Supplementary Materials

Table S1. Secondary metabolites of the genus *Spongia* from mid-2015 to the beginning of 2024.

No	Name	Class	Species	Locality	Bioassays	Ref
1	(+/-)-spongiterpene	sesquiterpene	*Spongia* sp.	Zhanjiang, Guangdong, China	—[1]	[14]
2	dehydrololiolide	sesquiterpene	*Spongia* sp.	Zhanjiang, Guangdong, China	—	[14]
3	loliolide	sesquiterpene	*Spongia* sp.	Zhanjiang, Guangdong, China	no cytotoxicity against K562, A549, Hela, HT29, SK-BR-3, Huh7, RBL-2H3 and PC3 cell lines (MTT asssay, triplicate)	[14]
4	dehydrovomifoliol	sesquiterpene	*Spongia* sp.	Zhanjiang, Guangdong, China	—	[14]
5	3β-hydroxy-5α,6α-epoxy-7-megastimen-9-one	sesquiterpene	*Spongia* sp.	Zhanjiang, Guangdong, China	—	[14]
6	pacifenol	sesquiterpene	*Spongia* sp.	Jeddah, Saudi Arabia	no cytotoxicity against Huh7 cell line (MTT asssay, triplicate); no antibacterial activity against *Staphylococcus aureus*; no anti-inflammatory activity toward inhibiting superoxide anion (O_2^-) generation and elastase release (IC_{50} > 20 μM)	[15]
7	ceylonamide A	diterpene	*Spongia ceylonensis*	Tiwoho, North Sulawesi, Indonesia	inhibitory against RANKL-induced osteoclastogenesis (IC_{50} = 13 μM)	[17]
					no inhibitory against ubiquitin-specific protease 7 (USP7) (IC_{50} > 50 μM)	[19]
8	ceylonamide B	diterpene	*S. ceylonensis*	Tiwoho, North Sulawesi, Indonesia	inhibitory against RANKL-induced osteoclastogenesis (IC_{50} = 18 μM)	[17]
					no inhibitory against USP7 (IC_{50} > 50 μM)	[19]
9	ceylonamide C	diterpene	*S. ceylonensis*	Tiwoho, North Sulawesi, Indonesia	no inhibitory against RANKL-induced osteoclastogenesis (IC_{50} > 50 μM)	[17]
					no inhibitory against USP7 (IC_{50} > 50 μM)	[19]
10	ceylonamide D	diterpene	*S. ceylonensis*	Tiwoho, North Sulawesi, Indonesia	no inhibitory against RANKL-induced osteoclastogenesis (IC_{50} > 50 μM)	[17]
					no inhibitory against USP7 (IC_{50} > 50 μM)	[19]
11	ceylonamide E	diterpene	*S. ceylonensis*	Tiwoho, North Sulawesi, Indonesia	no inhibitory against RANKL-induced osteoclastogenesis (IC_{50} > 50 μM)	[17]
					no inhibitory against USP7 (IC_{50} > 50 μM)	[19]
12	ceylonamide F	diterpene	*S. ceylonensis*	Tiwoho, North Sulawesi, Indonesia	no inhibitory against RANKL-induced osteoclastogenesis (IC_{50} > 50 μM)	[17]

No	Name	Class	Species	Locality	Bioassays	Ref
					no inhibitory against USP7 (IC_{50} > 50 μM)	[19]
			Spongia sp.	Biak, Indonesia	cytotoxicity against DU145 cell line (IC_{50} = 18.8 μM)	[23]
13	15α,16-dimethoxyspongi-13-en-19-oic acid	diterpene	*S. ceylonensis*	Tiwoho, North Sulawesi, Indonesia	no inhibitory against RANKL-induced osteoclastogenesis (IC_{50} > 50 μM)	[17]
14	haumanamide	diterpene	*S. ceylonensis*	Tiwoho, North Sulawesi, Indonesia	no inhibitory against RANKL-induced osteoclastogenesis (IC_{50} > 50 μM)	[17]
15	15-oxospongi-13-en-19-oic acid	diterpene	*S. ceylonensis*	Tiwoho, North Sulawesi, Indonesia	no inhibitory against RANKL-induced osteoclastogenesis (IC_{50} > 50 μM)	[17]
					no inhibitory against USP7 (IC_{50} > 50 μM)	[19]
16	16-oxospongi-13-en-19-oic acid	diterpene	*S. ceylonensis*	Tiwoho, North Sulawesi, Indonesia	no inhibitory against RANKL-induced osteoclastogenesis (IC_{50} > 50 μM)	[17]
					no inhibitory against USP7 (IC_{50} > 50 μM)	[19]
17	spongiabutenolide A	diterpene	*S. ceylonensis*	Tiwoho, North Sulawesi, Indonesia	no inhibitory against RANKL-induced osteoclastogenesis (IC_{50} > 50 μM)	[17]
					no inhibitory against USP7 (IC_{50} > 50 μM)	[19]
18	spongiabutenolide B	diterpene	*S. ceylonensis*	Tiwoho, North Sulawesi, Indonesia	no inhibitory against RANKL-induced osteoclastogenesis (IC_{50} > 50 μM)	[17]
					no inhibitory against USP7 (IC_{50} > 50 μM)	[19]
19	spongia-13(16),14-dien-19-oic acid	diterpene	*S. ceylonensis*	Tiwoho, North Sulawesi, Indonesia	no inhibitory against RANKL-induced osteoclastogenesis (IC_{50} > 50 μM)	[17] [18]
					no inhibitory against USP7 (IC_{50} > 50 μM)	[19]
20	spongiadiol	diterpene	*S. ceylonensis*	Tiwoho, North Sulawesi, Indonesia	no inhibitory against RANKL-induced osteoclastogenesis (IC_{50} > 50 μM)	[17]
21	isospongiadiol	diterpene	*S. ceylonensis*	Tiwoho, North Sulawesi, Indonesia	no inhibitory against RANKL-induced osteoclastogenesis (IC_{50} > 50 μM)	[17]
22	ceylonin A	diterpene	*S. ceylonensis*	Tiwoho, North Sulawesi, Indonesia	inhibitory against RANKL-induced osteo-clastogenesis (inhibiinhibition rates 70%)	[18]
					no inhibitory against USP7 (IC_{50} > 50 μM)	[19]
23	ceylonin B	diterpene	*S. ceylonensis*	Tiwoho, North Sulawesi, Indonesia	no inhibitory against RANKL-induced osteoclastogenesis (IC_{50} > 50 μM)	[18]
					no inhibitory against USP7 (IC_{50} > 50 μM)	[19]
24	ceylonin C	diterpene	*S. ceylonensis*	Tiwoho, North Sulawesi, Indonesia	no inhibitory against RANKL-induced osteoclastogenesis (IC_{50} > 50 μM)	[18]
					no inhibitory against USP7 (IC_{50} > 50 μM)	[19]
25	ceylonin D	diterpene	*S. ceylonensis*	Tiwoho, North Sulawesi, Indonesia	inhibitory against RANKL-induced osteo-	[18]

No	Name	Class	Species	Locality	Bioassays	Ref
					clastogenesis (inhibiinhibition rates 28%)	
					no inhibitory against USP7 (IC_{50} > 50 μM)	[19]
26	ceylonin E	diterpene	*S. ceylonensis*	Tiwoho, North Sulawesi, Indonesia	inhibitory against RANKL-induced osteo-clastogenesis (inhibiinhibition rates 47%)	[18]
					no inhibitory against USP7 (IC_{50} > 50 μM)	[19]
27	ceylonin F	diterpene	*S. ceylonensis*	Tiwoho, North Sulawesi, Indonesia	inhibitory against RANKL-induced osteo-clastogenesis (inhibiinhibition rates 31%)	[18]
					no inhibitory against USP7 (IC_{50} > 50 μM)	[19]
28	ceylonin G	diterpene	*S. ceylonensis*	Tiwoho, North Sulawesi, Indonesia	no inhibitory against USP7 (IC_{50} > 50 μM)	[19]
29	ceylonin H	diterpene	*S. ceylonensis*	Tiwoho, North Sulawesi, Indonesia	no inhibitory against USP7 (IC_{50} > 50 μM)	[19]
30	ceylonin I	diterpene	*S. ceylonensis*	Tiwoho, North Sulawesi, Indonesia	no inhibitory against USP7 (IC_{50} > 50 μM)	[19]
31	*ent*-13-norisocopalen-15-al-18-oic acid	diterpene	*S. ceylonensis*	Tiwoho, North Sulawesi, Indonesia	inhibitory against USP7 (IC_{50} = 8.2 μM)	[19]
32	3-nor-spongiolide A	diterpene	*Spongia officinalis*	Weizhou Island, Guangxi, China	no cytotoxicity against HL-60 cell line (MTT asssay, triplicate)	[20]
33	spongiolide A	diterpene	*S. officinalis*	Weizhou Island, Guangxi, China	no cytotoxicity against HL-60 cell line (MTT asssay, triplicate)	[20]
34	spongiolide B	diterpene	*S. officinalis*	Weizhou Island, Guangxi, China	no cytotoxicity against HL-60 cell line (MTT asssay, triplicate)	[20]
35	spongia-13(16),14-diene	diterpene	*S. officinalis*	Weizhou Island, Guangxi, China	no cytotoxicity against HL-60 cell line (MTT asssay, triplicate)	[20]
36	18-nor-3,17-dihydroxyspongia-3,13 (16),14-trien-2-one	diterpene	*S. officinalis*	Weizhou Island, Guangxi, China	no cytotoxicity against HL-60 cell line (MTT asssay, triplicate)	[20]
37	spongiatriol	diterpene	*S. officinalis*	Weizhou Island, Guangxi, China	no cytotoxicity against HL-60 cell line (MTT asssay, triplicate)	[20]
				Ximao Island, Hainan, China	—	[22]
38	epispongiatriol	diterpene	*S. officinalis*	Weizhou Island, Guangxi, China	no cytotoxicity against HL-60 cell line (MTT asssay, triplicate)	[20]
				Ximao Island, Hainan, China	anti-inflammatory activity toward inhib-iting lipopolysaccharide (LPS)-induced nitric oxide (NO) production (IC_{50} = 20 ± 2 μM)	[22]
39	isospongiatriol	diterpene	*S. officinalis*	Weizhou Island, Guangxi, China	no cytotoxicity against HL-60 cell line (MTT asssay, triplicate)	[20]
				Ximao Island, Hainan, China	no anti-inflammatory activity toward in-hibiting LPS-induced NO production (IC_{50} >60 μM)	[22]

