
SUPPLEMENTARY MATERIAL

Secondary Metabolites from Coral-associated Fungi: Source, Chemistry and Bioactivities

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Abstract: Research efforts of the secondary metabolites of coral-associated fungi lead to a valuable but extra-large chemical database. Many of them exhibit strong biological activity and can be used for promising drug lead compounds. Serving as an epitome of the most promising compounds, which take the ultra-new skeletons and/or remarkable bioactivities, this review presents an overview of new compounds and bioactive compounds isolated from coral-associated fungi, covering the literature from 2010 to 2021. Its emphasis included 423 metabolites, focusing on bioactivity and structure diversity of these compounds. According to structures, these compounds can be roughly classified as terpenes, alkaloids, peptides, aromatics, lactones, steroids and other compounds. Some of them described in this review possess a wide range of bioactivities, such as anticancer, antimicrobial, antifouling and other activities. This review aims to provide some significant chemical and/or biological enlightenment for the study of marine natural products and marine drug development in the future.

Keywords: coral-derived fungus; biological activities; natural products.

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Table S1. Anticancer activity

Anticancer activity				
Name	Ref.	cell type	IC ₅₀	Origin
hirsutanol A (8)	[1]	SW620, SW480, LoVo, Hep3B, HepG2, Bel-7402, A549, CNE1, CNE2, SUNE1, MCF7, MDA-MB-231, MDA-MB-435, MDA-MB-453, HeLa	0.58 to 8.27 µg/ml	<i>Chondrostereum</i> sp.
incarnal (7)	[2]	CNE1, CNE2, SUNE, lovo, KB, Be17402, MCF-7	2.16 to 28.55 µg/ml	<i>Chondrostereum</i> sp.
chondrosterin A (1) *	[3]	A549, CNE2, and LoVo	2.45, 4.95, 5.47 µM	<i>Chondrostereum</i> sp.
(+)-sydowic acid (32)	[4]	murine leukemia P-388 cells	2.56 µg/mL	<i>Aspergillus versicolor</i>
1-hydroxyboivinianic acid (34) *	[5]	A549, Caski, HepG 2 and MCF-7	90.6, 78.2, 75.8, 80.4 µg/mL	<i>Scopulariopsis</i> sp.
neoechinulin A (40)	[6]	Hela cells	-	<i>Nigrospora oryzae</i>
tardioxopiperazine A (43)	[7]	NCI-H1975/GR cell lines	50.94%, µM/L	<i>Nigrospora oryzae</i>
variecolorin L (44)	[7]	NCI-H1975/GR cell lines	56.83%, 50 µM/L	<i>Nigrospora oryzae</i>
L-alanyl-L-tryptophan anhydride (46)	[8]	TMEM16A	65.0%, 5 mu g/mL	<i>Nigrospora oryzae</i>
(+)-variecolorin G (57)	[7]	NCI-H1975/GR cell lines	40.65%, 50 µM/L	<i>Aspergillus</i> sp.
notoamide G (62)	[9]	hepatocellular carcinoma (HCC)	0.66 ± 0.55 to 2.70 ± 0.12 µM	<i>Aspergillus ochraceus</i>
avrainvillamide (63)	[9]	hepatocellular carcinoma (HCC)	0.63 ± 0.55 to 3.39 ± 0.15 µM	<i>Aspergillus ochraceus</i>
stephacidin B (64)	[9]	hepatocellular carcinoma (HCC)	0.42 ± 0.55 to 3.19 ± 0.24 µM	<i>Aspergillus ochraceus</i>
versiquinazolines L–Q (74–79) *	[10]	A549	IC ₅₀ > 10 µM	<i>Aspergillus versicolor</i>
chaetoglobosin E (95)	[11–13]	HCT-116, K562, A549, Huh7, H1975, MCF-7, U937, BGC823, HL60, Hela, MOLT-4	13.53±1.90, 8.9, 5.9, 1.4, 9.2, 2.1, 1.4, 8.2, 2.5, 2.8, 1.4 µM,	<i>Chaetomium globosum</i>
chaetoglobosin Fex (96)	[11]	Huh7, MCF-7, U937, and MOLT-4 cell lines	3.0, 7.5, 4.9, and 2.9 µM	<i>Chaetomium globosum</i>
aspergillin PZ (103)	[14, 15]	A2780, LNCaP and PC3 cell lines		<i>Aspergillus elegans</i>
aspochalasin E (108)	[16, 17]	B16-F10 and HCT-116	18.5, 6.3 µg/ml	<i>Aspergillus</i> sp
(3 <i>R</i> ,6 <i>R</i>)-bassiatin (139)	[18]	MDA-MB-435, Calu3	7.34 ± 0.20, 14.54 ± 0.01 µM	<i>Dichotomomyces</i> sp.
neoaspergillic acid (134)	[19, 20]	SPC-A-1, BEL-7402, SGC-7901, K562	22.2, 24.9, 8.2, 8.0	<i>Aspergillus</i> sp.
scopularide A (162)	[21]	L5178Y	1.2 µM	<i>Scopulariopsis</i> sp.
aspersymmetide A (150) *	[22]	NCI-H292 and A431	53.8%, 63.62% (10µM)	<i>Carloja</i> sp.
cladospolide E (202) *	[23]	lipid-lowering activity in HepG2 hepatocytes	12.1 µM	<i>Cladosporium</i> sp.
secopatulolide A (204)	[23]	lipid-lowering activity in HepG2 hepatocytes	8.4 µM	<i>Cladosporium</i> sp.
secopatulolide C (205)	[23]	lipid-lowering activity in HepG2 hepatocytes	13.1 µM	<i>Cladosporium</i> sp.
11-hydroxy- γ -dodecalactone (206)	[23]	lipid-lowering activity in HepG2 hepatocytes	7.1 µM	<i>Cladosporium</i> sp.

