAE (cont.)							
KODE-NAM-TAO (INDIA) โกฏฐ์น้ำเต้า(อินเดีย)	<i>Rheum emodi</i> Wall. (Indian Rhubarb)	rh	et	+++	+++	+++	++	++
			ac	+++	++++	++++	++	++
			al	+++	++++	++++	-	++
			dw	+	+++	+++	-	-
	RUBIACEAE							
PUT พุด	<i>Gardenia jasminoides</i> Ellis.	fr	et	-	-	+	-	-
			ac	+	-	+	-	-
			al	+	-	+	-	-
			dw	+	-	+	-	-
HUA-ROI-ROO, GRA-CHAO-PEE-MOD หัวร้อยรู กระเช้ามีมด	<i>Hydnophytum formicarium</i> Jack.	tu	et	+++	-	++	-	-
			ac	++++	-	+++	-	-
			al	++++	-	++++	-	-
			dw	+++	-	+++	-	-
GRA-THOOM กระทุ้ม	<i>Mitragyna javanica</i> Koord & Valetton.	fl	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal			
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum		
	RUBIACEAE (cont.)									
YAW ยอ	<i>Morinda citrifolia</i> L.	lf	et	-	-	-	-	-		
			ac	-	-	-	-	-		
			al	-	-	-	-	-		
			dw	-	-	-	-	-		
		fr	et	-	-	-	-	-		
			ac	+	+	+	-	-		
			al	+	-	+	-	-		
		dw	dw	+	+	-	-	-		
			rh	et	-	-	-	-		
			ac	-	-	-	-	-		
		MARK-DIB-NAM-KANG หมากดิบน้ำค้าง	<i>Oldenlandia biflora</i> L.	wp	et	-	-	-	-	-
					ac	-	-	++	-	-
al	-				-	++	-	-		
dw	-				-	+++	-	-		
JUA-JEE-CHAO จ้าวจีเช่า (จีน)	<i>O. diffusa</i> (Willd.) Roxb.	wp	et	+++	-	-	-	-		
			ac	-	-	-	-	-		
			al	-	-	-	-	-		
			dw	-	-	-	-	-		

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
	RUBIACEAE (cont.)							
TOD-MOO-TOD-MA ตดหมูตดหมา	<i>Paederia foetida</i> L.	lf	et ac al dw	- - - -	- - - -	- - - -	- - - -	- - - -
KUD-KAO คัตเค้า	<i>Randia siamensis</i> Craib.	fr	et ac al dw	- - - -	- + - -	- + + -	- - - -	- - - -
UNCARIA อุนคาเรีย	<i>Uncaria rhynchophylla</i> Miq.	th	et ac al dw	- - - -	- - - -	- - - -	- - - -	- - - -
	RUTACEAE							
MA-TOOM มะตูม	<i>Aegle marmelos</i> Corr. (Bael Plant)	lf fr	et ac al dw et ac al dw	- + - - - - + - -	- - - - - - - - -	- + - - - - + - -	- - - - - - - - -	- - - - - - - - -