No	Name	Class	Species	Locality	Bioassays	Ref
				Shui Niupo Village, Danzhou City, Hainan Province, China	no cytotoxicity against K562, H69AR, ASPC-1 and MDA-MB-231 cell lines (SRB assay and MTT assay, triplicate); no signalling inhibition of HIF-1, Wnt and STAT3/NF-κB, or activation of PPARγ and p53	[28]
40	17,19-dihydroxyspongia-13(16),14-dien-2, 3-dione	diterpene	*S. officinalis*	Weizhou Island, Guangxi, China	no cytotoxicity against HL-60 cell line (MTT asssay, triplicate)	[20]
41	spongiain A	diterpene	*Spongia* sp.	Zhanjiang, Guangdong, China	no cytotoxicity against K562, A549, Hela, HT29, SK-BR-3, Huh7, RBL-2H3 and PC3 cell lines (MTT asssay, triplicate)	[21]
42	spongiain B	diterpene	*Spongia* sp.	Zhanjiang, Guangdong, China	no cytotoxicity against K562, A549, Hela, HT29, SK-BR-3, Huh7, RBL-2H3 and PC3 cell lines (MTT asssay, triplicate)	[21]
43	spongiain C	diterpene	*Spongia* sp.	Zhanjiang, Guangdong, China	no cytotoxicity against K562, A549, Hela, HT29, SK-BR-3, Huh7, RBL-2H3 and PC3 cell lines (MTT asssay, triplicate)	[21]
44	spongiain D	diterpene	*Spongia* sp.	Zhanjiang, Guangdong, China	no cytotoxicity against K562, A549, Hela, HT29, SK-BR-3, Huh7, RBL-2H3 and PC3 cell lines (MTT asssay, triplicate)	[21]
45	spongiain E	diterpene	*Spongia* sp.	Zhanjiang, Guangdong, China	no cytotoxicity against K562, A549, Hela, HT29, SK-BR-3, Huh7, RBL-2H3 and PC3 cell lines (MTT asssay, triplicate)	[21]
46	spongiain F	diterpene	*Spongia* sp.	Zhanjiang, Guangdong, China	no cytotoxicity against K562, A549, Hela, HT29, SK-BR-3, Huh7, RBL-2H3 and PC3 cell lines (MTT asssay, triplicate)	[21]
47	spongiain G	diterpene	*Spongia* sp.	Zhanjiang, Guangdong, China	no cytotoxicity against K562, A549, Hela, HT29, SK-BR-3, Huh7, RBL-2H3 and PC3 cell lines (MTT asssay, triplicate)	[21]
48	sponalactone	diterpene	*S. officinalis*	Ximao Island, Hainan, China	anti-inflammatory activity toward inhibiting LPS-induced NO production (IC_{50} = 32 ± 4 μM)	[22]
49	17-*O*-acetylepispongiatriol	diterpene	*S. officinalis*	Ximao Island, Hainan, China	anti-inflammatory activity toward inhibiting LPS-induced NO production (IC_{50} = 15 ± 3 μM)	[22]
50	17-*O*-acetylspongiatriol	diterpene	*S. officinalis*	Ximao Island, Hainan, China	anti-inflammatory activity toward inhibiting LPS-induced NO production (IC_{50} =	[22]

No	Name	Class	Species	Locality	Bioassays	Ref
					12 ± 2 μM)	
51	15α,16α-dimethoxy-15,16-dihydroepispongiatriol	diterpene	*S. officinalis*	Ximao Island, Hainan, China	anti-inflammatory activity toward inhibiting LPS-induced NO production (IC_{50} = 22 ± 3 μM)	[22]
52	15α-ethoxyepispongiatriol-16(15*H*)-one	diterpene	*S. officinalis*	Ximao Island, Hainan, China	anti-inflammatory activity toward inhibiting LPS-induced NO production (IC_{50} = 12 ± 2 μM)	[22]
53	ceylonamide G	diterpene	*Spongia* sp.	Biak, Indonesia	cytotoxicity against DU145 cell line (IC_{50} = 6.9 μM) (MTT asssay, triplicate)	[23]
54	ceylonamide H	diterpene	*Spongia* sp.	Biak, Indonesia	cytotoxicity against DU145 cell line (IC_{50} > 100 μM) (MTT asssay, triplicate)	[23]
			Spongia irregularis	Ras Mohamed, Sinai, Egypt	no inhibitory against hepatitis C virus (HCV) (Molecular docking calculations)	[31]
55	ceylonamide I	diterpene	*Spongia* sp.	Biak, Indonesia	cytotoxicity against DU145 cell line (IC_{50} > 100 μM) (MTT asssay, triplicate)	[23]
56	3β-hydroxyspongia-13(16),14-dien-2-one	diterpene	*Spongia tubulifera*	Mexican Caribbean	cytotoxicity against A549, A2058, HepG2 and MiaPaca-2 cell lines (IC_{50} = 88.1 ± 7.9, 71.4 ± 2.5, 91.3 ± 15.8 and 90.0 ± 44.8 μM, respectively) (MTT asssay, triplicate); no antibacterial activity against *Acinetobacter baumannii*, *Pseudomonas aeruginosa*, *Klebsiella pneumoniae*, and *S. aureus*	[24]
					mitochondrial-mediated neuroprotective properties through direct interaction with cyclophilin D	[25]
57	19-dehydroxy-spongian diterpene 17	diterpene	*S. tubulifera*	Mexican Caribbean	no cytotoxicity against A549, A2058, HepG2, MCF7 and MiaPaca-2 cell lines (MTT asssay, triplicate); no antibacterial activity against *A. baumannii*, *P. aeruginosa*, *K. pneumoniae* and *S. aureus*	[24]
					mitochondrial-mediated neuroprotective properties through direct interaction with cyclophilin D	[25]
58	9-nor-3-hydroxyspongia-3,13(16),14-trien-2-one	diterpene	*S. tubulifera*	Mexican Caribbean	no cytotoxicity against A549, A2058, HepG2, MCF7 and MiaPaca-2 cell lines (MTT asssay, triplicate); no antibacterial activity against *A. baumannii*, *P. aeruginos-*	[24]

No	Name	Class	Species	Locality	Bioassays	Ref
					sa, *K. pneumoniae* and *S. aureus*	
					mitochondrial-mediated neuroprotective properties through direct interaction with cyclophilin D	[25]
59	3β,19-dihydroxyspongia-13(16),14-dien-2-one (epispongiadiol)	diterpene	*S. tubulifera*	Mexican Caribbean	cytotoxicity against A549, A2058 and HepG2 cell lines (IC_{50} = 73.7 ± 6.3, 53.9 ± 0.6 and 60.1 ± 5.0 μM, respectively) (MTT asssay, triplicate); no antibacterial activity against *A. baumannii*, *P. aeruginosa*, *K. pneumoniae* and *S. aureus*	[24]
					mitochondrial-mediated neuroprotective properties through direct interaction with cyclophilin D	[25]
60	spongian diterpene 17	diterpene	*S. tubulifera*	Mexican Caribbean	no cytotoxicity against A549, A2058, HepG2, MCF7 and MiaPaca-2 cell lines (MTT asssay, triplicate); no antibacterial activity against *A. baumannii*, *P. aeruginosa*, *K. pneumoniae* and *S. aureus*	[24]
					mitochondrial-mediated neuroprotective properties through direct interaction with cyclophilin D	[25]
61	ambliol C	diterpene	*S. tubulifera*	Mexican Caribbean	cytotoxicity against A549, A2058, HepG2, MCF7 and MiaPaca-2 cell lines (IC_{50} = 28.3 ± 2.1, 22.9 ± 0.7, 24.3 ± 0.2, 19.9 ± 3.3 and 11.7 ± 0.9 μM, respectively) (MTT asssay, triplicate); no antibacterial activity against *A. baumannii*, *P. aeruginosa*, *K. pneumoniae* and *S. aureus*	[24]
62	dinorspongian A	diterpene	*Spongia* sp.	Zhanjiang, Guangdong, China	no cytotoxicity against HeLa, Huh7, RBL-2H3 and PC3 cell lines (MTT assay, triplicate)	[26]
63	dinorspongian B	diterpene	*Spongia* sp.	Zhanjiang, Guangdong, China	no cytotoxicity against HeLa, Huh7, RBL-2H3 and PC3 cell lines (MTT assay, triplicate)	[26]
64	dinorspongian C	diterpene	*Spongia* sp.	Zhanjiang, Guangdong, China	no cytotoxicity against HeLa, Huh7, RBL-2H3 and PC3 cell lines (MTT assay, triplicate)	[26]