penimethavone A (252)	[24]	Hela and rhabdomyosarcoma cell lines	8.41 and 8.18 μ M	<i>Penicillium chrysogenum</i>
coniochaetone K (234) * coniochaetone A (235), 8-hydroxy-6-methylxanthone-1-carboxylic acid (236), methyl 8-hydroxy-6-methyl-9-oxo-9H-xanthene-1-carboxylate (237), methyl 8-hydroxy-6-(hydroxymethyl)-9-oxo-9H-xanthene-1-carboxylate (238), 8-(methoxycarbonyl)-1-hydroxy-9-oxo-9H-xanthene-3-carboxylic acid (239)	[25]	C4-2B, 22RV1	55.8% to 82.1%, 10 μ M	<i>Cladosporium halotolerans</i>
coniochaetone A (235),	[26]	K562, HL-60, Hela, BGC-823	36.1%, 62.4%, 13.9%, 11.4%, 100 μ g/mL	<i>Cladosporium halotolerans</i>
3,8-dihydroxy-6-methyl-9-oxo-9H-xanthene-1-carboxylate (240)	[25]	two human prostatic cancer cell lines, C4-2B and 22RV1	82.1%, 77.7%, 10 μ M	<i>Cladosporium halotolerans</i>
AGI-B4 (242)	[21]	cytotoxicity against L5178Y mouse lymphoma cells	1.5 μ M	<i>Scopulariopsis</i> sp.
altersolanol B (245)	[27]	activity against HCT-116 and MCF-7 cancer cell line	3.5 μ M, 9.0 μ M	<i>Stemphylium lycopersici</i>
altersolanol A (246)	[27]	HCT-116, MCF-7, Huh7	38.0 μ M	<i>Stemphylium lycopersici</i>
chrysophanol (257)	[28, 29]	against human malignancy of colorectal cancer		<i>Trichoderma harzianum</i>
(+)-20-S-isorhodoptilometrin (260)	[30]	HepG2, HeLa	2.10, 8.59 μ M	<i>Trichoderma harzianum</i>
1-hydroxy-3-hydroxymethylanthraquinone (261)	[30]	hepatoma cell line HepG2	9.39 μ M	<i>Trichoderma harzianum</i>
nidurufin (263)	[31-33]	K562 and HL-60	0.87, 1.46 μ M	<i>Aspergillus</i> sp.
secalonic acid D (268)	[34-36]	K562 cell cycle, pancreatic carcinoma PANC-1 cells	0.6 μ M.	<i>Penicillium</i> sp.
alterporriol P (274) *	[37]	PC-3 and HCT-116	6.4, 8.6 μ M	<i>Alternaria</i> sp.
alternatone A (289) *	[39, 40]	hepatoma carcinoma HepG-2 cell line		<i>Alternaria alternata</i>
alterperyleneol (290)	[39]	A-549, HCT-116, and HeLa cell lines	2.6, 2.4, 3.1 μ M	<i>Alternaria alternata</i>
verruculosin A (291) *	[41]	CDC25B	0.38 \pm 0.03 μ M	<i>Talaromyces verruculosus</i>
bacillisporin F (293) *	[41]	CDC25B	0.40 \pm 0.02 μ M	<i>Talaromyces verruculosus</i>
xenoclauxin (294)	[41]	CDC25B	0.26 \pm 0.06 μ M	<i>Talaromyces verruculosus</i>
(-)bis-dechlorogedin (324)	[42]	Jurkat, A549, and HeLa	10.69, 10.69, 3.56 μ M	<i>Aspergillus</i> sp.
penicitol I (307) *	[43]	A549, BEL-7402	19, 17 μ M	<i>Penicillium citrinum</i>
tenellic acid A methyl ester (322)	[44]	HepG2, Hep3B, MCF-7/ADR, PC-3, HCT-116	4.3 \pm 0.3, 9.0 \pm 0.5, 8.2 \pm 0.7, 9.8 \pm 0.9 μ M	<i>Talaromyces</i> sp
geodin (328)	[45]	BT474, NCI-H460, H-1975, K562, DU145, A549	8.88, 9.22, 9.96, 11.14, 14.44, 11.05 μ M	<i>Simularia</i> sp.
violaceol I (329)	[21]	L5178Y	9.5 μ M	<i>Stylophora</i> sp.
violaceol II (330)	[21]	L5178Y	9.2 μ M	<i>Stylophora</i> sp.

butyrolactone I (344)	[46-48].	HL-60	13.22 μ M	<i>Aspergillus terreus</i> .
satratoxin F (364)	[49]	MDA-MB-231, C4-2B, MGC803, MDA-MB-468, A549	< 39 nM	<i>Stachybotrys chartarum</i>
stachybotrylactone B (394)	[50]	HL-60, K562, MOLT-4, ACHN, 786-O, OS-RC-2	5.23, 4.12, 4.31, 23.55, 7.65, 10.81 μ mol/L	<i>Penicillium</i> sp.
purpactin A (416)	[51-54]	inhibitor of TMEM16A chloride channels MCF7, H460, SF268	2 μ M 20.5, 17.6, 21.9 μ M	<i>Penicillium pinophilum</i>
cladosporilactam A (423) *	[55]	Hela	0.76 μ M	<i>Cladosporium</i> sp.

Table S2. Antimicrobial activities

Antimicrobial activities				
Name	Ref.	Type	Evaluation	Origin
(R)-(-)-hydroxysydonic acid (15)	[56]	<i>S. aureus</i> , <i>B. cereus</i> , <i>K. rhizophila</i> , <i>P. putida</i> , <i>P. aeruginosa</i> , <i>S. enterica</i> , <i>N. brasiliensis</i>	-	<i>Aspergillus</i> sp.
(S)-(-)-5-(hydroxymethyl)-2-(2',6',6'-trimethyltetrahydro-2H-pyran-2-yl)phenol (16)	[56]	<i>S. aureus</i> , <i>B. cereus</i> , <i>K. rhizophila</i> , <i>P. putida</i> , <i>P. aeruginosa</i> , <i>S. enterica</i> , <i>N. brasiliensis</i>	-	<i>Aspergillus</i> sp.
(S)-(+)-11-dehydrosydonic acid (17)	[56].	<i>S. aureus</i> , <i>B. cereus</i> , <i>K. rhizophila</i> , <i>P. putida</i> , <i>P. aeruginosa</i> , <i>S. enterica</i> , <i>N. brasiliensis</i>	-	<i>Aspergillus</i> sp.
(+)- methyl sydowate (27) *	[57]	<i>Staphylococcus aureus</i> and methicillin resistant <i>S. aureus</i>	100 μ g/mL zones of 11 mm in diameter	<i>Aspergillus</i> sp.
7-deoxy-7, 14-didehydrosydonic acid (28) *	[58]	<i>G. graminis</i>	MIC = 0.5 μ g/mL	<i>Dichotella gemmacea</i>
(+)-sydonic acid (30)	[59]	<i>S. albus</i> , <i>S. aureus</i>	MIC = 5.3, 2.6 μ g/mL	<i>Sarcophyton</i> sp.
expansol G (31)	[59]	<i>S. albus</i> , <i>S. aureus</i>	MIC = 6.4, 6.4 μ g/mL	<i>Sarcophyton</i> sp.
(+)-sydowic acid (32)	[59]	<i>S. albus</i> , <i>S. aureus</i>	MIC = 5.4, 5.4 μ g/mL	<i>Sarcophyton</i> sp.
1-hydroxyboivinianic acid (34) *	[5]	<i>Erwinia carotovora</i> sub sp.	MIC = 68.9 μ g/mL	<i>Stylophora</i> sp.
craterellin A (36)	[60]	<i>Bacillus cereus</i>	MIC = 3.12 μ M	<i>Lophiostoma</i> sp.
neochinulin A (40)	[6]	anti-viral	-	<i>Nigrospora oryzae</i>
cyclo-(Pro-Val) (69)	[61]	inhibition to the MptpB	IC ₅₀ = 25.9 μ M	<i>Simplicillium</i> sp.
fumiquinazoline L (84)	[62]	<i>Bacillus subtilis</i> , <i>Staphylococcus albus</i> , and <i>Vibrio parahemolyticus</i>	MIC = 50 μ M	<i>Scopulariopsis</i> sp.
cottoquinazoline D (82) *	[63]	antifungal activity against <i>Candida albicans</i>	MIC = 22.6 μ M	<i>Aspergillus versicolor</i> LCJ-5-4
aspochalasin I (99)	[14]	<i>S. epidermidis</i> and <i>S. aureus</i>	MIC = 20, 10 μ M	<i>Sarcophyton</i> sp.
aspochalasin D (101)	[14]	<i>Staphylococcus albus</i> , <i>S. aureus</i> , <i>Escherichia coli</i> and <i>Bacillus cereus</i>	MIC = 10 μ M	<i>Sarcophyton</i> sp.
aspergillin PZ (103)	[14]	<i>S. epidermidis</i>	MIC = 20 μ M	<i>Sarcophyton</i> sp.
chaetoglobosin A (104)	[64]	<i>Tetragenococcus halophilus</i>	MIC = 0.7 μ M	<i>Chaetomium globosum</i>
chaetoglobosin B (105)	[64]	<i>Tetragenococcus halophilus</i>	MIC = 0.4 μ M	<i>Chaetomium globosum</i>

