

Antibacterial and Antifungal Terpenes from the Medicinal Angiosperms of Asia and the Pacific: Haystacks and Gold Needles

Table S1. Antibacterial and antifungal terpenes from the medicinal plants of Asia and the Pacific

TYPE OF TERPENES	NAME OF TERPENES	Micro-organism	MIC (µg/mL)	MBC/MFC	References
MONOTERPENES	Nerol (2)	<i>C. albicans</i>	200*		[16]
	Geranial (5)	<i>C. albicans</i>	100*		[16]
	Citronellol (6)	<i>Trichophyton sp.</i>	34		[14]
	Linalool (9)	<i>C. albicans</i>	500*		[16]
	α -Terpineol (24)	<i>E. coli</i> (ATCC 25922)	0.7	0.7	[32]
		<i>S. enteritidis</i>	3.1	3.1	[32]
		<i>S. aureus</i> (ATCC 25923)	1.5	3.1	[32]
		<i>G. citri-aurantii</i>	2°	4°	[34]
	Terpinene-4-ol (25)	<i>E. coli</i> (ATCC 25922)	1.5°	1.5°	[32]
		<i>S. enteritidis</i>	3.1°	3.1°	[32]
		<i>S. aureus</i> (ATCC 25923)	1.5°	1.5°	[32]
	1,8-Cineole (27)	<i>E. coli</i> (ATCC 25922)	3.1°	3.1°	[37]
		<i>S. enteritidis</i>	6.2°	6.2°	[37]
		<i>S. aureus</i> (ATCC 25923)	6.2°	6.2°	[37]
		<i>furfur</i> (ATCC 44344)	62.5		[37]
	γ -Terpinene (28)	<i>S. enteritidis</i>	3.1°		[32]
	α -Terpinene	<i>C. albicans</i>	100*		[16]
	p-Cymene (31)	<i>C. albicans</i>	100*		[16]
	Cuminol (32)	<i>B. subtilis</i> (ATCC 6633)	2		[15]
	Thymol (33)	<i>C. albicans</i> (ATCC 10231)	8		[15]
		8 <i>C. parapsilosis</i> (ATCC 22019)	16		[15]
	Thymoquinone (36)	<i>B. cereus</i>	8	8	[40]
		<i>S. aureus</i>	8	16	[40]
		<i>C. dublinensis</i>	25		[43]

SESQUITERPENES	Carvacrol (37)	<i>P. aeruginosa</i> (ATCC 10145)	2		[15]
	Farnesol (38)	<i>Trichophyton sp.</i>	3.5		[14]
		<i>C. albicans</i>	35		[14]
	Farnesal (39)	<i>S. aureus</i>	40		[14]
		MRSA	40		[14]
	Germacrone (40)	<i>P. aeruginosa</i>	15.6	31.2	[46]
	Costunolide (45)	<i>T. simii</i>	31.2		[47]
	Deacetyl xanthumine (47)	<i>P. dreschleri</i>	12.5		[54]
	Microjaponin (49)	<i>M. tuberculosis</i>	12.5		[60,61]
	8-Acetoxymutangin (50)	<i>M. tuberculosis</i>	35		[60]
	Mochinine H (51)	<i>M. orizae</i>	19.7		[62,64]
	Gossypol (52)	<i>S. aureus</i> (TISTR517)	1.1		[67]
		<i>B. cereus</i>	1.1		[68,70]
		<i>E. faecium</i> (VRE)	2.5	10	[68,70]
		<i>T. mentagrophytes</i>	12.5		[68,70]
		<i>M. canis</i>	25		[68,70]
		<i>T. rubrum</i>	50		[68,70]
		<i>M. gypseum</i>	100		[68,70]
	(+)-6,6'-Methoxygossypol (53)	<i>B. cereus</i>	2.3		[68,70]
	7-Hydroxycadalene (54)	<i>B. cereus</i>	0.5		[68,70]
	Mansonone E (55)	<i>C. gloeosporioides</i>	31.2	31.2	[71]
		<i>P. parasitica</i>	31.2	125	[71]
	Mansonone F (56)	MRSA	2		[71]
		<i>B. subtilis</i> (ATCC 6633)	2		[71]
		<i>S. aureus</i> (ATCC 25223)	1		[71]
		<i>S. epidermidis</i> (ATCC 12228)	0.5		[71]
		<i>K. pneumoniae</i> (ATCC 10031)	8		[71]
	Cedrelanol (57)	<i>S. aureus</i>	4		[72]
		<i>T. mentagrophytes</i>	2.3		[72]
	α -Humulene (61)	<i>S. lutea</i> (IFO 3232)	3.9		[79]
		<i>B. subtilis</i> (IFO 3026)	3.9		[79]
		<i>X. campestris</i>	7.8		[79]
		<i>M. tuberculosis</i> (H37Ra)	6.2		[80]
	α -Santalol (62)	<i>T. rubrum</i>	12.5		[87]
	β -Santalol (63)	<i>T. rubrum</i>	25		[87]
	Polygodial (64)	<i>S. cerevisiae</i> (IFO 0203)	0.7		[91,92]