No	Name	Class	Species	Locality	Bioassays	Ref
65	dinorspongian D	diterpene	*Spongia* sp.	Zhanjiang, Guangdong, China	no cytotoxicity against HeLa, Huh7, RBL-2H3 and PC3 cell lines (MTT assay, triplicate)	[26]
66	dinorspongian E	diterpene	*Spongia* sp.	Zhanjiang, Guangdong, China	no cytotoxicity against HeLa, Huh7, RBL-2H3 and PC3 cell lines (MTT assay, triplicate)	[26]
67	dinorspongian F	diterpene	*Spongia* sp.	Zhanjiang, Guangdong, China	no cytotoxicity against HeLa, Huh7, RBL-2H3 and PC3 cell lines (MTT assay, triplicate)	[26]
68	epoxynorspongian A	diterpene	*Spongia* sp.	Zhanjiang, Guangdong, China	no cytotoxicity against HeLa, Huh7, RBL-2H3 and PC3 cell lines (MTT assay, triplicate)	[26]
69	epoxynorspongian B	diterpene	*Spongia* sp.	Zhanjiang, Guangdong, China	no cytotoxicity against HeLa, Huh7, RBL-2H3 and PC3 cell lines (MTT assay, triplicate)	[26]
70	epoxynorspongian C	diterpene	*Spongia* sp.	Zhanjiang, Guangdong, China	no cytotoxicity against HeLa, Huh7, RBL-2H3 and PC3 cell lines (MTT assay, triplicate)	[26]
71	epoxynorspongian D	diterpene	*Spongia* sp.	Zhanjiang, Guangdong, China	no cytotoxicity against HeLa, Huh7, RBL-2H3 and PC3 cell lines (MTT assay, triplicate)	[26]
72	epoxynorspongian E	diterpene	*Spongia* sp.	Zhanjiang, Guangdong, China	cytotoxicity against RBL-2H3 and PC3 cell lines (IC_{50} = 27.2 and 24.8 μM, respectively), but no cytotoxicity against HeLa and Huh7 cell lines (MTT assay, triplicate)	[26]
73	epoxynorspongian F	diterpene	*Spongia* sp.	Zhanjiang, Guangdong, China	no cytotoxicity against HeLa, Huh7, RBL-2H3 and PC3 cell lines (MTT assay, triplicate)	[26]
74	17-dehydroxysponalactone	diterpene	*Spongia* sp.	Jeddah, Saudi Arabia	no cytotoxicity against P388, HuCCT, DLD-1 and CCD-966SK cell lines (IC_{50} > 20 μg/mL) (Almar Blue assay, triplicate); anti-inflammatory activity toward inhibiting O_2^- generation and elastase release (IC_{50} = 3.37 ± 0.21 and 4.07 ± 0.60 μM, respectively)	[27]
75	18-nor-3,17-dihydroxy-spongia-3,13(16),14-trien-2-one	diterpene	*Spongia* sp.	Jeddah, Saudi Arabia	no cytotoxicity against P388, HuCCT, DLD-1 and CCD-966SK cell lines (IC_{50} > 20	[27]

No	Name	Class	Species	Locality	Bioassays	Ref
					μg/mL) (Almar Blue assay, triplicate); no anti-inflammatory activity toward inhibiting O_2^- generation and elastase release	
			S. officinalis	Shui Niupo Village, Danzhou City, Hainan Province, China	cytotoxicity activities against K562 cell line (IC_{50} = 6.4 μM) (MTT assay, triplicate), but no cytotoxicity against H69AR, ASPC-1 and MDA-MB-231 cell lines (SRB assay, triplicate); signalling inhibition of HIF-1 and Wnt (inhibitory rates 84.7% and 85.2%, respectively), but no signalling inhibition of STAT3/NF-κB, or activation of PPARγ and p53	[28]
76	2β,3α,19-Triacetoxy-17-hydroxyspongia-13(16),14-diene	diterpene	*S. officinalis*	Shui Niupo Village, Danzhou City, Hainan Province, China	cytotoxicity activities against K562 cell line (IC_{50} = 7.3 μM) (MTT assay, triplicate), but no cytotoxicity against H69AR, ASPC-1 and MDA-MB-231 cell lines (SRB assay, triplicate); no signalling inhibition of HIF-1, Wnt and STAT3/NF-κB, or activation of PPARγ and p53	[28]
77	18-nor-2,17-hydroxyspongia-1,4,13(16),14-quaien-3-one	diterpene	*S. officinalis*	Shui Niupo Village, Danzhou City, Hainan Province, China	no cytotoxicity against K562, H69AR, ASPC-1 and MDA-MB-231 cell lines (MTT assay and SRB assay, triplicate); no signalling inhibition of HIF-1, Wnt and STAT3/NF-κB, or activation of PPARγ and p53	[28]
78	3β,17,19-trihydroxyspongia-13(16),14-dien-2-one	diterpene	*S. officinalis*	Shui Niupo Village, Danzhou City, Hainan Province, China	cytotoxicity activities against K562 and H69AR cell lines (IC_{50} = 3.5 and 9.5 μM, respectively) (MTT assay and SRB assay, triplicate), but no cytotoxicity against ASPC-1 and MDA-MB-231 cell lines (SRB assay, triplicate); signalling inhibition of HIF-1 and Wnt (inhibitory rates 88.5% and 87.9%, respectively), but no signalling inhibition of STAT3/NF-κB, or activation of PPARγ and p53	[28]
79	2,17,19- trihydroxyspongia-1,13(16),14-trien-3-one	diterpene	*S. officinalis*	Shui Niupo Village, Danzhou City, Hainan Province, China	no cytotoxicity against K562, H69AR, ASPC-1 and MDA-MB-231 cell lines (MTT	[28]

No	Name	Class	Species	Locality	Bioassays	Ref
					assay and SRB assay, triplicate); no signalling inhibition of HIF-1, Wnt and STAT3/NF-κB, or activation of PPARγ and p53	
80	3α,17,19-trihydroxyspongia-13(16),14-dien-2-one	diterpene	*S. officinalis*	Shui Niupo Village, Danzhou City, Hainan Province, China	no cytotoxicity against K562, H69AR, ASPC-1 and MDA-MB-231 cell lines (MTT assay and SRB assay, triplicate); no signalling inhibition of HIF-1, Wnt and STAT3/NF-κB, or activation of PPARγ and p53	[28]
81	3-nor-spongianone B	diterpene	*S. officinalis*	Shui Niupo Village, Danzhou City, Hainan Province, China	no cytotoxicity against K562, H69AR, ASPC-1 and MDA-MB-231 cell lines (MTT assay and SRB assay, triplicate); no signalling inhibition of HIF-1, Wnt and STAT3/NF-κB, or activation of PPARγ and p53	[28]
82	jellynolide A	diterpene	*S. officinalis*	Shui Niupo Village, Danzhou City, Hainan Province, China	no cytotoxicity against K562, H69AR, ASPC-1 and MDA-MB-231 cell lines (SRB assay and MTT assay, triplicate); no anti-polymerase activity against COVID-19 RNA-dependent RNA polymerase; signalling inhibition of TAT3/NF-κB and HIF-1 (inhibitory rates 67.6% and 71.6% at 20 μM, respectively), but no signalling inhibition of Wnt	[29]
83	dinorspongiapyridine	diterpene	*Spongia* sp.	Zhanjiang, Guangdong, China	no cytotoxicity against K562, A549, Hela, HT29, SK-BR-3 and Huh7 cell lines (MTT assay, triplicate)	[30]
84	19,20-dihydroxyspongia-13(16),14-diene	diterpene	*Spongia irregularis*	Ras Mohamed, Sinai, Egypt	no inhibitory against HCV (Molecular docking calculations)	[31]
85	3β-acetoxyspongia-13(16),14-diene	diterpene	*S. irregularis*	Ras Mohamed, Sinai, Egypt	no inhibitory against HCV (Molecular docking calculations)	[31]
86	3α-acetoxyspongia-13(16),14-diene	diterpene	*S. irregularis*	Ras Mohamed, Sinai, Egypt	no inhibitory against HCV (Molecular docking calculations)	[31]
87	spongianol	diterpene	*Spongia* sp.	Jeddah,Saudi Arabia	no cytotoxicity against Huh7 cell line (MTT asssay, triplicate); no antibacterial activity against *S. aureus*; no an-	[15]