cytoglobosin C (106)	[64]	<i>T. halophilus</i>	MIC = 0.7 μ M	<i>Chaetomium globosum</i>
aniduquinolone A (109)	[65]	<i>staphylococcus aureus</i> (ATCC700699)	-	<i>Scopulariopsis</i> sp.
6-deoxyaflaquinolone E (112)	[66]	<i>S. aureus</i> , <i>B. cereus</i> , <i>V. parahaemolyticus</i> , <i>N. brasiliensis</i> , <i>and P. putida</i>	MIC = 0.78, 1.56, 6.25, 0.78, 1.56 μ M,	<i>Scopulariopsis</i> sp.
asperteramide A (132)	[67]	<i>C. albicans</i> antibacterial activity against six drug-resistant microbial pathogens, including <i>E. coli</i> , <i>A. Baumannii</i> , <i>P. aeruginosa</i> , <i>K. pneumonia</i> , MRSA, and <i>E. faecalis</i>	MIC = 2 μ g/mL MIC = 8, 8, 16, 64, 64, 8 μ g/ml	<i>Aspergillus terreus</i>
4'-OMe-asperphenamate (173) *	[14]	<i>S. epidermidis</i>	MIC = value of 2 μ g/mL	<i>Sarcophyton</i> sp.
asperphenamate (174) *	[14]	<i>S. epidermidis</i>	MIC = 2 μ g/mL	<i>Sarcophyton</i> sp.
pyrophen (137)	[68]	<i>C. albicans</i>	zone 28 mm (40 μ g/disc)	<i>Alternaria alternata</i>
neoaspergillie acid (134)	[19, 20]	<i>S. aureus</i> , <i>S. epidermidis</i> , <i>B. subtilis</i> , <i>B. dysenteriae</i> , <i>B. proteus</i> , <i>E. coli</i>	MIC = 1.0, 0.5, 1.9, 7.8, 7.8, 15.6 μ g/mL	<i>Aspergillus</i> sp.
22-O-(N-Me-L-valyl)-21-epi- aflaquinolone B (131) *	[69]	anti-RSV activity	IC ₅₀ = 42 nM	<i>Aspergillus</i> sp.
sinulariapeptide A (158) *	[61]	<i>Colletotrichum asianum</i>	MIC = 4.9 μ g/mL	<i>Simplicillium</i> sp.
simplicillumtide A (159)	[61]	<i>Colletotrichum asianum</i> , <i>Pyricularia oryza</i> Cav	MIC = 9.8, 19.5 μ g/mL	<i>Simplicillium</i> sp.
simplicillumtide B (160)	[61]	<i>Colletotrichum asianum</i> , <i>Pyricularia oryza</i> Cav	MIC = 4.9 9.8 μ g/mL	<i>Simplicillium</i> sp. SCSIO 41209
simplicillumtide J (161)	[61]	<i>Colletotrichum asianum</i> , <i>Pyricularia oryza</i> Cav	MIC = 19.5, 78.1 μ g/mL	<i>Simplicillium</i> sp. SCSIO 41209
asperpeptide A (163) *	[70]	<i>Bacillus cereus</i> and <i>Staphylococcus epidermidis</i>	MIC = 12.5 μ M	<i>Aspergillus</i> sp.
hirsutellic acid A (169)	[61]	inhibition to the MptpB	IC ₅₀ = 35.0 μ M	<i>Simplicillium</i> sp.
(+) - pestaloxazine A (170) *	[71]	antiviral activity to EV71	IC ₅₀ = 14.2 ± 1.3 μ M	<i>Pestalotiopsis</i> sp.
aspergillipeptide E (183) *	[72]	activity against HSV-1	IC ₅₀ = 19.8 μ M	<i>Aspergillus</i> sp.
isochromophilone IX (212)	[73]	against MRSA	MIC = 50 μ g/mL	<i>Penicillium sclerotiorum</i>
(+)-sclerotiorin (222)	[74, 75]	<i>B. subtilis</i> , <i>B. cereus</i> , and <i>S. lutea</i>	MIC = 0.16, 0.31, 0.31 μ M	<i>Penicillium sclerotiorum</i>
microketide A (223) *	[76]	<i>Pseudomonas aeruginosa</i> , <i>Nocardia brasiliensis</i> , <i>Kocuria rhizophila</i> , and <i>Bacillus anthraci</i>	MIC = 0.19 μ g/mL	<i>Microsphaeropsis</i> sp.
arthroliferin A (226) *	[49]	methicillin-resistant <i>Staphylococcus aureus</i> ATCC 29213	MIC = 78 μ g/mL	<i>Stachybotrys chartarum</i>
tetrahydroaltersolanol C (247) *	[77]	e PRRSV	IC ₅₀ = 65 μ M	<i>Alternaria</i> sp.
frangulaemodin (258)	[30]	<i>S. aureus</i>	MIC = 6.25 μ M	<i>Trichoderma harzianum</i>
(+)-20S-isorhodoptilometrin (260)	[30]	<i>S. aureus</i>	MIC = 25.0 μ M	<i>Trichoderma harzianum</i>
1-hydroxy-3- hydroxymethylanthraquinone (261)	[30]	<i>S. aureus</i>	MIC value of 25.0 μ M	<i>Trichoderma harzianum</i>
8-O-methylnidurufin (266)	[31-33]	<i>M. luteus</i>	MIC = 6.25 μ M.	<i>Aspergillus</i> sp.
8-O-methylaverufin (264)	[31-33]	<i>M. luteus</i> <i>Mucor miehei</i>	MIC = 6.25 μ M.	<i>Aspergillus</i> sp.
secalonic acid D (268)	[34-36]	against <i>S. aureus</i> biofilm formation	>90% at 6.25 μ g/mL	<i>Penicillium</i> sp.
secalonic acid D (268)	[79]	<i>M. luteus</i> , <i>P. nigrifaciens</i> , <i>E. coli</i> , <i>B. subtilis</i> inhibition to the growth of <i>S. onedensis</i> MR-1	MIC = 24.4, 97.5, 24.4, 24.4 μ g/mL	<i>Penicillium</i> sp.

