Electronic Supplementary Material (ESI) for RSC Advances.

Supplementary Table for RSC Advances

Compound	Class	Origin	Source	Year	Activity	References
Ergosterdiacids A	Diels-Alder additive steroids	Mangrove derived fungus Aspergillus sp (DM29 strain)	Soil of mangrove plant Aegiceras corniculatum in Thailand (South China Sea)	2018	In vitro inhibition activity against Mycobacterium tuberculosis protein tyrosine phosphatase B (MptpB). IC50 = 15.1 μM	[1]
					in vitro anti-inflammatory effects by suppressing the NO production at 4.5 μM.	
Ergosterdiacids B					In vitro inhibition activity against Mycobacterium tuberculosis protein tyrosine phosphatase B (MptpB). IC50 = 30.1 μM	
					In vitro anti-inflammatory effects by suppressing the NO production at 3.6 μM.	
Cholesterol	Steroids				NA	
Ergosterol						
Ergosterol peroxide						
Azacoccones A	Aza-epicoccone derivatives	The fungus Aspergillus flavipes (507)	Intertidal zone of the Yangtze River, Wuhan, Hubei Province, P. R. China		Non-significant free radical scavenging activity	[2]
Azacoccones B						
Azacoccones C					Significant free radical scavenging activity with IC50 = 4.0 μg/mL, compared to positive control trolox (4.55 μg/mL)	
Azacoccones D					Non-significant free radical scavenging activity	
Azacoccones E					Significant free radical scavenging activity with IC50 = 2.4 μg/mL, compared to the positive control trolox (4.55 μg/mL)	
(+)-asperglactam A	3-arylisoindolinone enantiomer	Aspergillus versicolor SYSU-SKS025	Isolated from the branches of the mangrove plant Excoecaria agallocha collected from Shankou in Guangxi province, China		Moderate inhibitory activity against α-glucosidase with IC50 values	[3]
(−)-asperglactam A						
(+)-1-hydroxyboivinianic acid (2)	Norbisabolane enantiomer					
(−)-1-hydroxyboivinianic acid (2)						
(+)-sydowic acid	Sesquiterpene derivatives					

(−)-sydowic acid						
(±)-hydroxysydonic acid					Non-significant as antidiabetic and anti-inflammatory	
(±)-sydonic acid						
Engyodontiumone I						
Deoxy-7,14-didehydrosydonol					Significant inhibitory activity against α-glucosidase with IC50 = 7.5 µM (anti-diabetic)	
					Inhibit nitric oxide production in RAW 264.7 macrophages with IC50 = 12.5 µM (anti-inflammatory)	
Aspergillusenes A					Non-significant as antidiabetic and anti-inflammatory	
Asperimides A	Aromatic butenolides	A. terreus SC1550	Isolated from fresh, healthy leaves of S. maritima L., which were collected from Yongxing Island, South China Sea, China		Non-significant as anti-inflammatory	[4]
Asperimides B						
Asperimides C					Exhibited potent anti-inflammatory with IC50 = 0.78 ± 0.06	
Asperimides D					Exhibited potent anti-inflammatory with IC50 = 1.26 ± 0.11 µM,	
Butyrolactone I					Non-significant as anti-inflammatory	
Eurobenzophenones A	Polyketide derivatives	Aspergillus europaeus WZXY-SX-4-1	Isolated from the marine sponge Xestospongia testudinaria, collected at the Weizhou Island in Guangxi Province of China		Weak inhibitory effects against NO production and the DPPH radical scavenging activity	[5]
Eurobenzophenones B					Exerted remarked down-regulation of NF-κB in LPS induced SW480 cells (% inhibition = 74.9 ± 3.8)	
					Weak inhibitory effects against NO production and the DPPH radical scavenging activity	
Eurobenzophenones C					Exhibited potent radical scavenging activity against DPPH. IC50 = 1.7 ± 0.2 µg/mL	
Euroxanthones A					Exerted remarked down-regulation of NF-κB in LPS induced SW480 cells (% inhibition = 68.8 ± 7.0)	

					weak inhibitory effects against NO production and the DPPH radical scavenging activity	
Euroxanthones B						
(+)1-O-demethylvariecolorquinones A						
14-O-Demethylsulochrin						
(+)-variecolorquinone A						
3-de-O-methylsulochrin					Exhibited potent radical scavenging activity against DPPH. IC50 = 2.3 ± 0.1 μg/mL	
					Potent inhibition against NF-κB in SW480 cells induced by LPS (% inhibition = 71.0 ± 10.0).	
14-de-Omethyl-5-methoxysulochrin					Exhibited potent radical scavenging activity against DPPH. IC50 = 5.4 ± 0.1 μg/mL	
Sulochrin					Weak inhibitory effects against NO production and the DPPH radical scavenging activity	
5-methoxysulochrin						
Calyxanthone						
Yicathin C						
Yicathin A						
Yicathin B					Exerted remarked down-regulation of NF-κB in LPS induced SW480 cells (% inhibition = 81.2 ± 8.3)	
					Weak inhibitory effects against NO production and the DPPH radical scavenging activity	
Dermolutein					Exerted remarked down-regulation of NF-κB in LPS induced SW480 cells (% inhibition = 73.1 ± 12.7)	
					Weak inhibitory effects against NO production and the DPPH radical scavenging activity	
Methylemodin					Exerted remarked down-regulation of NF-κB in LPS induced SW480 cells (% inhibition = 75.9 ± 8.3)	
					Weak inhibitory effects against NO production and the DPPH radical scavenging activity	
1-methoxy-14-dehydroxywentiquinone C						
Wentiquinone C						