No	Name	Class	Species	Locality	Bioassays	Ref
					ti-inflammatory activity toward inhibiting O_2^- generation and elastase release (IC_{50} > 20 μM)	
88	10-hydroxykahukuene B	diterpene	*Spongia* sp.	Jeddah,Saudi Arabia	cytotoxicity against Huh7 cell line (inhibitory rate 17%) (MTT asssay, triplicate); no antibacterial activity against *S. aureus*; no anti-inflammatory activity toward inhibiting O_2^- generation and elastase release (IC_{50} > 20 μM)	[15]
89	spongenolactone A	diterpene	*Spongia* sp.	Jeddah, Saudi Arabia	no cytotoxic activity against Huh7 cell line (Resazurin assay, triplicate); antibacterial activity against *S. aureus* (inhibition rate 93% at 200 μM); anti-inflammatory activity toward inhibiting superoxide anion (O_2^-) generation (IC_{50} = 16.5 ± 1.6 μM) and elastase release (IC_{50} > 20 μM)	[32]
90	spongenolactone B	diterpene	*Spongia* sp.	Jeddah, Saudi Arabia	no cytotoxic activity against Huh7 cell line (Resazurin assay, triplicate); antibacterial activity against *S. aureus* (inhibition rate 40% at 200 μM); anti-inflammatory activity toward inhibiting superoxide anion (O_2^-) generation (IC_{50} = 13.1 ± 1.3 μM) and elastase release (IC_{50} = 18.6 ± 0.9 μM)	[32]
91	spongenolactone C	diterpene	*Spongia* sp.	Jeddah, Saudi Arabia	no cytotoxic activity against Huh7 cell line (Resazurin assay, triplicate); no antibacterial activity against *S. aureus*; anti-inflammatory activity toward inhibiting superoxide anion (O_2^-) generation (IC_{50} = 17.4 ± 1.9 μM) and elastase release (IC_{50} > 20 μM)	[32]
92	secodinorspongin A	diterpene	*Spongia* sp.	Jeddah, Saudi Arabia	no cytotoxic activity against Huh7 cell line (Resazurin assay, triplicate); antibacterial activity against *S. aureus* (inhibition rate 75% at 200 μM); no anti-inflammatory activity toward inhibiting superoxide anion (O_2^-) generation (IC_{50} > 20 μM) and elastase release (IC_{50} > 20 μM)	[33]

No	Name	Class	Species	Locality	Bioassays	Ref
93	secodinorspongin B	diterpene	*Spongia* sp.	Jeddah, Saudi Arabia	no cytotoxic activity against Huh7 cell line (Resazurin assay, triplicate); no antibacterial activity against *S. aureus*; no anti-inflammatory activity toward inhibiting superoxide anion (O_2^-) generation (IC_{50} > 20 μM) and elastase release (IC_{50} > 20 μM)	[33]
94	secodinorspongin C	diterpene	*Spongia* sp.	Jeddah, Saudi Arabia	no cytotoxic activity against Huh7 cell line (Resazurin assay, triplicate); no antibacterial activity against *S. aureus*; no anti-inflammatory activity toward inhibiting superoxide anion (O_2^-) generation (IC_{50} > 20 μM) and elastase release (IC_{50} > 20 μM)	[33]
95	secodinorspongin D	diterpene	*Spongia* sp.	Jeddah, Saudi Arabia	no cytotoxic activity against Huh7 cell line (Resazurin assay, triplicate); no antibacterial activity against *S. aureus*; anti-inflammatory activity toward inhibiting superoxide anion (O_2^-) generation (IC_{50} > 20 μM) and elastase release (IC_{50} > 20 μM)	[33]
96	sponginolide	diterpene	*Spongia* sp.	Jeddah, Saudi Arabia	no cytotoxic activity against Huh7 cell line (Resazurin assay, triplicate); no antibacterial activity against *S. aureus*; anti-inflammatory activity toward inhibiting superoxide anion (O_2^-) generation (IC_{50} > 20 μM) and elastase release (IC_{50} > 20 μM)	[33]
97	/[2]	sesterterpene	*Spongia* sp.	Geoje Island, South Korea	no antagonistic activity against the farnesoid X-activated receptor (FXR) (Co-transfection assay); no cytotoxicity against CV-1 cell line (MTT asssay, triplicate)	[34]
98	/	sesterterpene	*Spongia* sp.	Geoje Island, South Korea	no antagonistic activity against FXR (Co-transfection assay); no cytotoxicity against CV-1 cell line (MTT asssay, triplicate)	[34]
99	scalarolide acetate	sesterterpene	*Spongia* sp.	Mengalum Island, Sabah, Malaysia	cytotoxic activities against S1T cell line (IC_{50} = 5.16 μg/mL) (WST-8 assay, triplicate)	[35]
100	scalarolide	sesterterpene	*Spongia* sp.	Mengalum Island, Sabah, Malay-	cytotoxic activities against S1T cell line	[35]

No	Name	Class	Species	Locality	Bioassays	Ref
				sia	(IC_{50} = 3.93 μg/mL) (WST-8 assay, triplicate)	
101	12-*O*-deacetyl-12-*epi*-19-*O*-methylscalarin	sesterterpene	*Spongia* sp.	Mengalum Island, Sabah, Malaysia	c cytotoxic activities against S1T cell line (IC_{50} = 2.31 μg/mL) (WST-8 assay, triplicate)	[35]
102	18-hydroxy-19-norscalar-16-en-20-carboxylate	sesterterpene	*Spongia* sp.	Mengalum Island, Sabah, Malaysia	—	[35]
103	scalalactam A	sesterterpene	*Spongia* sp.	Tong-Yong City, Korea	no antagonistic activity against FXR (Co-transfection assay); no cytotoxicity against CV-1 cell line (MTT asssay, triplicate)	[36]
104	scalalactam B	sesterterpene	*Spongia* sp.	Tong-Yong City, Korea	no antagonistic activity against FXR (Co-transfection assay); no cytotoxicity against CV-1 cell line (MTT asssay, triplicate)	[36]
105	scalalactam C	sesterterpene	*Spongia* sp.	Tong-Yong City, Korea	no antagonistic activity against FXR (Co-transfection assay); no cytotoxicity against CV-1 cell line (MTT asssay, triplicate)	[36]
106	scalalactam D	sesterterpene	*Spongia* sp.	Tong-Yong City, Korea	no antagonistic activity against FXR (Co-transfection assay); no cytotoxicity against CV-1 cell line (MTT asssay, triplicate)	[36]
107	scalarin	sesterterpene	*S. tubulifera*	Mexican Caribbean	no cytotoxicity against A549, A2058, HepG2, MCF7 and MiaPaca-2 cell lines (MTT asssay, triplicate); no antibacterial activity against *A. baumannii*, *P. aeruginosa*, *K. pneumoniae* and *S. aureus*; no antiviral activity against human adenoviruses HAdV5 and HAdV5-GFP	[24]
108	scalimide A	sesterterpene	*Spongia* sp.	Philippines	antibacterial activity against *Micrococcus luteus*, *S. aureus* and *Bacillus subtilis* (MIC = 32, 64 and 16 μg/mL, respectively), but no antibacterial activity against *Salmonella typhimurium*, *K. pneumoniae* and *Escherichia coli* (MIC > 128 μg/mL); cytotoxicity against MCF7 cell line (EC_{50} = 25.6 μM)	[37]

No	Name	Class	Species	Locality	Bioassays	Ref
					(MTS asssay, triplicate)	
109	scalimide B	sesterterpene	*Spongia* sp.	Philippines	antibacterial activity against and *B. subtilis* (MIC = 128 μg/mL), but no antibacterial activity against *M. luteus*, *S. aureus*, *S. typhimurium*, *K. pneumoniae* and *E. coli* (MIC > 128 μg/mL); cytotoxicity against MCF7 cell line (EC_{50} = 73.9 μM) (MTS assay, triplicate)	[37]
110	scalimide C	sesterterpene	*Spongia* sp.	Philippines	antibacterial activity against *M. luteus*, *S. aureus* and *B. subtilis* (MIC = 32, 128 and 4 μg/mL, respectively), but no antibacterial activity against *S. typhimurium*, *K. pneumoniae* and *E. coli* (MIC > 128 μg/mL); cytotoxicity against MCF7 cell line (EC_{50} = 16.0 μM) (MTS asssay, triplicate)	[37]
111	scalimide D	sesterterpene	*Spongia* sp.	Philippines	antibacterial activity against *M. luteus*, *S. aureus* and *B. subtilis* (MIC = 32, 64 and 8 μg/mL, respectively), but no antibacterial activity against *S. typhimurium*, *K. pneumoniae* and *E. coli* (MIC > 128 μg/mL); cytotoxicity against MCF7 cell line (EC_{50} = 13.7 μM) (MTS asssay, triplicate)	[37]
112	scalimide E	sesterterpene	*Spongia* sp.	Philippines	no antibacterial activity against *M. luteus*, *S. aureus*, *B. subtilis*, *S. typhimurium*, *K. pneumoniae* and *E. coli* (MIC > 128 μg/mL); cytotoxicity against MCF7 cell line (EC_{50} = 26.5 μM) (MTS asssay, triplicate)	[37]
113	scalimide F	sesterterpene	*Spongia* sp.	Philippines	antibacterial activity against *Micrococcus luteus*, *S. aureus* and *Bacillus subtilis* (MIC = 64, 128 and 32 μg/mL, respectively), but no antibacterial activity against *Salmonella typhimurium*, *K. pneumoniae* and *Escherichia coli* (MIC > 128 μg/mL); cytotoxicity against MCF7 cell line (EC_{50} = 38.7 μM) (MTS asssay, triplicate)	[37]
114	scalimide G	sesterterpene	*Spongia* sp.	Philippines	antibacterial activity against *M. luteus*, *S. aureus* and *B. subtilis* (MIC = 32, 128 and 32	[37]