			3.125 $\mu\text{g}/\text{mL}$	
secalonic acid B (269)	[34-36]	against <i>S. aureus</i> biofilm formation	>90% at 6.25 $\mu\text{g}/\text{mL}$	<i>Penicillium</i> sp.
secalonic acid B (269)	[79]	<i>M. luteus</i> , <i>P. nigrifaciens</i> , <i>E. coli</i> , <i>B. subtilis</i>	MIC values of 97.5, 390.5, 97.5, 97.5 $\mu\text{g}/\text{mL}$	<i>Penicillium</i> sp.
penicillixanthone A (270)	[79]	<i>M. luteus</i> , <i>P. nigrifaciens</i> , <i>E. coli</i> , <i>B. subtilis</i>	MIC values of 24.4, 97.5, 24.4, 24.4 $\mu\text{g}/\text{mL}$	<i>Penicillium</i> sp. SCSGAF 0023
alterporriol Q (275) *	[77]	activity against PRRSV	$\text{IC}_{50} = 22 \mu\text{M}$	<i>Alternaria</i> sp.
(±) - pestalachloride D (281) *	[80]	<i>Escherichia coli</i> , <i>Vibrio anguillarum</i> and <i>Vibrio parahaemolyticus</i>	MIC= 5.0, 10.0, 20.0 μM	<i>Pestalotiopsis</i> sp.
(±) - pestalachloride C (280)	[80]	<i>Escherichia coli</i> , <i>Vibrio anguillarum</i> and <i>Vibrio parahaemolyticus</i>	the MIC values of 5.0, 10.0 and 20.0 μM	fungus <i>Pestalotiopsis</i> sp.
pestalachloride B (279)	[81]	Weak activities against <i>S. aureus</i> .	MIC = 25.00, 25.00, 50.00, 25.00, 50.00 μM	<i>Pestalotiopsis</i> sp.
stempphyperlenol (287)	[82-84]	<i>e.coli</i> , <i>Staphylococcus aureus</i> and multi-drug resistant <i>Pseudomonas aeruginosa</i>	-	<i>Alternaria</i> sp.
bacillisporin F (293) *	[41, 85]	<i>S. aureus</i>	MIC = 15.6±0.3 $\mu\text{g}/\text{mL}$	<i>Talaromyces verruculosus</i>
phomalichenone D (297)	[86]	MRSA shhs-A1	32–64 $\mu\text{g}/\text{mL}$	<i>Parengyodontium album</i> sp.
sulochrin (323)	[42]	<i>V. anguillarum</i> and <i>A. salmonicida</i> , <i>P. aeruginosa</i>	MIC = 15.06/15.15, 7.53 μM	<i>Aspergillus</i> sp.
(-)bis-dechlorogedion (324)	[42]	<i>V. anguillarum</i> and <i>A. salmonicida</i> , <i>P. aeruginosa</i>	MIC = 30.12/30.30, 3.78 μM	<i>Aspergillus</i> sp.
3,7-dihydroxy- 1,9- dimethyl dibenzofuran (299)	[87]	against <i>E. coli</i> , MRSA, <i>S. aureus</i> and <i>E. faecalis</i>	MIC = 0.45~ 15.6 $\mu\text{g}/\text{mL}$	<i>Talaromyces</i> sp.
phomalichenone A (300)	[86]	MRSA shhs-A1 and <i>M. tuberculosis</i> H37Ra	MIC = 64/64 $\mu\text{g}/\text{mL}$	<i>Parengyodontium album</i> sp.
phomalichenone B (301)	[86]	MRSA shhs-A1 and <i>M. tuberculosis</i> H37Ra	MIC = 16/64, $\mu\text{g}/\text{mL}$	<i>Parengyodontium album</i> sp.
isodihydroauroglaucin (325)	[88, 89]	HSV-1	$\text{EC}_{50} = 4.73 \mu\text{M}$	<i>Aspergillus ruber</i>
flavoglaucin (326)	[88, 89]	HSV-1	$\text{EC}_{50} = 6.95 \mu\text{M}$	<i>Aspergillus ruber</i>
penicitol A (302) *	[43]	<i>Staphylococcus aureus</i> , <i>Bacillus subtilis</i> , and Vancomycin resistant <i>Enterococcus faecalis</i> 1010798 (VRE)	MIC =16, 32, 32, 64, 32, 32 μM ,	<i>Penicillium citrinum</i> .
penicitol I (307) *	[43]	<i>Staphylococcus aureus</i> , <i>Bacillus subtilis</i> , and Vancomycin resistant <i>Enterococcus faecalis</i> 1010798 (VRE)	MIC =16, 32, 32, 64, 32, 32 μM	<i>Penicillium citrinum</i> .
phomaether A (319) *	[90]	<i>S. albus</i> , <i>S. aureus</i> , <i>E. coli</i> , <i>V. parahaemolyticus</i> , <i>V. anguillarum</i>	MIC = 0.312 to 10.0 μM	<i>Phoma</i> sp.
phomaether C (321) *	[90]	<i>S. albus</i> , <i>S. aureus</i> , <i>E. coli</i> , <i>V. parahaemolyticus</i> , <i>V. anguillarum</i>	MIC = 0.312 to 10.0 μM	<i>Phoma</i> sp.
2,4-diphenyldichloroasterric acid (327)	[45]	inhibition to <i>S. aureus</i>	MIC value of 12.5 μM	<i>Aspergillus</i> sp.
violaceol I (329)	[21, 91, 92]	antimicrobial activities	MIC <9.765 to 312.5 $\mu\text{g}/\text{mL}$	<i>Scopulariopsis</i> sp.
violaceol II (330)	[21, 91, 92]	antimicrobial activities	MIC <9.765 to 312.5 $\mu\text{g}/\text{mL}$	<i>Scopulariopsis</i> sp.
8-ethyl-5,7-dihydroxy-2- methylchroman-4-one (334)	[86]	MRSA shhs-A1 <i>M. tuberculosis</i> H37Ra	MIC = 64, 32 $\mu\text{g}/\text{mL}$	<i>Parengyodontium album</i> sp.
(±)-trieusol D (335)	[86]	MRSA shhs-A1	MIC = 64, 64 $\mu\text{g}/\text{mL}$	<i>Parengyodontium album</i> sp.