6,6′-oxybis(1,3,8-trihydroxy-2-((S)-1-methoxyhexyl)anthracene-9,10-dione)	Anthranquinones	Marine-derived fungus Aspergillus versicolor	A marine clam unidentified		Showed selective antibacterial activity against Gram-positive Staphylococcus aureus (30 µg/well)	6
6,6′-oxybis(1,3,8-trihydroxy-2-((S)-1-hydroxyhexyl) anthracene-9,10-dione)						
1′-O-methylaverantin					Exhibited weak cytotoxicity against human cancer cell lines and antibacterial activity	
Averantin						
Averythrin						
Stergmatocystin	Xanthones				Exhibited moderate cytotoxicity against human cancer cell lines (IC50 = 11.25–17.36 µg/mL)	
Variecoxanthone					Exhibited weak cytotoxicity against human cancer cell lines and antibacterial activity	
Aspergillusene D	Bisabolane sesquiterpenoids	Aspergillus sydowii SCSIO41301	Sponge Phakellia fusca, which was collected from the Xisha Islands of China	2019	Weak active as antivirus to different influenza strains	7
2-Hydroxy-1-(hydroxymethyl)-8-methoxy-3-methyl-9H-xanthen-9- one	Xanthones				Obvious selective inhibitory activities against A/Puerto Rico/8/34 (H1N1). IC50 = 4.70 ± 1.11 µM	
					Obvious selective inhibitory activities against A/FM-1/1/47 (H1N1). IC50 = 4.04 ± 0.58 µM	
2-Hydroxy-1-(hydroxymethyl)-7,8-dimethoxy-3-methyl-9-H-xanthen-9-one					Obvious selective inhibitory activities against A/Puerto Rico/8/34 (H1N1). IC50 = 2.17 ± 1.39 µM	
3-(2,5-Dimethylbenzo[d][1,3]dioxol-2-yl)propanoic acid	Catecholderivatives				NA	
2-(5-Hydroxy-4-methylpentyl)-2-methylbenzo[d][1,3]dioxole-5-carboxylic acid						
Sydonic acid	Bisabolane sesquiterpenoids				Weak active as antivirus to different influenza strains	
(E)-7-deoxy-7,8-didehydrosydonic acid	Sesquiterpenoids					
(Z)-7-deoxy-7,8-didehydrosydonic acid						
7-deoxy-7,14-didehydrosydonic acid						
cyclo-12 hydroxysydonic acid						
(+)-12- hydroxysydonic acid						
bisdethiobis(methylthio)-acetylaranotin	Polyketides					
1,6,8-trihydroxy-3-methylanthraquinone	Anthraquinones					
Questin					Obvious selective inhibitory activities against A/Puerto Rico/8/34 (H1N1). IC50 = 1.92 ± 0.50 µM	
Emodic acid					Obvious selective inhibitory activities against A/Puerto Rico/8/34 (H1N1). IC50 = 2.00	