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. <i>aureus</i>	E. <i>coli</i>	B.sub- <i>tilis</i>	A. <i>niger</i>	P.chryso- genum
RUTACEAE (cont.)								
MA-NAO มะนาว	<i>Citrus acida</i> Roxb. (Lime Plant)	ep	et	+	-	+	-	-
			ac	+	-	+	-	-
			al	+	-	+	-	-
			dw	-	-	-	-	-
MA-KROOD มะกรูด	<i>C. hystrix</i> DC. (Leach Lime, Kafir Lime, Porcupine Orange)	lf	et	-	-	+	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	++	-	+
		pu	et	+	+	+++	-	-
			ac	+++	++	++++	-	-
			al	++	+	++++	-	-
			dw	+++	+++	++++	-	-
		ep	et	-	++	-	-	-
			ac	-	++	-	-	-
			al	-	+	-	-	-
			dw	-	+	-	-	-
MA-NGUA มะขาม	<i>C. medica</i> L.	lf	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
	RUTACEAE (cont.)							
SOM-CHINE ส้มจีน	<i>Citrus sinensis</i> Osbeck. (Portugal Orange, Sweet Orange)	ep	et	+	-	+	-	+
			ac	+	+	+	-	+
			al	+	-	+	-	+
			dw	+	-	+	-	-
MA-QUID มะขวิด	<i>Feronia elephantum</i> Corr. (Elephant Apple Plant, Wood Apple)	lf	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	+	-	-
KAEW แก้ว	<i>Murraya paniculata</i> Jack.	lf	et	-	-	-	-	-
			ac	+	-	-	-	-
			al	+	+	-	-	-
			dw	+	-	-	-	-
UNG-PAE อึ้งแปะ (จีน)	<i>Phellodendron amurense</i> Rupr.	sw	et	-	-	-	-	-
			ac	+	+++	+++	-	-
			al	+	+++	+++	-	-
			dw	-	+++	++	-	-
RA-MARD ระมาด	<i>Zanthoxylum budranga</i> Wall.	fr	et	+	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	+	-	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
SANTALACEAE								
CHAN-HOM จันทน์หอม	<i>Santalum album</i> L. (White Sandal Wood)	sw	et	+	-	+	-	-
			ac	+	-	+	-	-
			al	+	-	+	-	-
			dw	-	-	+	-	-
SAPINDACEAE								
KONG-KA-DUARD คางคากัด	<i>Arfeuillea arborescens</i> Pierre.	lf	et	-	-	-	-	-
			ac	-	-	-	-	++++
			al	-	-	+	-	++++
			dw	-	-	++	-	-
KOKE-GRA-ORM โศกกระออม	<i>Cardiospermum halicacabum</i> L. (Heart Pea, Heart Seed, Balloon Vine)	ap	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
MA-KAM-DEE-KUAY มะค่าดีควาย	<i>Sapindus emarginatus</i> Vahl. (Soap Nut Tree)	fr	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
KEE-NORN ขี้หนอน	<i>Zollingeria dongnaiensis</i> Pierre.	lf	et	-	-	-	-	-
			ac	++	-	+	-	-
			al	+	-	-	-	-
			dw	-	-	-	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
	SAPOTACEAE							
LA-MOOT-FA-RANG ละมุดฝรั่ง	<i>Achras sapota</i> L. (Zapote, Sapodilla, Nose-berry)	lf	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
PHI-KOOL พิทูล	<i>Mimusops elengi</i> L.	lf	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
		fl	et	-	-	-	-	-
			ac	-	-	-	-	-
KORN-DOK ขอนดอก	<i>Mimusops elengi</i> L.	sw	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol-vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B. subtilis	A. niger	P. chryso-genum
SCROPHULARIACEAE								
PHROM-MI พรมมิ	<i>Bacopa monniera</i> (L.) Wettst. (Brahmi, Thyme-Leaved Ceratiola)	ap	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
YA-NARM-DUB-FAI หญ้าน้ำดับไฟ	<i>Lindenbergia philippensis</i> . Benth.	wp	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	+	-	-	-	-
			dw	++++	-	-	-	-
KODE-KARN-PHRAO โกฏฐ์กำนพร้าว	<i>Picrorrhiza kurrooa</i> Royle ex Benth.	rt	et	++	++	-	-	-
			ac	++	++	-	-	-
			al	+	++	-	-	-
			dw	+	++	-	-	-
SIMARUBACEAE								
RAJA-DAD ราชดำ	<i>Brucea amarissima</i> Desv.	sd	et	-	-	-	-	-
			ac	+	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-



Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
	SIMARUBACEAE (cont.)							
PLA-LAI-PHUAG ปลาไหลเผือก	<i>Eurycoma longifolia</i> Jack.	rt	et	-	-	+	-	-
			ac	-	++	+++	-	-
			al	-	-	+++	-	-
			dw	-	-	+++	-	-
	SOLANACEAE							
RA-TREE ราตรี	<i>Cestrum nocturnum</i> L. (Queen-of-the-Night, Night Blooming)	lf	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
LAM-PHONG, MA-KUA-BA ลำโพง มะเขือขี้	<i>Datura metel</i> L. (Jimson Weed, Jamestown Weed, Thorn Apple)	lf	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
		dw	et	-	-	-	-	-
			ac	+	-	++	-	-
			al	+	-	++	-	-
		fr	dw	++	-	++	-	-
			et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
SOLANACEAE (cont.)								
KAO-KEE-CHAI เกา๊กฉาย (จีน)	<i>Lycium chinensis</i> L.	fr	et	-	-	-	-	-
			ac	+	-	-	-	-
			al	+	-	+	-	-
			dw	+	-	+	-	-
YA-SOOB ยาสูบ	<i>Nicotiana tabacum</i> L. (Tobacco Plant)	lf	et	-	-	+	-	-
			ac	+	+	+	-	++
			al	+	+	+	-	++
			dw	-	-	-	-	-
MA-KUA-THED มะเขือเทศ	<i>Solanum lycopersicum</i> L. (Tomato Plant, Love Apple)	lf	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
		fr	et	-	-	-	+	+
			ac	-	-	-	-	+
			al	-	-	-	-	+
			dw	-	-	++	-	+
MA-WANG-KRUE มะม่วงเครือ	<i>S. sanitwongsei</i> Craib.	ap	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
	SOLANACEAE (cont.)							
CHA-PAN, BAI-HOO-KWAI ข่านั่น ใบหูควาย	<i>Solanum verbascifolium</i> L.	lf	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
	STEMONACEAE							
NORN-TAI-YARK หนอนตายหยาก	<i>Stemona tuberosa</i> Lour.	rt	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
	STERCULIACEAE							
POR-BID ปอบิด	<i>Helicteres isora</i> L. (East Indian Screw Tree)	fr	et	-	-	-	-	-
			ac	-	-	+	-	-
			al	-	-	++	-	-
			dw	-	-	-	-	-
CHAN-CHA-MOD ชันหน้ชะมด	<i>Mansonia gagei</i> Drummond.	sw	et	++	+	++	-	++++
			ac	+	+	++	-	++++
			al	+	+	++	-	++++
			dw	-	-	-	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
STYRACEAE								
KAM-YARN กำยาน	<i>Styrax benzoin</i> Dryand. (Sumatra Benzoin Tree)	bs	et	+	++	+	-	++++
			ac	++	+++	++	-	++++
			al	++	+++	++	-	+++
			dw	+	-	++++	-	-
THEACEAE								
CHA ชา	<i>Thea sinensis</i> L. (Tea Plant)	lf	et	+	-	+	-	-
			ac	++	+	++	-	-
			al	++	+	++	-	-
			dw	++	+	++	-	-
TAE-KO แต้โคว (จีน)	<i>Camellia sasanqua</i> Thunb. (Sasanqua Camellia)	sd	et	+	-	+	-	-
			ac	-	-	+	-	++++
			al	-	-	+	-	++++
			dw	-	-	+	-	++++
THUNBERGIACEAE								
YA-KIEW ยาเขี้ยว	<i>Thunbergia laurifolia</i> Lindl.	lf	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
	THUNBERGIACEAE							
TA-KOBE-FA-RANG ตะขบฝรั่ง	<i>Muntingia calabura</i> L. (Capulin, Manila Cherry Cabur)	lf	et	+	-	++	-	++
			ac	++	++	++	-	++
			al	++	++	+	-	-
			dw	-	-	+	-	-
	UMBELLIFERAE							
KODE-SOR โถงรส	<i>Angelica sylvestris</i> L.	rt	et	-	-	+	-	-
			ac	+	+	+	-	-
			al	+	+	+	-	-
			dw	+	+	-	-	-
KUEN CHAI คื่นฉ่ำ (จีน)	<i>Apium graveolens</i> L. (Garden Celery)	ap	et	-	-	++	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
BUA-BOK บัวบก	<i>Centella asiatica</i> Urb.	wp	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
	UMBELLIFERAE (cont.)							
KODE-HUA-BUA โถงหัวบัว	<i>Conioselinum univittatum</i> Turcz ex Kar. & Kir.	rt	et	+	-	+	+	+++
			ac	+++	-	+	+	++++
			al	++++	-	+	+	++++
			dw	+	-	-	-	-
PHAK-CHEE ผักชี	<i>Coriandrum sativum</i> L. (Coriander)	fr	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	+++	-	-	-
KODE-CHIANG โถงเชียง	<i>Levisticum officinale</i> Koch.	fr	et	+	-	+	-	+
			ac	+	-	+	-	+
			al	+	-	-	-	+
			dw	+	-	+	-	-
PHAK-CHEE-LORM ผักชีล้อม	<i>Oenanthe stolonifera</i> Wall.	fr	et	-	-	+	-	-
			ac	-	-	++	-	-
			al	-	-	++	-	-
			dw	-	-	-	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
	URTICACEAE							
KORB-CHA-NANG- DAENG ขอบชะนางแดง	<i>Pouzolzia pentandra</i> Benn.	wp	et	-	-	+++	-	-
			ac	-	-	++++	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
	VERBENACEAE							
SAM-MA-NGA สามเงา	<i>Clerodendron inerme</i> Gaertn. (Garden Quinine)	lf	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
THIAN-YOD เทียนหยด	<i>Duranta repens</i> L. (Golden Dewdrop)	lf	et	-	-	++	-	-
			ac	-	-	++	-	-
			al	-	-	+++	-	-
			dw	-	-	+++	-	-
		fr	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
PHA-GAR-GRONG พกากรอง	<i>Lantana camara</i> L. (Lantana)	fl	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
VERBENACEAE (cont.)								
FUN-GRA-TAI พันกระต่าย	<i>Lippia nodiflora</i> Reichb. (Mat Grass)	lf	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
GUN-NI-GAR กรรณิการ	<i>Nyctanthes arbor-tristis</i> L. (Night Jasmine, Tree of Sadness)	fl	et	-	-	-	-	-
			ac	-	+	+	-	-
			al	-	+	+	-	-
			dw	-	-	-	-	-
SAK สัก	<i>Tectona grandis</i> Linn f. (Teak Tree)	lf	et	++	-	++	-	-
			ac	++	-	+	-	-
			al	+	-	+	-	-
			dw	-	-	-	-	-
KON-THEE-KA-MAO คนทีเขมา	<i>Vitex negundo</i> L.	lf	et	++	-	++	-	-
			ac	+	-	+++	-	-
			al	-	-	+++	-	-
			dw	-	-	-	-	-
KON-THEE-SOR คนทีสอ	<i>V. trifolia</i> L.	lf	et	-	-	++	-	-
			ac	+	+	++	-	-
			al	+	-	++	-	-
			dw	+	-	-	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
	VITIDACEAE							
PHET-SANG-KART เพชรสังฆาต	<i>Cissus quadrangularis</i> L.	wp	et ac al dw	- - - -	- - - -	- - - -	- - - -	- - - -
THAO-WAN-POON เถาวัลย์ปูน	<i>C. repanda</i> Vahl.	wp	et ac al dw	- - - -	- - - -	- - - -	- - - -	- - - -
THAO-KAN เถาหิน	<i>Vitis trifolia</i> L.	lf	et ac al dw	- - - -	- - - -	- - - -	- - - -	- - - -
	XYRIDACEAE							
GRA-THIN-THOONG, YA-BUA กระถินทุ่ง หญ้าบัว	<i>Xyris indica</i> L.	fl	et ac al dw	+ - - -	- - - -	+ +++ +++ ++++	- - - -	- - - -