		<i>M. tuberculosis</i> H37Ra		
(3Z,5S,6E,8S,9S,10R)-8-chloro-5,8,9,10-tetrahydro-5,9-dihydroxy-10-methyl-2H-oxecin-2-one (336)	[60]	<i>B. cereus</i>	MIC = 3.12 μM.	<i>Lophiostoma</i> sp.
2-O-Methylbutyrolactone I (348)	[93]	<i>S. aureus</i> , <i>S. epidermidis</i> , <i>B. cereus</i> , <i>V. parahaemolyticus</i> and <i>V. anguillarum</i>	MIC = 1.56 to 12.5 μM	<i>Aspergillus</i> sp.
2-O-Methylbutyrolactone II (349)	[93]	<i>S. aureus</i> , <i>S. epidermidis</i> , <i>B. cereus</i> , <i>V. parahaemolyticus</i> and <i>V. anguillarum</i>	MIC = 1.56 to 12.5 μM	<i>Aspergillus</i> sp.
satratoxin F (364)	[49]	methicillin-resistant <i>Staphylococcus aureus</i> ATCC 29213	MIC = 39 μg/mL	<i>Stachybotrys chartarum</i>
(R)-3-hydroxymellein (377)	[94]	MRSA	MIC = 100 μg/mL	<i>Aspergillus</i> sp.
(3R,4S)-trans-4-hydroxymellein (378)	[94]	<i>Enterococcus faecalis</i>	MIC = 100 μg/mL	<i>Aspergillus</i> sp.
5α,8α-epidioxy-ergosta-6,22E-dien-3β-ol (399)	[95]	<i>Escherichia coli</i> , <i>Pseudomonas putida</i> , and <i>Kocuria rhizophila</i>	MIC = 3.13, 1.56, 6.25 μM	<i>Xylaria</i> sp.
3α-hydroxy-7-ene-6,20-dione (400) *	[96]	antiviral activity	IC ₅₀ = 0.12 mM	<i>Cladosporium</i> sp.
eujavanicol A (403)	[97, 98]	<i>Escherichia coli</i>	MIC = 5.0 μg/mL	<i>Trichoderma harzianum</i>
pseurotin A (409)	[99-102].	<i>Bacillus cereus</i> and <i>Shigella shiga</i>	MIC = 64 μg/mL	<i>Pseudallescheria boydii</i>

Table S3. Anti-inflammatory activities

Anti-inflammatory activities				
Name	Ref.	Type	Evaluation	Origin
lovastatin (18)	[46]	against NO production	17.45 μM	<i>Aspergillus terreus</i>
neochinulin A (40)	[6]		-	<i>Nigrospora oryzae</i>
chaetoglobosin Fex (96)	[11-13]		-	<i>Chaetomium globosum</i>
luteoride E (129) *	[46]		24.64 μM	<i>Aspergillus terreus</i>
methyl 3,4,5-trimethoxy-2-(2-(nicotinamido) benzamido) benzoate (133)	[46]		5.48 μM	<i>Aspergillus terreus</i>
sclerketide B (209) *	[103]		3.4±0.5 μM	<i>Penicillium sclerotiorum</i>
sclerketide C (210) *	[103]		2.7±0.5 μM	<i>Penicillium sclerotiorum</i>
α-pyrone derivative sclerketide D (211) *	[103]		5.5±0.5 μM	<i>Penicillium sclerotiorum</i>
isochromophilone IX (212)	[103]		17.6±0.7 μM	<i>Penicillium sclerotiorum</i>
sequoiatone B (213)	[103]		5.2±0.6 μM	<i>Penicillium sclerotiorum</i>
altersolanol A (246)	[104]			<i>Stemphylium lycopersici</i>
territrem A (311)	[46]		IC ₅₀ = 29.34 μM	<i>Aspergillus terreus</i> .
eurothiocin A (312) *	[105, 106]		-	<i>Eurotium rubrum</i>
3'-isoamylene butyrolactone IV (342) *	[107]		25.1%	<i>Aspergillus terreus</i>
butyrolactone I (344)	[107]		nearly 25.3%	<i>Aspergillus terreus</i>
versicolactone B (345)	[107]		20 μM	<i>Aspergillus terreus</i>
versicolactone G (346) *	[46]		IC ₅₀ = 15.72 μM	<i>Aspergillus terreus</i>
14α-hydroxyergosta-4,7,22-triene-3,6-dione (396)	[46]		IC ₅₀ = 26.83 μM	<i>Aspergillus terreus</i>
arthriniumsteroid A (385) *	[108]		21.4%–44.6%	<i>Simplicillium lanosoniveum</i>

arthriniumsteroid B (386) *	[108]			<i>Simplicillium lanosoniveum</i>
arthriniumsteroid C (387) *	[108]			<i>Simplicillium lanosoniveum</i>
arthriniumsteroid D (388) *	[108]			<i>Simplicillium lanosoniveum</i>
eoaspergillic acid (389)	[108]			<i>Simplicillium lanosoniveum</i>