		<i>H. anomala</i> (IFO 0136)	1.5		[91,92]
		<i>C. utilis</i> (ATCC 42402)	1.5		[91,92]
		<i>S. libertiana</i>	1.5		[91,92]
DITERPENES	Geranylgeraniol (65)	<i>S. aureus</i> (FDA209P)	< 1.2		[95]
	(<i>E</i>)-Phytol (66)	<i>M. tuberculosis</i> (H37Rv)	32		[96]
	Toonaciliatin M (67)	<i>T. rubrum</i>	12.5		[98]
	17-Hydroxyjolkinolide B (68)	<i>M. smegmatis</i>	1.5		[99]
	6 β -Cinnamoyl-7 β -hydroxyvouacapen-5 α -ol (73)	<i>Mycobacterium</i> sp.	6.2		[105]
	Niloticane (74)	<i>B. subtilis</i>	4		[106]
		<i>S. aureus</i>	8		[106]
		<i>K. pneumoniae</i>	16		[106]
		<i>E. coli</i>	3		[106]
	Neocaesalpin P (75)	<i>S. aureus</i>	16		[107]
		<i>S. agalactiae</i>	16		[107]
		<i>P. aeruginosa</i>	32		[107]
	(E)-8 β , 17-Epoxyabd-12-ene-15,16-dial (77)	<i>S. aureus</i> (ATCC 6538)	3.3	6.7	[109]
		<i>Y. enterocolitica</i>	3.3	3.3	[109]
	<i>ent</i> -Trachyloban-19-oic acid (78)	<i>M. smegmatis</i>	6.2		[113]
		<i>S. mutans</i>	8.9		[114,115]
		<i>P. gingivalis</i>	57.6		[114,115]
	<i>ent</i> -Kaur-16-en-19-oic acid (79)	<i>M. smegmatis</i>	6.2		[118]
	<i>ent</i> -18-acetoxy-7 α -hydroxykaur-16-en-15-one (80)	<i>M. tuberculosis</i> (H37Ra)	3.1		[119]
	<i>ent</i> -1 β ,14 β -Diacetoxy-7 α -hydroxykaur-16-en-15-one (81)	<i>M. tuberculosis</i> (H37Ra)	1.5		[119]
	Bafoudiosbulbin C (83)	<i>M. smegmatis</i> (ATCC 700084)	8	16	[121]
		<i>M. tuberculosis</i> (ATCC 27294)	8	8	[121]
	16 α -Hydroxy-cleroda-3,13 (14) <i>Z</i> -diene-15,16-olide (84)	<i>S. aureus</i>	6.2		[125]
		<i>E. coli</i>	0.7		[125]
		<i>P. aeruginosa</i>	0.7		[125]
		<i>S. typhi</i>	0.7		[125]
		<i>K. pneumoniae</i>	1.5		[125]
	16-Oxo-cleroda-3, 13(14) <i>E</i> -diene-15 oic acid (85)	<i>S. aureus</i>	12.5		[125]
	Euphoheliosnoid E (86)	<i>A. viscosus</i> (ATCC 27044)	3.9		[133]
	Dehydroabietylamine (88)	<i>S. aureus</i>	12.5		[139]
		<i>P. aeruginosa</i>	6.2		[139]
	3,4- <i>seco</i> -Mansumbinoic acid (90)	<i>S. aureus</i> (1199B)	4		[142]
TRITERPENES	Aceriphyllic acid A (92)	<i>S. aureus</i> (503)	4		[153]

		MRSA (CCARM 3167)	8		[153]
		<i>S. aureus</i> (CCARM 3505)	8		[153]
		<i>B. subtilis</i> (KCTC 1021)	8		[153]
		<i>A. calcoaceticus</i>	4		[153]
		<i>M. luteus</i> (KCTC 1056)	8		[153]
	Dysoxyhainic acid I (94)	<i>B. subtilis</i>	1.5		[156]
	Taraxerone (95)	<i>C. gloeosporioides</i>	5		[163-166]
		<i>T. halophyllus</i> (ATCC 13623)	5		[171]
	Pristimerin (97)	<i>B. subtilis</i>	1.2	5	[172]
		<i>S. epidermidis</i>	1.2	>40	[172]
		<i>H. capsulatum</i> (0G217B)	0.4	0.4	[173,174]
		<i>C. neoformans</i>	7.8	7.8	[173,174]
		<i>C. krusei</i> (ATCC 6258)	7.8	62.5	[173,174]
	Celastrol (98)	<i>B. subtilis</i>	0.1	2.5	[175]
		<i>B. cereus</i>	0.6	2.5	[175]
		<i>B. pumilus</i>	0.6	2.5	[175]
		<i>B. megaterium</i>	1.2	5	[175]
		<i>S. aureus</i>	1.2	5	[175]
		<i>S. epidermidis</i>	0.3	15	[175]
	Zeylasterone (99)	<i>C. albicans</i>	10	40	[176]
	(20 <i>R</i>)-3 β -Hydroxy-24,25,26,27-tetranor-5 α -cycloartan-23,21-olide (100)	MRSA	1.5		[178]
	Bryononic acid (101)	<i>S. enteritica</i>	6		[181]
	Ergosterol-5,8-endoperoxide (107)	<i>Mycobacterium sp.</i>	1		[194]

*:p.p.m.; °: μ L/mL