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. <i>aureus</i>	E. <i>coli</i>	B.sub- <i>tilis</i>	A. <i>niger</i>	P. <i>chryso</i> <i>-genum</i>
	ZINGIBERACEAE							
KAR ข่า	<i>Alpinia galanga</i> Swartz. (Galangal, Greater Galangal False Galangal)	rh	et	++	-	+++	+++	+++
			ac	+	-	-	++	++
			al	+	-	-	++	++
			dw	-	-	-	-	-
GRA-WAN กระวาน	<i>Amomum krervanh</i> Pierre. (Camphor Seed Plant, Siam Cardamom)	rh	et	+	-	+	+	-
			ac	+	-	-	-	-
			al	+	-	+	-	-
			dw	-	-	-	-	-
		sd	et	-	-	-	-	-
			ac	-	-	+	-	-
REO เร่ว	<i>A. xanthioides</i> Wall. (Bastard Cardamom, Tavoy Cardamom)	sd	et	+	-	+	-	-
			ac	+	-	+	-	-
			al	+	-	+	-	-
			dw	-	-	-	-	-
KA-MIN-CHAN ขมิ้นชัน	<i>Curcuma longa</i> L. (Turmeric Plant, Long Turmeric)	rh	et	-	-	+	-	-
			ac	-	-	+	-	-
			al	-	-	+	-	-
			dw	-	-	-	-	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
ZINGIBERACEAE (cont.)								
WAN-CHAK-MOD-LOOK ว่านชักมดลูก	<i>Curcuma xanthorrhiza</i> Roxb.	rh	et	++	++	++	-	-
			ac	++	++	++	-	-
			al	++	++	++	-	-
			dw	-	-	+	-	-
KA-MIN-OI ขมิ้นน้อย	<i>C. zedoaria</i> Rosc. (Zedoary)	rh	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
GRA-CHAI กระชาย	<i>Gastrochillus pandulatus</i> Ridl.	rh	et	+	-	+	-	-
			ac	+	-	+	-	-
			al	+	-	+	-	-
			dw	-	-	+++	-	-
WAN-RON-THONG ว่านร้อนทอง	<i>Globba</i> sp.	rh	et	+	+	+++	+	++
			ac	++	+	+++	+	++
			al	++	+	+++	-	++
			dw	-	-	-	-	-
PROR-HOM เปราะหอม	<i>Kaempferia galanga</i> L.	rh	et	-	-	+	+	+
			ac	-	+	+	+	++
			al	-	++	+	+	+++
			dw	-	++	+++	+	-