Table S4. Antifouling activities

Antifouling activities				
Name	Ref.	Antifouling type	Evaluation	Origin
neochinulin A (40)	[109]	barnacle <i>Balanus amphitrite</i>	30.0 $\mu\text{g}/\text{mL}$	<i>Nigrospora oryzae</i> (ZJ-2008005)
isoechinulin A (42)	[109]	barnacle <i>Balanus amphitrite</i>	$\text{IC}_{50} = 5.92 \mu\text{g}/\text{mL}$	<i>Nigrospora oryzae</i> (ZJ-2008005)
dihydroxyisoechinulin A (45)	[109]	barnacle <i>Balanus amphitrite</i>	50.0 $\mu\text{g}/\text{mL}$	<i>Nigrospora oryzae</i> (ZJ-2008005)
cyclo-(Phe-Phe) (68)	[110]	cell line SF9 from the fall armyworm <i>Spodoptera frugiperda</i>	0.8 μM	<i>Lobophytum crissum</i>
aspochalasin I (99)	[14]	barnacle <i>Balanus Amphitrite</i>	$\text{EC}_{50} = 34 \mu\text{M}$	<i>Sarcophyton</i> sp.
aspochalasin J (100)	[14]	barnacle <i>Balanus Amphitrite</i>	$\text{EC}_{50} = 14 \mu\text{M}$	<i>Sarcophyton</i> sp.
aspochalasins D (101)	[14]	barnacle <i>Balanus Amphitrite</i>	$\text{EC}_{50} = 6.2 \mu\text{M}$	<i>Sarcophyton</i> sp.
aspochalasin H (102)	[14]	barnacle <i>Balanus Amphitrite</i>	$\text{EC}_{50} = 37 \mu\text{M}$	<i>Sarcophyton</i> sp.
scopuquinolone B (114) *	[111]	<i>B. amphitrite</i> cyprids	$\text{EC}_{50} = 0.103 \mu\text{M}$	<i>Scopulariopsis</i> sp.
aniduquinolone A (109)	[66]	<i>B. amphitrite</i>	$\text{EC}_{50} = 17.5 \text{ pM}$	<i>Scopulariopsis</i> sp.
aflaquinolone A (110)	[66]	<i>B. amphitrite</i>	$\text{EC}_{50} = 28 \text{ nM}$	<i>Scopulariopsis</i> sp.
aflaquinolone D (111)	[66]	<i>B. amphitrite</i>	$\text{EC}_{50} = 2.8 \text{ nM}$	<i>Scopulariopsis</i> sp.
6-deoxyaflaquinolone E (112)	[66]	<i>B. amphitrite</i>	$\text{EC}_{50} = 1.04 \mu\text{M}$	<i>Scopulariopsis</i> sp.
aflaquinolone F (113)	[66]	<i>B. amphitrite</i>	$\text{EC}_{50} = 0.86 \mu\text{M}$	<i>Scopulariopsis</i> sp.
sinuxylamide A (115) *	[112]	fibrinogen to purified integrin IIIb/IIa	$\text{IC}_{50} = 0.89 \mu\text{M}$	<i>Xylaria</i> sp.
sinuxylamide B (116) *	[112]	fibrinogen to purified integrin IIIb/IIa	$\text{IC}_{50} = 0.61 \mu\text{M}$	<i>Xylaria</i> sp.
speradine C (121)	[110]	against the SF9 cells	$\text{IC}_{50} = 0.9 \mu\text{M}$	<i>Lobophytum crissum</i>
24,25-dehydro-10,11-dihydro-20-hydroxyaflavinin (122)	[110]	against the SF9 cells	$\text{IC}_{50} = 0.5 \mu\text{M}$	<i>Lobophytum crissum</i>
aflavinine (123)	[110]	against the SF9 cells	$\text{IC}_{50} = 0.4 \mu\text{M}$	<i>Lobophytum crissum</i>
aspergilone A (218) *	[37]	against <i>Balanus Amphitrite</i>	$\text{EC}_{50} = 25 \mu\text{g}/\text{mL}$	<i>Aspergillus</i> sp.
(+)-sclerotiorin (222)	[74, 75]	barnacle <i>Balanus amphitrite</i>	$\text{EC}_{50} = 5.6 \mu\text{g}/\text{mL}$	<i>Penicillium sclerotiorum</i>
6,8,5'6'-tetrahydroxy-30 methyl-flavone (230) *	[79]	<i>Balanus amphitrite</i> larvae settlement,	6.7 $\mu\text{g}/\text{ml}$	<i>Penicillium</i> sp.
emodin (231)	[79]	<i>Balanus amphitrite</i> larvae settlement,	6.1 $\mu\text{g}/\text{ml}$	<i>Penicillium</i> sp.
citreorosein (232)	[79]	<i>Balanus amphitrite</i> larvae settlement,	17.9 $\mu\text{g}/\text{ml}$	<i>Penicillium</i> sp.

isorhodoptilometrin (233)	[79]	<i>Balanus amphitrite</i> larvae settlement,	13.7 µg/mL	<i>Penicillium</i> sp.
altertoxin I (285) *	[113]	barnacle <i>Balanus amphitrite</i>	IC ₅₀ = 0.27 µg/mL	<i>Alternaria</i> sp.
3,7-dihydroxy-1,9- dimethyl dibenzofuran (299)	[87]	against <i>Bugula neritina</i> larva	LC ₅₀ = 3.06 µg/mL	<i>Talaromyces</i> sp.
(17R)-17-methylincisterol (339)	[87]	<i>Bugula neritina</i> larva	LC ₅₀ value of 4.15 µg/mL,	<i>Talaromyces</i> sp. SCSIO 041201
talaromycin C (318) *	[44]	barnacle <i>Balanus Amphitrite</i>	EC ₅₀ = 2.8±0.2 µg/mL	<i>Talaromyces</i> sp.
dimethyl incisterol A3 (338)	[87]	<i>Bugula neritina</i> larva	LC ₅₀ = 3.13 µg/mL,	<i>Talaromyces</i> sp.
2-O-Methylbutyrolactone II (349)	[93]	barnacle <i>Balanus amphitrite</i>	EC ₅₀ = 2.10±0.20 µg/mL	<i>Aspergillus</i> sp.
demethoxycarbonylbutyrolactone II (350)	[93]	barnacle <i>Balanus amphitrite</i>	EC ₅₀ = 4.25±0.32,µg/mL	<i>Aspergillus</i> sp.
butyrolactone III (351)	[93]	barnacle <i>Balanus amphitrite</i>	EC ₅₀ = 2.98±0.22,µg/mL	<i>Aspergillus</i> sp.
cochliomycin A (352) *	[114, 115]	barnacle <i>Balanus Amphitrite</i>	EC ₅₀ values of 1.2 µg/mL	<i>Cochliobolus lunatus</i>
diacetyl derivative (355)	[114, 115]	barnacle <i>Balanus Amphitrite</i>	EC ₅₀ values of 15.4 µg/mL	<i>Cochliobolus lunatus</i>
monoacetyl derivative (356)	[114, 115]	barnacle <i>Balanus Amphitrite</i>	EC ₅₀ values of 12.5 µg/mL	<i>Cochliobolus lunatus</i>
zeanol (357)	[114, 115]	barnacle <i>Balanus Amphitrite</i>	EC ₅₀ values of 5.0 µg/mL	<i>Cochliobolus lunatus</i>
LL-Z1640-1 (358)	[114, 115]	barnacle <i>Balanus Amphitrite</i>	EC ₅₀ values of 5.3 µg/mL	<i>Cochliobolus lunatus</i>
paecilomycin F (360)	[114, 115]	barnacle <i>Balanus Amphitrite</i>	EC ₅₀ values of 17.9 µg/mL	<i>Cochliobolus lunatus</i>
aspergillide C (363) *	[116-118]	<i>Bugula neritina</i>	LC ₅₀ /EC ₅₀ > 25	<i>Aspergillus</i> sp.
(+)-eurotiumide B (380) *	[119]	barnacle <i>Balanus amphitrite</i>	EC ₅₀ = 0.7 to 2.3 µg/mL	<i>Eurotium</i> sp.
(-)eurotiumides D (382) *	[119]	barnacle <i>Balanus amphitrite</i>	EC ₅₀ = 0.7 to 2.3 µg/mL	<i>Eurotium</i> sp.
24,28-didehydro-2 (398) *	[93]	barnacle <i>Balanus amphitrite</i>	EC ₅₀ = 18.40±2.0 µg/mL	<i>Aspergillus</i> sp.
chaxine C (397)	[93]	barnacle <i>Balanus amphitrite</i>	EC ₅₀ = 2.50±0.22 µg/mL	<i>Aspergillus</i> sp.
methyl-trichoharzin (401) *	[97]	<i>Bugula neritina</i>	EC ₅₀ = 29.8, µg/mL	<i>Trichoderma harzianum</i>
eujavanicol A (403)	[97]	<i>Bugula neritina</i>	EC ₅₀ = 35.6 µg/mL	<i>Trichoderma harzianum</i>
nafuredin (404)	[97]	<i>Bugula neritina</i>	EC ₅₀ = 21.4 µg/mL	<i>Trichoderma harzianum</i>
hydroxypenicillide (413) *	[51-54]	barnacle <i>Balanus Amphitrite</i>	EC ₅₀ = 6.0 µg/mL	<i>Penicillium pinophilum</i>
penicillide (414)	[51-54]	barnacle <i>Balanus Amphitrite</i>	EC ₅₀ = 2.6 µg/mL	<i>Penicillium pinophilum</i>
isopenicillide (415)	[51-54]	barnacle <i>Balanus Amphitrite</i>	EC ₅₀ = 20 µg/mL	<i>Penicillium pinophilum</i>
purpactin A (416)	[51-54]	barnacle <i>Balanus Amphitrite</i>	EC ₅₀ = 10 µg/mL	<i>Penicillium pinophilum</i>