No	Name	Class	Species	Locality	Bioassays	Ref
					μg/mL, respectively), but no antibacterial activity against *S. typhimurium*, *K. pneumoniae* and *E. coli* (MIC > 128 μg/mL); cytotoxicity against MCF7 cell line (EC_{50} = 31.5 μM) (MTS asssay, triplicate)	
115	scalimide H	sesterterpene	*Spongia* sp.	Philippines	antibacterial activity against *M. luteus*, *S. aureus* and *B. subtilis* (MIC = 32, 128 and 8 μg/mL, respectively), but no antibacterial activity against *S. typhimurium*, *K. pneumoniae* and *E. coli* (MIC > 128 μg/mL); cytotoxicity against MCF7 cell line (EC_{50} = 20.7 μM) (MTS asssay, triplicate)	[37]
116	scalimide I	sesterterpene	*Spongia* sp.	Philippines	no antibacterial activity against *M. luteus*, *S. aureus*, *B. subtilis*, *S. typhimurium*, *K. pneumoniae* and *E. coli* (MIC > 128 μg/mL); cytotoxicity against MCF7 cell line (EC_{50} = 42.7 μM) (MTS asssay, triplicate)	[37]
117	scalimide J	sesterterpene	*Spongia* sp.	Philippines	antibacterial activity against *M. luteus*, *S. aureus*, *B. subtilis*, *S. typhimurium*, *K. pneumoniae* and *E. coli* (MIC = 8, 16, 4, 32, 64 and 64 μg/mL, respectively); cytotoxicity against MCF7 cell line (EC_{50} = 23.3 μM) (MTS asssay, triplicate)	[37]
118	scalimide K	sesterterpene	*Spongia* sp.	Philippines	antibacterial activity against *M. luteus*, *S. aureus* and *B. subtilis* (MIC = 16, 32 and 4 μg/mL, respectively), but no antibacterial activity against *S. typhimurium*, *K. pneumoniae* and *E. coli* (MIC > 128 μg/mL); cytotoxicity against MCF7 cell line (EC_{50} = 20.6 μM) (MTS asssay, triplicate)	[37]
119	scalimide L	sesterterpene	*Spongia* sp.	Philippines	no antibacterial activity against *M. luteus*, *S. aureus*, *B. subtilis*, *S. typhimurium*, *K. pneumoniae* and *E. coli* (MIC > 128 μg/mL); cytotoxicity against MCF7 cell line (EC_{50} = 42.9 μM) (MTS asssay, triplicate)	[37]
120	12-deacetoxy-4-demethyl-11,24-diacetoxy-3,4-methylenedeoxoscalarin	sesterterpene	*Spongia* cf. *agaricina*	Bunaken National Park, North Sulawesi, Indonesia	antibacterial activity against *Arthrobacter crystallopoietes* and *Bacillus megaterium*	[38]

No	Name	Class	Species	Locality	Bioassays	Ref
121	isospongiaquinone	meroterpene	*Spongia* sp.	South China Sea	phytoregulating activity for agricultural plants: stimulated the root growth of seedlings of buckwheat and barley	[39]
122	ilimaquinone	meroterpene	*Spongia* sp.	South China Sea	phytoregulating activity for agricultural plants: stimulated the root growth of wheat seedlings	[39]
				Son Cha, Lang Co, Thua Thien-Hue city, Vietnam	antibacterial activity against *B. subtilis* and *S. aureus* (MIC = 6.25 and 6.25 μM, respectively), but no antibacterial activity against *K. pneumoniae* and *E. coli* (MIC > 100 μM) (MTT asssay, triplicate)	[42]
					cytotoxicity against A549, MCF7, HeLa and WI-38 cell lines (IC_{50} = 5.9, 8.3, 7.6 and 9.7 μM, respectively)	[43]
123	smenoquinone	meroterpene	*Spongia* sp.	South China Sea	no activity on the root growth of the seedlings of plants buckwheat, wheat, soy, and barley	[39]
124	18-deoxy-18-formamidodictyoceratin B	meroterpene	*Spongia pertusa*	Yongxing Island, China	no cytotoxicity against U937, A549, HeLa and HepG2 cell lines (CCK-8 assay, triplicate); no CDK-2 affinity (SPR assay)	[40]
					no antifungal activity against *Trichophyton rubrum*, *Trichophyton mentaqrophytes* and *Candida albicans* (Dilution assay)	[47]
125	18-deoxy-18-(2-hydroxyacetyl)aminodictyoceratin B	meroterpene	*S. pertusa*	Yongxing Island, China	no cytotoxicity against U937, A549, HeLa and HepG2 cell lines (CCK-8 assay, triplicate); no CDK-2 affinity (SPR assay)	[40]
					no antifungal activity against *T. rubrum*, *T. mentaqrophytes* and *C. albicans* (Dilution assay)	[47]
126	dictyoceratin D	meroterpene	*S. pertusa*	Yongxing Island, China	no cytotoxicity against U937, A549, HeLa and HepG2 cell lines (CCK-8 assay, triplicate); no CDK-2 affinity (SPR assay)	[40]
127	N-methyl-ent-smenospongine	meroterpene	*S. pertusa*	Yongxing Island, China	no cytotoxicity against U937, A549, HeLa and HepG2 cell lines (CCK-8 assay, triplicate); no CDK-2 affinity (SPR assay)	[40]
128	N-methyl-5-epi-smenospongine	meroterpene	*S. pertusa*	Yongxing Island, China	no cytotoxicity against U937, A549, HeLa and HepG2 cell lines (CCK-8 assay, trip-	[40]

No	Name	Class	Species	Locality	Bioassays	Ref
					licate); no CDK-2 affinity (SPR assay)	
129	20-demethoxy-20-methylaminodactyloquinone D	meroterpene	*S. pertusa*	Yongxing Island, China	no cytotoxicity against U937, A549, HeLa and HepG2 cell lines (CCK-8 assay, triplicate); CDK-2 affinity (K_d = 4.8 μM) (SPR assay)	[40]
130	20-demethoxy-20-methylamino-5-epi-dactyloquinone D	meroterpene	*S. pertusa*	Yongxing Island, China	no cytotoxicity against U937, A549, HeLa and HepG2 cell lines (CCK-8 assay, triplicate); no CDK-2 affinity (SPR assay)	[40]
131	20-demethoxy-20-ethoxydactyloquinone E	meroterpene	*S. pertusa*	Yongxing Island, China	n no cytotoxicity against U937, A549, HeLa and HepG2 cell lines (CCK-8 assay, triplicate); no CDK-2 affinity (SPR assay)	[40]
132	20-demethoxy-20-ethoxydactyloquinone B	meroterpene	*S. pertusa*	Yongxing Island, China	no cytotoxicity against U937, A549, HeLa and HepG2 cell lines (CCK-8 assay, triplicate); no CDK-2 affinity (SPR assay)	[40]
133	20-demethoxy-20-methylaminodactyloquinone B	meroterpene	*S. pertusa*	Yongxing Island, China	no cytotoxicity against U937, A549, HeLa and HepG2 cell lines (CCK-8 assay, triplicate); no CDK-2 affinity (SPR assay)	[40]
134	20-demethoxy-20-ethoxycyclospongiaquinone-1	meroterpene	*S. pertusa*	Yongxing Island, China	no cytotoxicity against U937, A549, HeLa and HepG2 cell lines (CCK-8 assay, triplicate); no CDK-2 affinity (SPR assay)	[40]
135	yahazunol B	meroterpene	*S. pertusa*	Yongxing Island, China	no cytotoxicity against U937, A549, HeLa and HepG2 cell lines (CCK-8 assay, triplicate); no CDK-2 affinity (SPR assay)	[40]
136	5-epi-Smenospongine	meroterpene	*S. pertusa*	Yongxing Island, China	cytotoxicity against U937 cell line (IC_{50} = 2.8, 1.5, and 0.6 μM), but no cytotoxicity against A549, HeLa and HepG2 cell lines (CCK-8 assay, triplicate); no CDK-2 affinity (SPR assay)	[40]
137	smenospongine	meroterpene	*S. pertusa*	Yongxing Island, China	cytotoxicity against U937, HeLa and HepG2 cell lines (IC_{50} = 1.5, 8.6 and 6.7 μM, respectively), but no cytotoxicity against A549 cell line (CCK-8 assay, triplicate); no CDK-2 affinity (SPR assay)	[40]
					preferentially eliminates breast cancer stem-like cells via p38/AMPKα pathways	[41]
			Spongia sp.	Son Cha, Lang Co, Thua Thien-Hue city, Vietnam	antibacterial activity against *B. subtilis* and *S. aureus* (MIC = 12.5 and 6.25 μM, respec-	[42]

No	Name	Class	Species	Locality	Bioassays	Ref
					tively), but no antibacterial activity against *K. pneumoniae* and *E. coli* (MIC > 100 μM) (MTT asssay, triplicate)	
					cytotoxicity against A549, MCF7, HeLa and WI-38 cell lines (IC_{50} = 7.8, 8.3, 7.5 and 9.2 μM, respectively)	[43]
138	smenospongidine	meroterpene	*S. pertusa*	Yongxing Island, China	cytotoxicity against U937, HeLa and HepG2 cell lines (IC_{50} = 0.60, 5.4 and 3.5 μM, respectively), but no cytotoxicity against A549 cell line (CCK-8 assay, triplicate); no CDK-2 affinity (SPR assay)	[40]
					no antifungal activity against *T. rubrum*, *T. mentaqrophytes* and *C. albicans* (Dilution assay)	[47]
			Spongia sp.	Son Cha, Lang Co, Thua Thien-Hue city, Vietnam	antibacterial activity against *B. subtilis* and *S. aureus* (MIC = 12.5 and 12.5 μM, respectively), but no antibacterial activity against *K. pneumoniae* and *E. coli* (MIC > 100 μM) (MTT asssay, triplicate)	[42]
					cytotoxicity against A549, MCF7, HeLa and WI-38 cell lines (IC_{50} = 4.0, 6.5, 5.0 and 3.0 μM, respectively)	[43]
139	langcoquinone A	meroterpene	*Spongia* sp.	Son Cha, Lang Co, Thua Thien-Hue city, Vietnam	antibacterial activity against *B. subtilis* and *S. aureus* (MIC = 12.5 and 12.5 μM, respectively), but no antibacterial activity against *K. pneumoniae* and *E. coli* (MIC > 100 μM) (MTT asssay, triplicate)	[42]
					cytotoxicity against A549, MCF7, HeLa and WI-38 cell lines (IC_{50} = 9.9, 7.9, 8.1 and 8.4 μM, respectively)	[43]
140	langcoquinone B	meroterpene	*Spongia* sp.	Son Cha, Lang Co, Thua Thien-Hue city, Vietnam	antibacterial activity against *B. subtilis* and *S. aureus* (MIC = 12.5 and 12.5 μM, respectively), but no antibacterial activity against *K. pneumoniae* and *E. coli* (MIC > 100 μM) (MTT asssay, triplicate)	[42]
					cytotoxicity against A549, MCF7, HeLa and WI-38 cell lines (IC_{50} = 6.2, 8.7, 8.0 and	[43]