Table 4 (cont.)

Antimicrobial Activities of Plant Extracts

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
ZINGIBERACEAE (cont.)								
PHLAI พลู	<i>Zingiber cassumunar</i> Roxb.	rh	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-
KING ขิง	<i>Z. officinale</i> Rosc. (Ginger)	rh	et	+	-	+	-	-
			ac	+	-	+	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	+++
GRA-THUE กระเทียม	<i>Z. zerumbet</i> Smith. (Wild Ginger)	rh	et	+	-	-	-	-
			ac	++	-	-	-	-
			al	+	-	+	-	-
			dw	-	-	-	-	-
ZYGOPHYLLACEAE								
COKE-GRA-SOON โศคนครสม	<i>Tribulus terrestris</i> L. (Punctured Weed, Caltrop)	wp	et	-	-	-	-	-
			ac	-	-	-	-	-
			al	-	-	-	-	-
			dw	-	-	-	-	-

Table 5

Antimicrobial Activities of Additional Samples not Included in Higher Plants

Thai Name	Family/Scientific Name (and English Name)	Plant part	Sol- vent	Antibacterial			Antifungal	
				S. aureus	E. coli	B.sub- tilis	A. niger	P.chryso- genum
	ANGIOPTERIDACEAE							
WAN-KEEB-RAED ว่านกีบแรด	<i>Angiopteris evecta</i> Hoffm.	rh	et ac al dw	- - - -	- - - -	- - - -	- - - -	- - - -
	ASPERGILLACEAE							
KAO-DAENG- MUANG-CHINE, UNG-KAK ข้าวแดงเมืองจีน อั้งคัก(จีน)	<i>Monascus purpureus</i> Went.	wp	et ac al dw	- - - -	- - - -	- - ++ +++	- - - -	- - - -
	POLYPORACEAE							
POGM-RAK-SONE, HOG-LENG ป๋มรากสน ชกเหล็ง(จีน)	<i>Poria cocos</i> Wolf.	wp	et ac al dw	- - - -	- - - -	- - - -	- - - -	- - - -
	XYLARIACEAE							
NAM-TAO-TAI-DIN น้ำเต้าใต้ดิน	<i>Xylaria nigripes</i>	wp	et ac al dw	- - - -	- - - -	- - - -	- - - -	- - - -