Table S5. Other activities

Other activities				
name	reference	Type of bioactivity	evaluation	Origin
chondrosterin B (2)	[120]	antimalarial activity	IC ₅₀ = 3.10µg/mL	<i>Chondrostereum</i> sp.
lovastatin (18)	[121]	prevention and treatment of neurological disorders; lipid-lowering drug	-	<i>Aspergillus terreus</i>
harziane lactone A (19) *, harziane lactone B (20) *, Harzianones A–C (21–23) *, harziane (25) *	[122]	against amaranth and lettuce	200 ppm	<i>Trichoderma harzianum</i>
neoechinulin A (40)	[123, 124]	DPPH scavenging effect	IC ₅₀ = 44.30±0.06 µM	<i>Nigrospora oryzae</i>
isoechinulin A (42)	[123, 124]	DPPH scavenging effect		<i>Nigrospora oryzae</i>
tardioxopiperazine A (43)	[125]	Con A-induced & LPS-induced immunosuppressive	IC ₅₀ = 4.5&0.7 µM	<i>Nigrospora oryzae</i>

16,17-dihydroxy-deoxydihydroisoaustamide (50) *	[126]	neuroprotective activity	38.6%, 1 μ M	<i>Penicillium dimorphosporum</i>
16 β ,17 α -dihydroxy-deoxydihydroisoaustamide (51) [*]	[126]	neuroprotective activity	36.5%, 1 μ M	<i>Penicillium dimorphosporum</i>
16 α ,17 α -dihydroxy-deoxydihydroisoaustamide (52) [*]	[126]	neuroprotective activity	30.3%, 1 μ M	<i>Penicillium dimorphosporum</i>
avravinnillamide (63)	[127, 128]	human GR activity in LNCaP cell lysate; threat to human health in buildings	IC ₅₀ = 125 μ M	<i>Aspergillus ochraceus</i>
stephacidin B (64)	[127, 128]	threat to human health in buildings	-	<i>Aspergillus ochraceus</i>
versiquinazoline P (78) [*]	[10]	thioredoxin reductase	13.6 \pm 0.6 μ M	<i>Aspergillus versicolor</i>
versiquinazoline Q (79) [*]	[10]	thioredoxin reductase	12.2 \pm 0.7 μ M	<i>Aspergillus versicolor</i>
versiquinazolines A, B, G & K (70-73)	[129]	TrxR inhibitory activity	IC ₅₀ = 20 \pm 1, 12 \pm 2, 13 \pm 0, 13 \pm 0 μ M	<i>Aspergillus versicolor</i>
aspochalasin I (99)	[130]	inhibition to melanogenesis in Mel-Ab cells	IC ₅₀ = 22.4 m μ M	<i>Aspergillus elegans</i>
aspergillin PZ (103)	[14, 15]	DPPH free radical scavenging effects		<i>Aspergillus elegans</i>
aflaquinolone A (110)	[131]	against brine shrimp	LD ₅₀ = 5.5 μ M	<i>Scopulariopsis</i> sp.
neoaspergillic acid (134)	[19, 20]	against the brine shrimp	LC ₅₀ = 90.08 μ M	<i>Aspergillus</i> sp.
chrysogeamide A (151) [*]	[132]	zebrafish embryo	1.0 μ g/mL	<i>Penicillium chrysogenum</i>
chrysogeamide B (152) [*]	[132]	zebrafish embryo	1.0 μ g/mL	<i>Penicillium chrysogenum</i>
versicotides D–F (147–149) [*]	[133]	anti-atherosclerosis activity		<i>Aspergillus versicolor</i>
aspergilliamide (175) [*]	[19, 134, 135]	against the brine shrimp	LC ₅₀ = 71.09 μ M	<i>Aspergillus</i> sp.
ochratoxin A n-butyl ester (176)	[19, 134, 135]	against the brine shrimp	LC ₅₀ = 4.14 μ M	<i>Aspergillus</i> sp.
flavacol (177)	[19, 134, 135]	against the brine shrimp	LC ₅₀ = 205.67 μ M	<i>Aspergillus</i> sp.
flavacol (177)	[19, 134, 135]	against NADH oxidase	IC ₅₀ = 13.0 \pm 0.4 μ M	<i>Aspergillus</i> sp.
ochratoxin A (178)	[19, 134, 135]	against the brine shrimp	LC ₅₀ = 13.74 μ M	<i>Aspergillus</i> sp.
ochratoxin A (178)	[19, 134, 135]	potential nephrotoxin and a latent human carcinogen		<i>Aspergillus</i> sp.
ochratoxin A methyl ester (176)	[19, 134, 135]	against the brine shrimp	LC ₅₀ = 2.59 μ M	<i>Aspergillus</i> sp.
libertalide B (187) [*] libertalide H (193) [*] aspermytin A (200)	[136]	induced the proliferation of CD3 ⁺ T cells.	-	<i>Libertasomyces</i> sp.
libertalide E (208) [*] , libertalide I (194) [*] , libertalide M (197) [*] , aspermytin A acetate (201)	[136]	increased the CD4 ⁺ /CD8 ⁺	3 μ M	<i>Libertasomyces</i> sp.
aspermytin A (200)	[137]	against neurite outgrowth	50 μ M	<i>Libertasomyces</i> sp.
austalide V (216)	[138]	against pancreatic lipase	IC ₅₀ = 23.9 μ g/mL	<i>Penicillium glabrum</i>
asteltoxin B (217) [*]	[118, 139]	inhibition to human acetylcholinesterase	IC ₅₀ = 14.9 μ M	<i>Aspergillus</i> sp.
aspergivone B (253) [*]	[140]	against alpha-glucosidase	IC ₅₀ = 244 μ g/mL	<i>Aspergillus candidus</i>
pachybasin (256)	[30]	AChE inhibitory activity	100 μ M	<i>Trichoderma harzianum</i>