No	Name	Class	Species	Locality	Bioassays	Ref
					8.8 μM, respectively)	
141	dictyoceratin A	meroterpene	*Spongia* sp.	Son Cha, Lang Co, Thua Thien-Hue city, Vietnam	antibacterial activity against *B. subtilis* and *S. aureus* (MIC = 6.25 and 6.25 μM, respectively), but no antibacterial activity against *K. pneumoniae* and *E. coli* (MIC > 100 μM) (MTT asssay, triplicate)	[42]
					no cytotoxicity against A549, MCF7, HeLa and WI-38 cell lines (IC_{50} > 50 μM)	[43]
			Spongia sp.	Xisha Islands, China	no antifungal activity against *T. rubrum*, *T. mentaqrophytes* and *C. albicans* (Dilution assay)	[44]
142	polyfibrospongol B	meroterpene	*Spongia* sp.	Son Cha, Lang Co, Thua Thien-Hue city, Vietnam	no antibacterial activity against *B. subtilis*, *S. aureus*, *K. pneumoniae* and *E. coli* (MIC > 100 μM) (MTT asssay, triplicate)	[42]
					cytotoxicity against MCF7 cell line (IC_{50} = 42.6 μM), but no cytotoxicity against A549, HeLa and WI-38 cell lines (IC_{50} > 50 μM)	[43]
143	19-hydroxypolyfibrospongol B	meroterpene	*Spongia* sp.	Son Cha, Lang Co, Thua Thien-Hue city, Vietnam	no antibacterial activity against *B. subtilis*, *S. aureus*, *K. pneumoniae* and *E. coli* (MIC > 100 μM) (MTT asssay, triplicate)	[42]
					cytotoxicity against WI-38 cell line (IC_{50} = 42.1 μM), but no cytotoxicity against A549, HeLa and MCF7 cell lines (IC_{50} > 50 μM)	[43]
144	nakijiquinone L	meroterpene	*Spongia* sp.	Son Cha, Lang Co, Thua Thien-Hue city, Vietnam	antibacterial activity against *B. subtilis* and *S. aureus* (MIC = 6.25 and 6.25 μM, respectively), but no antibacterial activity against *K. pneumoniae* and *E. coli* (MIC > 100 μM) (MTT asssay, triplicate)	[42]
			S. pertusa	Yongxing Island, China	antifungal activity against *T. rubrum*, *T. mentaqrophytes* and *C. albicans* (MIC_{50} = 25, 25 and 25 μg/mL, respectively) (Dilution assay)	[47]
145	langconol A	meroterpene	*Spongia* sp.	Son Cha, Lang Co, Thua Thien-Hue city, Vietnam	antibacterial activity against *B. subtilis* (MIC = 12.50 μM), but no antibacterial activity against *S. aureus*, *K. pneumoniae*	[43]

No	Name	Class	Species	Locality	Bioassays	Ref
					and *E. coli* (MIC > 100 μM) (MTT asssay, triplicate); no cytotoxicity against A549, MCF7, HeLa and WI-38 cell lines (IC_{50} > 50 μM)	
146	langconol B	meroterpene	*Spongia* sp.	Son Cha, Lang Co, Thua Thien-Hue city, Vietnam	no antibacterial activity against *B. subtilis*, *S. aureus*, *K. pneumoniae* and *E. coli* (MIC > 100 μM) (MTT asssay, triplicate); no cytotoxicity against A549, MCF7, HeLa and WI-38 cell lines (IC_{50} > 50 μM)	[43]
147	langconol C	meroterpene	*Spongia* sp.	Son Cha, Lang Co, Thua Thien-Hue city, Vietnam	antibacterial activity against *B. subtilis* (MIC = 25.0 μM), but no antibacterial activity against *S. aureus*, *K. pneumoniae* and *E. coli* (MIC > 100 μM) (MTT asssay, triplicate); cytotoxicity against A549, MCF7, HeLa and WI-38 cell lines (IC_{50} = 7.8, 5.0, 7.2 and 8.7 μM, respectively)	[43]
148	langcoquinone C	meroterpene	*Spongia* sp.	Son Cha, Lang Co, Thua Thien-Hue city, Vietnam	antibacterial activity against *B. subtilis* and *S. aureus* (MIC = 6.25 and 12.50 μM, respectively), but no antibacterial activity against *K. pneumoniae* and *E. coli* (MIC > 100 μM) (MTT asssay, triplicate); cytotoxicity against A549, MCF7, HeLa and WI-38 cell lines (IC_{50} = 6.6, 9.6, 7.6 and 8.2 μM, respectively)	[43]
149	polyfibrospongol A	meroterpene	*Spongia* sp.	Son Cha, Lang Co, Thua Thien-Hue city, Vietnam	no antibacterial activity against *B. subtilis*, *S. aureus*, *K. pneumoniae* and *E. coli* (MIC > 100 μM) (MTT asssay, triplicate); no cytotoxicity against A549, MCF7, HeLa and WI-38 cell lines (IC_{50} > 50 μM)	[43]
150	smenospongorine	meroterpene	*Spongia* sp.	Son Cha, Lang Co, Thua Thien-Hue city, Vietnam	antibacterial activity against *B. subtilis* and *S. aureus* (MIC = 12.50 and 25.00 μM, respectively), but no antibacterial activity against *K. pneumoniae* and *E. coli* (MIC > 100 μM) (MTT asssay, triplicate); cytotoxic activities against A549, MCF7, HeLa and WI-38 cell lines (IC_{50} = 6.7, 4.6, 7.6 and 3.5 μM, respectively)	[43]

No	Name	Class	Species	Locality	Bioassays	Ref
				Xisha Islands, China	antifungal activity against *C. albicans* (MIC_{50} = 25 μg/mL), but no antifungal activity against *T. rubrum* and *T. mentaqrophytes* (Dilution assay)	[44]
			S. pertusa	Yongxing Island, China	antifungal activity against *T. rubrum*, *T. mentaqrophytes* and *C. albicans* (MIC_{50} = 100, 50 and 25 μg/mL, respectively) (Dilution assay)	[47]
151	smenodiol	meroterpene	*Spongia* sp.	Xisha Islands, China	no antifungal activity against *T. rubrum*, *T. mentaqrophytes* and *C. albicans* (Dilution assay)	[44]
152	5-*epi*-smenospongorine	meroterpene	*Spongia* sp.	Xisha Islands, China	antibacterial activity against *T. mentaqrophytes* and *T. rubrrum* (MIC_{80} = 12.5 and 12.5 μg/mL, respectively), but no antifungal activity against *C. albicans* (Dilution assay)	[44]
			S. pertusa	Yongxing Island, China	antifungal activity against *T. rubrum*, *T. mentaqrophytes* and *C. albicans* (MIC_{50} = 12.5, 12.5 and 50 μg/mL, respectively) (Dilution assay)	[47]
153	dictyoceratin C	meroterpene	*Spongia* sp.	Xisha Islands, China	no antifungal activity against *T. rubrum*, *T. mentaqrophytes* and *C. albicans* (Dilution assay)	[44]
154	*epi*-smenospongidine	meroterpene	*Spongia* sp.	Xisha Islands, China	antibacterial activity against *T. mentaqrophytes* and *T. rubrrum* (MIC_{80} = 25 and 12.5 μg/mL, respectively), but no antifungal activity against *C. albicans* (Dilution assay)	[44]
155	langcoquinone D (24-methylsulfinyllancoquinone B)	meroterpene	*Spongia* sp.	Son Cha, Lang Co, Thua Thien-Hue city, Vietnam	antibacterial activity against *B. subtilis* and *S. aureus* (MIC = 12.5 and 25.0 μM, respectively), but no antibacterial activity against *K. pneumoniae* and *E. coli* (MIC > 100 μM) (MTT asssay, triplicate); cytotoxicity against A549, MCF7, HeLa and WI-38 cell lines (IC_{50} = 8.9, 5.9, 8.6 and 5.6 μM, respectively)	[45]
			S. pertusa	Yongxing Island, China	antifungal activity against *T. rubrum*, *T. mentaqrophytes* and *C. albicans* (MIC_{50} = 25,	[47]