Table 6

Antibiotic Control Against Test Microorganisms

Antibiotic Control	Test Microorganisms				
	<i>S. aureus</i>	<i>E. coli</i>	<i>B. subtilis</i>	<i>A. niger</i>	<i>P. chryso-genum</i>
Amoxycillin	++++	++++	++	-	-
Ampicillin	++++	+++	+	-	-
Chloramphenicol	++	++++	++++	-	-
Cloxacillin	+++	+	++++	-	-
Cotrimoxazole	++++	++++	++	-	-
Gentamicin	++	++	++	-	-
Kanamycin	+++	+++	++++	-	-
Penicillin G sodium	++++	-	-	-	-
Streptomycin	++	+++	+++	-	-
Tetracycline	+++	+++	++++	-	-
Benzoic acid	++++	++++	++++	++++	++++

- = no inhibition zone
 + = inhibition zone over 6-10 mm
 ++ = inhibition zone over 10-15 mm
 +++ = inhibition zone over 15-20 mm
 ++++ = inhibition zone greater than 20 mm

Table 7

Degree of Activities of Tested Plant Extracts

Family	Number of Sample Tested	Number and Degree of Activities			
		marked	moderate	slight	non
Acanthaceae	8	-	1	4	3
Agavaceae	2	1	-	1	-
Alangiaceae	1	1	-	-	-
Amaranthaceae	2	-	-	1	1
Amaryllidaceae	3	1	-	2	-
Anacardiaceae	3	-	-	2	1
Annonaceae	3	1	-	1	1
Apocynaceae	9	-	3	4	2
Araceae	3	1	-	-	2
Araliaceae	2	-	-	-	2
Asclepiadaceae	3	-	-	-	3
Averrhoaceae	1	-	-	1	-
Balsaminaceae	1	1	-	-	-
Barringtoniaceae	1	-	-	1	-
Bignoniaceae	5	1	2	2	-
Bixaceae	2	-	1	-	1
Bombacaceae	6	-	2	-	4
Caesalpiiniaceae	21	1	8	10	2
Capparidaceae	3	-	-	2	1
Caricaceae	2	1	-	-	1
Combretaceae	4	-	3	1	-
Commelinaceae	1	-	-	1	-
Compositae	8	-	3	4	1
Convolvulaceae	3	-	1	1	1
Cruciferae	4	1	1	-	2
Cucurbitaceae	8	-	-	2	6
Cyperaceae	1	-	-	1	-
Dilleniaceae	1	-	-	-	1
Dioscoreaceae	1	-	-	-	1
Dipterocarpaceae	1	-	-	-	1
Ebenaceae	1	-	-	-	1
Erythroxylaceae	1	-	-	-	1
Euphorbiaceae	17	1	7	4	5

marked = ++++ and/or broad activities
 moderate = ++ to +++
 slight = + and/or narrow activities

Table 7 (cont.)

Degree of Activities of Tested Plant Extracts

Family	Number of Sample Tested	Number and Degree of Activities			
		marked	moderate	slight	non
Gramineae	6	-	1	3	2
Guttiferae	7	-	6	-	1
Hydrocharitaceae	1	-	-	1	-
Illiciaceae	1	-	-	1	-
Iridaceae	2	1	1	-	-
Labiatae	3	-	1	2	-
Lauraceae	1	-	1	-	-
Liliaceae	3	-	-	1	2
Lythraceae	5	-	3	2	-
Magnoliaceae	4	-	1	2	1
Malvaceae	5	-	-	3	2
Meliaceae	6	-	2	1	3
Menispermaceae	6	-	2	-	4
Mimosaceae	14	-	2	5	7
Moraceae	4	-	-	-	4
Moringaceae	2	2	-	-	-
Myristicaceae	2	-	1	1	-
Myrsinaceae	1	-	-	1	-
Myrtaceae	3	1	1	1	-
Nyctaginaceae	2	-	-	-	2
Nymphaeaceae	3	-	-	-	3
Oleaceae	1	-	-	1	-
Oxalidaceae	1	-	-	-	1
Pandanaceae	1	-	-	1	-
Palmae	1	-	-	1	-
Papilionaceae	11	1	1	5	4
Passifloraceae	1	-	-	-	1
Piperaceae	6	1	2	1	2
Plantaginaceae	1	-	-	-	1
Plumbaginaceae	2	2	-	-	-
Polygonaceae	2	1	-	1	-
Rubiaceae	11	1	-	5	5
Rutaceae	12	2	1	7	2
Santalaceae	1	-	-	1	-
Sapindaceae	4	-	1	1	2
Sapotaceae	4	-	-	-	4
Scrophulariaceae	3	-	1	1	1