pachybasin (256)	[28, 29]	toxicity in zebrafish embryos	-	<i>Trichoderma harzianum</i>
chrysophanol (257)	[30]	AChE inhibitory activity	100 μ M	<i>Trichoderma harzianum</i>
phomarin (259)	[30]	AChE inhibitory activity	100 μ M	<i>Trichoderma harzianum</i>
(+)-20S-isorhodoptilometrin (260)	[30]	AChE inhibitory activity	100 μ M	<i>Trichoderma harzianum</i>
Ω -hydroxydigitoemodin (262)	[30]	AChE inhibitory activity	100 μ M	<i>Trichoderma harzianum</i>
averufanin (265)	[31-33]	inhibitory effects on ACAT1 and ACAT2	$IC_{50} = 28 \pm 1.1, 12 \pm 0.1 \mu$ M	<i>Aspergillus</i> sp.
altered toxin I (285)	[113]	zebrafish embryo on <i>Danio rerio</i>	$LC_{50} = 4.54 \mu$ g/mL	<i>Alternaria</i> sp.
flavoglaucin (326)	[88, 89]	(DPPH)	IC_{50} value of 11.3 μ M	<i>Aspergillus ruber</i>
eurothiocin A (312) *	[105]	against α -glucosidase	$IC_{50} = 17.1 \pm 0.7 \mu$ M	<i>Eurotium rubrum</i>
eurothiocin B (313) *	[105]	against α -glucosidase	$IC_{50} = 42.6 \pm 1.4 \mu$ M	<i>Eurotium rubrum</i>
LL-Z1640-2 (359)	[114, 115]	HgCl ₂ -induced JNK phosphorylation	5–100 ng/mL	<i>Cochliobolus lunatus</i>
6-(5-carboxy-3-methylpent-2-enyl)-7-hydroxy-3,5-dimethoxy-4-methylphthalan-1-one (365) *	[141]	inhibition to IMPDH2	$IC_{50} = 0.84 \pm 0.11 \mu$ M	<i>Penicillium bialowiezense</i>
6-(5-methoxycarbonyl-3-methylpent-2-enyl)-3,7-dihydroxy-5-methoxy-4-methylphthalan-1-one (366) *	[141]	inhibition to IMPDH2	$IC_{50} = 3.27 \pm 0.18 \mu$ M	<i>Penicillium bialowiezense</i>
6-(3-carboxybutyl)-7-hydroxy-5-methoxy-4-methylphthalan-1-one (367) *	[141]	inhibition to IMPDH2	$IC_{50} = 24.68 \pm 2.74 \mu$ M	<i>Penicillium bialowiezense</i>
6-[5-(2,3-dihydroxy-1-carboxyglyceride)-3-methylpent-2-enyl]-7-hydroxy-5-methoxy-4-methylphthalan-1-one (368) *	[141]	inhibition to IMPDH2	$IC_{50} = 8.59 \pm 0.43 \mu$ M	<i>Penicillium bialowiezense</i>
6-[5-(1-carboxy-4-N-carboxylate)-3-methylpent-2-enyl]-7-hydroxy-5-methoxy-4-methylphthalan-1-one (369) *	[141]	inhibition to IMPDH2	$IC_{50} = 12.64 \pm 1.86 \mu$ M	<i>Penicillium bialowiezense</i>
metabolites 8-O-methyl mycophenolic acid (370)	[141]	inhibition to IMPDH2	$IC_{50} = 0.92 \pm 0.08 \mu$ M	<i>Penicillium bialowiezense</i>
3-hydroxymycophenolic acid (371)	[141]	inhibition to IMPDH2	$IC_{50} = 0.95 \pm 0.09 \mu$ M	<i>Penicillium bialowiezense</i>
N-mycophenoyl-L-valine (374)	[141]	inhibition to IMPDH2	$IC_{50} = 15.73 \pm 1.65 \mu$ M	<i>Penicillium bialowiezense</i>
N-mycophenoyl-L-phenylalanine (373)	[141]	inhibition to IMPDH2	$IC_{50} = 23.76 \pm 3.54 \mu$ M	<i>Penicillium bialowiezense</i>
N-mycophenoyl-L-alanine (374)	[141]	inhibition to IMPDH2	$IC_{50} = 17.52 \pm 1.30 \mu$ M	<i>Penicillium bialowiezense</i>
melilotigenin C (395)	[94]	inhibition to pancreatic lipase	$IC_{50} = 15.6 \mu$ g/mL	<i>Aspergillus</i> sp.
pseurotin A (409)	[99]	increased the number of osteoclasts	0.1 μ M	<i>Pseudallescheria boydii</i>
pseurotin A (409)	[99-102]	inhibited the production of IgE	$IC_{50} = 3.6 \mu$ M	<i>Pseudallescheria boydii</i>
AM6898B (410)	[99]	increased the number of osteoclasts	both 0.1 and 1.0 μ M	<i>Pseudallescheria boydii</i>
(-)ovalicin derivative (411)	[99]	increased the number of osteoclasts	both 0.1 and 1.0 μ M	<i>Pseudallescheria boydii</i>
chlovalicin (412)	[99]	decreased the number of osteoclasts	both 0.1 and 1.0 μ M	<i>Pseudallescheria boydii</i>
penicillide (414)	[51-54]	calcium-activated papain-like protease	$IC_{50} = 7.1 \text{ mu M}$	<i>Penicillium pinophilum</i>
aluminiumneaspergillin (419) *	[19]	lethality against brine shrimp	$LC_{50} = 6.61 \mu$ M	<i>Aspergillus</i> sp.
zirconiumneaspergillin (420) *	[19]	lethality against brine shrimp	$LC_{50} = 10.76 \mu$ M	<i>Aspergillus</i> sp.
ferrineaspergillin (421)	[19]	lethality against brine shrimp	$LC_{50} = 29.62 \mu$ M	<i>Aspergillus</i> sp.

Table S6. Distribution of the compounds according to chemical structure.

Type	Sub-type				Total	Percentage	
Terpenes	Sesquiterpenes (17)	Diterpenoids (8)	Triterpenes (1)	Meroterpenoids (10)	36	8.51%	
Alkaloids	Diketopiperazines (33)	Quinazolinone alkaloids (24)	Cytochalasins (15)	Other alkaloids (31)	103	24.35%	
Peptides and Depsipeptides	Cyclopeptides (25)		Linear peptides (21)		46	10.87%	
Aromatics	Polyketides (44)	Anthraquinone (37)	Dimmers (11)	Other Aromatic Compounds (58)	150	35.46%	
Lactones	49					49	11.58%
Steroids	16					16	3.79%
Other compounds	23					23	5.44%
Total					423	100%	

Table S7. The strain source of the natural products from coral-derived fungi.

	Terpenes	Alkaloids	Peptides and Depsipeptides	Aromatics	Lactones	Steroids	Other compounds	Total	Percentage
Soft coral	28	51	17	81	25	11	11	224	52.96%
Gorgonian-derived	6	39	28	46	21	4	12	156	36.88%
Hard coral	2	1	1	5	1	-	-	10	2.36%
leather coral	-	7	-	1	-	-	-	8	1.89%
Scleractinia stony coral	-	3	-	17	-	-	-	20	4.73%
Unknown diseased coral	-	2	-	-	2	1	-	5	1.18%
Total	36	103	46	150	49	16	23	423	100%

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