No	Name	Class	Species	Locality	Bioassays	Ref
					12.5 and 25 μg/mL, respectively) (Dilution assay)	
156	langcoquinone E	meroterpene	*Spongia* sp.	Son Cha, Lang Co, Thua Thien-Hue city, Vietnam	no antibacterial activity against *B. subtilis*, *S. aureus*, *K. pneumoniae* and *E. coli* (MIC > 100 μM) (MTT asssay, triplicate); no cytotoxic activity against A549, MCF7, HeLa and WI-38 cell lines (IC_{50} > 50 μM)	[45]
157	langcoquinone F	meroterpene	*Spongia* sp.	Son Cha, Lang Co, Thua Thien-Hue city, Vietnam	no antibacterial activity against *B. subtilis*, *S. aureus*, *K. pneumoniae* and *E. coli* (MIC > 100 μM) (MTT asssay, triplicate); no cytotoxic activity against A549, MCF7, HeLa and WI-38 cell lines (IC_{50} > 50 μM)	[45]
158	nakijiquinone E	meroterpene	*S. irregularis*	Ras Mohamed, Sinai, Egypt	no inhibitory against HCV (Molecular docking calculations)	[31]
159	nakijiquinone F	meroterpene	*S. irregularis*	Ras Mohamed, Sinai, Egypt	inhibitory against HCV in binding affinity to the active site of NS5B HCV RNA-dependent RNA polymerase (Molecular docking calculations)	[31]
160	5-*epi*-isospongiaquinone	meroterpene	*S. irregularis*	Ras Mohamed, Sinai, Egypt	no inhibitory against HCV (Molecular docking calculations)	[31]
161	1,4,44-trihydroxy-2-octaprenylbenzene	meroterpene	*S. irregularis*	Ras Mohamed, Sinai, Egypt	no inhibitory against HCV (Molecular docking calculations)	[31]
162	2-hexaprenyl-1-4-hydroquinone	meroterpene	*Spongia* sp.	Aegean Sea	cytotoxicity against AGS cell line (IC_{50} = 5.33 μM) but no cytotoxicity against T24 cell line (MTT asssay, triplicate)	[46]
163	2-heptaprenyl-1-4-hydroquinone	meroterpene	*Spongia* sp.	Aegean Sea	cytotoxicity against AGS (IC_{50} = 0.994 μM) and T24 (inhibition rate 66.63% at 100 μM) cell lines (MTT asssay, triplicate)	[46]
164	2-octaprenyl-1-4-hydroquinone	meroterpene	*Spongia* sp.	Aegean Sea	cytotoxicity against AGS and T24 (inhibition rate 33.41% and 34.38% at 100 μM, respectively) cell lines (MTT asssay, triplicate)	[46]
165	2-[24-hydroxy]octaprenyl-1-4-hydroquinone	meroterpene	*Spongia* sp.	Aegean Sea	cytotoxicity against AGS cell line (IC_{50} = 8.09 μM) but no cytotoxicity against T24 cell line (MTT asssay, triplicate)	[46]
166	2-hexaprenylmethyl-2-methylchromen-6-	meroterpene	*Spongia* sp.	Aegean Sea	no cytotoxicity against AGS and T24 cell	[46]

No	Name	Class	Species	Locality	Bioassays	Ref
	ol				lines (MTT asssay, triplicate)	
167	pelorol A	meroterpene	*S. pertusa*	Yongxing Island, China	no antifungal activity against *T. rubrum*, *T. mentaqrophytes* and *C. albicans* (Dilution assay)	[47]
168	*epi*-langconol A	meroterpene	*S. pertusa*	Yongxing Island, China	no antifungal activity against *T. rubrum*, *T. mentaqrophytes* and *C. albicans* (Dilution assay)	[47]
169	smenospongic acid	meroterpene	*S. pertusa*	Yongxing Island, China	no antifungal activity against *T. rubrum*, *T. mentaqrophytes* and *C. albicans* (Dilution assay)	[47]
170	smenospongiarine	meroterpene	*S. pertusa*	Yongxing Island, China	antifungal activity against *T. rubrum*, *T. mentaqrophytes* and *C. albicans* (MIC_{50} = 25, 12.5 and 50 μg/mL, respectively) (Dilution assay)	[47]
171	metachromin X	meroterpene	*Spongia* sp.	Miyako-Sone, Japan	cytotoxicity against HeLa cell line (IC_{50} = 64 μM) (MTT asssay, triplicate); arrest effects on the cell cycle progression of HeLa/Fucci2 cells at S/G2/M phase	[48]
172	metachromin Y	meroterpene	*Spongia* sp.	Miyako-Sone, Japan	cytotoxicity against HeLa cell line (IC_{50} = 76 μM) (MTT asssay, triplicate); no arrest effects on the cell cycle progression of HeLa/Fucci2 cells at S/G2/M phase	[48]
173	metachromin C	meroterpene	*Spongia* sp.	Miyako-Sone, Japan	cytotoxicity against HeLa cell line (IC_{50} = 53 μM) (MTT asssay, triplicate); arrest effects on the cell cycle progression of HeLa/Fucci2 cells at S/G2/M phase	[48]
174	metachromin J	meroterpene	*Spongia* sp.	Miyako-Sone, Japan	cytotoxicity against HeLa cell line (IC_{50} = 73 μM) (MTT asssay, triplicate); no arrest effects on the cell cycle progression of HeLa/Fucci2 cells at S/G2/M phase	[48]
175	metachromin T	meroterpene	*Spongia* sp.	Miyako-Sone, Japan	cytotoxicity against HeLa cell line (IC_{50} = 89 μM) (MTT asssay, triplicate); no arrest effects on the cell cycle progression of HeLa/Fucci2 cells at S/G2/M phase	[48]
176	demethylfurospongin-4	linear furanoterpenoid	*S. officinalis*	Cortiou and Riou, France	—	[49]
177	furofficin	linear furanoterpenoid	*S. officinalis*	Cortiou and Riou, France	—	[49]
178	furospongin-1	linear furanoterpenoid	*S. officinalis*	Cortiou and Riou, France	—	[49]

No	Name	Class	Species	Locality	Bioassays	Ref
			Spongia sp.	North Sulawesi, Indonesia	inhibitory against PTP1B, TCPTP and VHR (IC_{50} = 9.9, 9.6 and 11 μM, respectively), but no inhibitory against CD45 (IC_{50} >30 μM); no cytotoxicity against Huh-7 and EJ-1 cell lines (WST-1 asssay, triplicate)	[50]
179	spongialactam A	linear furanoterpenoid	*S. officinalis*	Cortiou and Riou, France	—	[49]
180	spongialactam B	linear furanoterpenoid	*S. officinalis*	Cortiou and Riou, France	—	[49]
181	(-)-untenospongin B	linear furanoterpenoid	*S. officinalis*	Weizhou Island, China	—	[51]
182	kurospongin	linear furanoterpenoid	*S. officinalis*	Weizhou Island, China	—	[51]
183	fasciculatin acid	linear furanoterpenoid	*S. officinalis*	Weizhou Island, China	—	[51]
184	fasciculation	linear furanoterpenoid	*S. officinalis*	Weizhou Island, China	—	[51]
185	sponalisolide A	linear furanoterpenoid	*S. officinalis*	Weizhou Island, China	quorum sensing inhibitory activity against *Pseudomonas aeruginosa*	[52]
186	sponalisolide B	linear furanoterpenoid	*S. officinalis*	Weizhou Island, China	quorum sensing inhibitory activity against *P. aeruginosa*	[52]
187	spongiafuranic acid A	linear furanoterpenoid	*Spongia* sp.	Jeddah, Saudi Arabia	no cytotoxicity against P388, HuCCT, DLD-1 and CCD-966SK cell lines (IC_{50} > 20 μg/mL) (Almar Blue assay, triplicate); no anti-inflammatory activity toward inhibiting O_2^- generation and elastase release (IC_{50} > 10 μM)	[27]
			S. officinalis	Shui Niupo Village, Danzhou City, Hainan Province, China	no cytotoxicity against K562, H69AR, ASPC-1 and MDA-MB-231 cell lines (SRB assay and MTT assay, triplicate); no signalling inhibition of TAT3/NF-κB, HIF-1 and Wnt	[29]
188	spongiafuranohydroxamic acid A	linear furanoterpenoid	*Spongia* sp.	Jeddah, Saudi Arabia	no cytotoxicity against P388, HuCCT, DLD-1 and CCD-966SK cell lines (IC_{50} > 20 μg/mL) (Almar Blue assay, triplicate); no anti-inflammatory activity toward inhibiting O_2^- generation and elastase release (IC_{50} > 10 μM)	[27]
189	16-*epi*-irciformonin G	linear furanoterpenoid	*Spongia* sp.	Jeddah, Saudi Arabia	no cytotoxicity against P388, HuCCT, DLD-1 and CCD-966SK cell lines (IC_{50} > 20 μg/mL) (Almar Blue assay, triplicate); no anti-inflammatory activity toward inhib-	[27]