Table 7 (cont.)

Degree of Activities of Tested Plant Extracts

Family	Number of Sample Tested	Number and Degree of Activities			
		marked	moderate	slight	non
Simarubaceae	2	-	1	1	-
Solanaceae	10	-	3	2	5
Stemonaceae	1	-	-	-	1
Sterculiaceae	1	-	-	1	-
Styraceae	1	1	-	-	-
Theaceae	2	-	2	-	-
Thunbergiaceae	1	-	-	-	1
Tiliaceae	1	-	1	-	-
Umbelliferae	7	1	2	3	1
Urticaceae	1	-	-	1	-
Verbenaceae	9	-	3	2	4
Vitidaceae	3	-	-	-	3
Xyridaceae	1	-	1	-	-
Zingiberaceae	13	3	5	3	2
Zygophyllaceae	1	-	-	-	1
	329	28	78	109	115
Lower Plant & Fungi					
Angiopteridaceae	1	-	-	-	1
Aspergillaceae	1	-	-	1	-
Polyporaceae	1	-	-	-	1
Xylariaceae	1	-	-	-	1
Total	333	28	78	109	118

Table 8

Percentage Effective of Total Plant Samples

Against Test Microorganisms

Microorganism	Total Number of Samples	Number Showing Activities		Per cent	Per cent Total
Bacteria	329	Gram +	151	45.9	63.8
		Gram -	87	26.4	
		Spore	179	54.4	
Fungi		48		14.6	14.6

Table 9

Plants Showing Antimicrobial Activity
Against Bacteria and/or Fungi

Name of Plant	Bacteria	Fungi
<i>Alangium salviifolium</i> Wang. (sw)	*	*
<i>Allium sativum</i> L. (bu)	*	-
<i>Alpinia galanga</i> Swartz. (rh)	-	*
<i>Camellia sasanqua</i> Thunb. (sd)	-	*
<i>Carica papaya</i> L. (sd)	*	*
<i>Citrus hystrix</i> DC. (pu)	*	-
<i>Conioselenium univittatum</i> Turcz. ex Kar. & Kir. (rt)	-	*
<i>Dracaena lowrieri</i> Gagnep. (sw)	*	-
<i>Eleutherine palmaefolia</i> Murr. (bu)	*	*
<i>Eugenia caryophyllata</i> Thunb. (fl)	*	*
<i>Euphorbia antiquorum</i> L. (sw)	-	*
<i>Glycyrrhiza uralensis</i> Fisch. (rt)	*	-
<i>Holarrhena antidysenterica</i> Wall. (sb)	*	-
<i>Hydnophytum formicarium</i> Jack. (tu)	*	-
<i>Impatiens balsamina</i> L. (ap)	*	*
<i>Moringa oleifera</i> Lamk. (lf&fl)	*	-
<i>Nasturtium benghalense</i> DC. (ap)	*	*
<i>Oroxylum indicum</i> Vent. (sd)	*	-
<i>Piper betel</i> L. (lf)	*	*
<i>Plumbago rosea</i> L. (rt)	*	*
<i>Rheum emodi</i> Wall. (rh)	*	*
<i>Styrax benzoin</i> Dryand. (bs)	*	*
<i>Tamarindus indica</i> L. (lf)	*	-

- = no activity

* = showing activity