No	Name	Class	Species	Locality	Bioassays	Ref
					iting O_2^- generation and elastase release (IC_{50} > 10 μM)	
190	(±)-sponalisolide B	linear furanoterpenoid	*Spongia* sp.	Jeddah, Saudi Arabia	no cytotoxicity against P388, HuCCT, DLD-1 and CCD-966SK cell lines (IC_{50} > 20 μg/mL) (Almar Blue assay, triplicate); anti-inflammatory activity toward inhibiting O_2^- generation (IC_{50} = 5.31 ± 1.52 μM) but no inhibition against elastase release	[27]
			S. officinalis	Shui Niupo Village, Danzhou City, Hainan Province, China	no cytotoxicity against K562, H69AR, ASPC-1 and MDA-MB-231 cell lines (SRB assay and MTT assay, triplicate); no signalling inhibition of TAT3/NF-κB, HIF-1 and Wnt	[29]
191	(±)-pokepola ester B	linear furanoterpenoid	*S. officinalis*	Shui Niupo Village, Danzhou City, Hainan Province, China	cytotoxicity against MDA-MB-231, K562 and ASPC-1 cell lines (IC_{50} = 17.4, 28.0 and 11.0 μM, respectively), but no cytotoxicity against H69AR cell line (SRB assay and MTT assay, triplicate); no signalling inhibition of TAT3/NF-κB, HIF-1 and Wnt	[29]
192	(±)-pokepola ester C	linear furanoterpenoid	*S. officinalis*	Shui Niupo Village, Danzhou City, Hainan Province, China	no cytotoxicity against K562, H69AR, ASPC-1 and MDA-MB-231 cell lines (SRB assay and MTT assay, triplicate); signalling inhibition of TAT3/NF-κB, HIF-1 and Wnt	[29]
193	(±)-pokepola ester D	linear furanoterpenoid	*S. officinalis*	Shui Niupo Village, Danzhou City, Hainan Province, China	cytotoxicity against MDA-MB-231 cell lines (IC_{50} = 23.6 μM), but no cytotoxicity against K562, H69AR and ASPC-1 cell lines (SRB assay and MTT assay, triplicate); no signalling inhibition of TAT3/NF-κB, HIF-1 and Wnt	[29]
194	(±)-pokepola ester E	linear furanoterpenoid	*S. officinalis*	Shui Niupo Village, Danzhou City, Hainan Province, China	no cytotoxicity against K562, H69AR, ASPC-1 and MDA-MB-231 cell lines (SRB assay and MTT assay, triplicate); no signalling inhibition of TAT3/NF-κB, HIF-1 and Wnt	[29]
195	(±)-sponalisolide C	linear furanoterpenoid	*S. officinalis*	Shui Niupo Village, Danzhou City, Hainan Province, China	no cytotoxicity against K562, H69AR, ASPC-1 and MDA-MB-231 cell lines (SRB	[29]

No	Name	Class	Species	Locality	Bioassays	Ref
					assay and MTT assay, triplicate); no signalling inhibition of TAT3/NF-κB, HIF-1 and Wnt	
196	(-)-sponalisolide D	linear furanoterpenoid	*S. officinalis*	Shui Niupo Village, Danzhou City, Hainan Province, China	no cytotoxicity against K562, H69AR, ASPC-1 and MDA-MB-231 cell lines (SRB assay and MTT assay, triplicate); no signalling inhibition of TAT3/NF-κB, HIF-1 and Wnt	[29]
197	stigmsta-4,6,8(14),22-tetraen-3-one	steroid	*Spongia* sp.	Xisha Islands, China	no antifungal activity against *C. albicans*, *T. rubrum* and *T. mentaqrophytes* (Dilution assay)	[44]
198	3-oxo-4,6,8(14)-triunsaturated steroid	steroid	*Spongia* sp.	Xisha Islands, China	no antifungal activity against *C. albicans*, *T. rubrum* and *T. mentaqrophytes* (Dilution assay)	[44]
199	ergosta-4,6,8(14),22-tetraen-3-one	steroid	*Spongia* sp.	Xisha Islands, China	antifungal activity against *T. rubrum* (MIC_{80} = 25 μg/mL), but no antifungal activity against *C. albicans* and *T. mentaqrophytes* (Dilution assay)	[44]
200	cholesta-7-ene-3β,5α-diol-6-one	steroid	*Spongia* sp.	Jeddah, Saudi Arabia	no cytotoxicity against P388, HuCCT, DLD-1 and CCD-966SK cell lines (IC_{50} > 20 μg/mL) (Almar Blue assay, triplicate); no anti-inflammatory activity toward inhibiting O_2^- generation and elastase release	[27]
201	3β,5α,9α-trihydroxy-24*S*-ethylcholest-7-en-6-one	steroid	*Spongia* sp.	Jeddah, Saudi Arabia	no cytotoxicity against the Huh7 cell line (MTT asssay, triplicate); no antibacterial activity against *S. aureus*; no anti-inflammatory activity toward inhibiting O_2^- generation and elastase release (IC_{50} > 20 μM)	[15]
202	(22*E*,24*S*)-ergosta-7,22-dien-3β,5α-diol-6,5-olide	steroid	*Spongia* sp.	Jeddah, Saudi Arabia	no cytotoxicity against the Huh7 cell line (MTT asssay, triplicate); no antibacterial activity against *S. aureus*; no anti-inflammatory activity toward inhibiting O_2^- generation and elastase release (IC_{50} > 20 μM)	[15]
203	/	alkaloid	*Spongia* sp.	Tong-Yong City, Korea	no antagonistic activity against FXR (Co-transfection assay); no cytotoxicity	[53]

No	Name	Class	Species	Locality	Bioassays	Ref
					against CV-1 cell line (MTT asssay, triplicate)	
204	/	alkaloid	*Spongia* sp.	Tong-Yong City, Korea	no antagonistic activity against FXR (Co-transfection assay); no cytotoxicity against CV-1 cell line (MTT asssay, triplicate)	[53]
205	1,3,7-trimethylguanine	alkaloid	*S. irregularis*	Ras Mohamed, Sinai, Egypt	no inhibitory against HCV (Molecular docking calculations)	[31]
206	thymidine	alkaloid	*S. irregularis*	Ras Mohamed, Sinai, Egypt	no inhibitory against HCV (Molecular docking calculations)	[31]
			Spongia sp.	Jeddah, Saudi Arabia	antibacterial activity against *S. aureus* (inhibition rate 89% at 200 μM); no cytotoxicity against Huh7 cell line (MTT asssay, triplicate); no anti-inflammatory activity toward inhibiting O_2^- generation and elastase release (IC_{50} > 20 μM)	[15]
207	1*H*-indazole	alkaloid	*S. irregularis*	Ras Mohamed, Sinai, Egypt	no inhibitory against HCV (Molecular docking calculations)	[31]
			Spongia sp.	Zhanjiang, Guangdong, China	—	[30]
208	spongiacysteine	alkaloid	*S. irregularis*	Ras Mohamed, Sinai, Egypt	no inhibitory against HCV (Molecular docking calculations)	[31]
209	dysidamide	alkaloid	*Spongia* sp.	Jeddah, Saudi Arabia	no cytotoxicity against Huh7 cell line (MTT asssay, triplicate); no antibacterial activity against *S. aureus*; anti-inflammatory activity toward inhibiting elastase release (IC_{50} = 17.23 ± 2.45 μM), but no anti-inflammatory activity toward inhibiting O_2^- generation (IC_{50} > 20 μM)	[15]
210	7,7,7-trichloro-3-hydroxy-2,2,6-trimethyl-4-(4,4,4-trichloro-3-methyl-1-oxobu-tylamino)-heptanoic acid methyl ester	alkaloid	*Spongia* sp.	Jeddah, Saudi Arabia	no cytotoxicity against the Huh7 cell line (MTT asssay, triplicate); no antibacterial activity against *S. aureus*; anti-inflammatory activity toward inhibiting elastase release (IC_{50} = 14.60 ± 2.24 μM), but no anti-inflammatory activity toward inhibiting O_2^- generation (IC_{50} > 20 μM)	[15]
211	1*H*-indole-3-carbaldehyde	alkaloid	*Spongia* sp.	Zhanjiang, Guangdong, China	—	[30]
212	1*H*-indole-3-carboxylic acid	alkaloid	*Spongia* sp.	Zhanjiang, Guangdong, China	—	[30]

No	Name	Class	Species	Locality	Bioassays	Ref
213	1*H*-indole-3-carboxylic acid acetate	alkaloid	*Spongia* sp.	Zhanjiang, Guangdong, China	—	[30]
214	spongimide A	alkaloids	*Spongia* sp.	Zhanjiang, Guangdong, China	no cytotoxicity against K562 cell line (CCK-8 asssay, triplicate); no antibacterial antibacterial activity against *Salmonella paratyphi* and *E. coli*	[54]
215	spongimide B	alkaloid	*Spongia* sp.	Zhanjiang, Guangdong, China	no cytotoxicity against K562 cell line (CCK-8 asssay, triplicate); no antibacterial antibacterial activity against *Salmonella paratyphi* and *E. coli*	[54]
216	(*S*)-tetrahydro-1*H*-pyrrolo[1,2-c]imidazole -1,3(2*H*)-dione	alkaloid	*Spongia* sp.	Zhanjiang, Guangdong, China	—	[54]
217	(*S*)-5-isopropylhydantoin	alkaloid	*Spongia* sp.	Zhanjiang, Guangdong, China	—	[54]
218	*N*-(4-hydroxyphenethyl)succinimide	alkaloid	*Spongia* sp.	Zhanjiang, Guangdong, China	—	[54]
219	methyl hematinate	alkaloid	*Spongia* sp.	Zhanjiang, Guangdong, China	—	[54]
220	L-pyroglutamic acid methyl ester	alkaloid	*Spongia* sp.	Zhanjiang, Guangdong, China	—	[54]
221	3,5-dihydroxyfuran-2(5*H*)-one	others	*S. irregularis*	Ras Mohamed, Sinai, Egypt	no inhibitory against HCV (Molecular docking calculations)	[31]
222	(*Z*)-3-methyl-9-oxodec-2-enoic acid	others	*Spongia* sp.	Jeddah, Saudi Arabia	no antibacterial activity against *S. aureu*); no cytotoxicity against Huh7 cell line (MTT asssay, triplicate); no an-ti-inflammatory activity toward inhibiting O_2^- generation and elastase release (IC_{50} > 20 μM)	[15]

[1] '—' indicates no bioassay was reported in the reference.

[2] '/' indicates no compound name was given in the reference.