					± 1.10 μM	
Parietinic acid					Weak active as antivirus to different influenza strains	
3,7-dihydroxy-1,9 -dimethyldibenzofuran	Dibenzofuranes				Obvious selective inhibitory activities against A/Puerto Rico/8/34 (H1N1). IC50 = 1.31 ± 0.79 μM	
					Obvious selective inhibitory activities against A/FM-1/1/47 (H1N1). IC50 = 2.84 ± 0.80 μM	
					Obvious selective inhibitory activities against A/Aichi/2/68 (H3N2). IC50 = 1.24 ± 0.14 μM	
4-hydroxy-3,6-dimethyl-2-pyrone	Aliphatic pyrones				Weak active as antivirus to different influenza strains	
4-methyl-5,6-dihydropyren-2-one						
2-(Quinoline-8-carboxamido)benzoic acid	Quinolone alkaloid	Aspergillus sp. SCSIO06786	Deep-sea sediment collected from Indian Ocean	2020	Weak inhibitory activities against the tested pathogenic bacteria	[8]
3-Hydroxy-4-((2S,6S)-6-(hydroxymethyl)-2,6-dimethyltetrahydro-2H-pyran-2-yl)benzoic acid	Bisabolane-type sesquiterpene derivatives					
(−)-Austrosene						
3-hydroxy-4-(5-hydroxy-5-methyl-1-methylenehexyyl)-benzoic acid						
(R)-(+)-sydowic acid						
engyodontiumone I	Sesquiterpene derivatives					
sydonic acid						
(S)-(+)-11-dehydrosydonic acid						
Methyl 2-[(2-aminobenzoyl)amino]benzoate	Miscellaneous					
Methyl-N-(2-acet- aminobenzoyl) anthranilic acid						
3,7-dihydroxy-1,9-dimethyldibenzofuran	Benzofuranes				Exhibited moderate selective inhibitory activities against the tested pathogenic bacteria with MIC = 3.13- 6.25 μg/mL	
Diorcinol	biphenyl derivatives				Exhibited moderate selective inhibitory activities against the tested pathogenic bacteria with MIC = 12.5- 3.13 μg/mL	
3,4-dihydroxyphenylacetic acid methyl ester	Miscellaneous				Exhibited moderate selective inhibitory activities against the tested pathogenic bacteria (MRSA) with MIC = 12.5 μg/mL	
Indole-3-acetic acid					Weak inhibitory activities against the tested pathogenic bacteria	
(±)-Asperteretal D (±)	Butenolide derivatives	Aspergillus terreus	Derived from the marine	2018	Exhibited potent inhibitory	[9]

			sponge Phakellia fusca		activities against α-glucosidase with IC50 = 8.65 ± 0.4-9.98 ± 0.8 μM (positive control acarbose with an IC50 value of 320 μM)	
Asperteretal E					Exhibited potent inhibitory activities against α-glucosidase with IC50 = 13.36 ± 1.1 μM (positive control acarbose with an IC50 value of 320 μM)	
flavipesolide B					Exhibited potent inhibitory activities against α-glucosidase with IC50 = 10.3 ± 0.6 μM (positive control acarbose with an IC50 value of 320 μM)	
flavipesolide C					Exhibited potent inhibitory activities against α-glucosidase with IC50 = 7.63 ± 0.4 μM (positive control acarbose with an IC50 value of 320 μM)	
butyrolactone I					Exhibited potent inhibitory activities against α-glucosidase with IC50 = 14.18 ± 1.03 μM (positive control acarbose with an IC50 value of 320 μM)	
					Showed moderate antioxidant activities. IC50 = 38 ± 3.7 μM	
butyrolactone II					Showed moderate antioxidant activities. IC50 = 86 ± 6.3 μM	
					Exhibited moderate inhibitory activities against α-glucosidase with IC50 = 85.13 ± 5.7μM (positive control acarbose with an IC50 value of 320 μM)	
5-[(3,4-dihydro-2,2-dimethyl-2H-1-benzopyran-6-yl)-methyl]-3-hydroxy-4-(4-hydroxyphenyl)-2(5H)-furanone					Exhibited potent inhibitory activities against α-glucosidase with IC50 = 11.65 ± 0.7 μM (positive control acarbose with an IC50 value of 320 μM)	
					Showed moderate antioxidant activities. IC50 = 90 ± 2.5 μM	
aspernolide A	Butenolide derivatives				Showed moderate antioxidant activities. IC50 = 97 ± 4.2 μM	
					Exhibited moderate inhibitory activities against α-glucosidase	

					with IC50 = 47.33 ± 3.8 μM (positive control acarbose with an IC50 value of 320 μM)	
butyrolactone IV					NA	
butyrolactone V					Exhibited moderate inhibitory activities against α-glucosidase with IC50 = 110.27 ± 8.2μM (positive control acarbose with an IC50 value of 320 μM)	
aspulvinone E					did not show any notable AChE inhibitory activity in vitro .	
aspergilactones A	γ-lactones	Aspergillus sp. LS45	sponge-derived fungus	2019	Exhibited significant inhibition against the lateral root growth of Arabidopsis thaliana Columbia-0 at a concentration of 100 μM.	[10]
aspergilactones A (1) and B					did not show any notable AChE inhibitory activity in vitro.	
annularin A	Pyranones				Exhibited significant inhibition against the lateral root growth of Arabidopsis thaliana Columbia-0 at a concentration of 100 μM.	
pericoterpenoid A	Naphthalene carboxylic acid derivatives				Showed moderate inhibitory effects on CCRFCEM and K562 cancer cell lines with IC50 = 13.8 ± 1.6 and 12.9 ± 2.5 μM.	
Violaceimides A	methylsuccinimide-based sulfur-bearing compounds	Aspergillus violaceus WZXY-m64-17	sponge-associated fungal strain	2018	exerted selective inhibition against the growth of human leukemia U937 (IC50 = 5.3 ± 0.4 μM) and human colorectal cancer cell HCT-8 (IC50 = 1.5 ± 0.28 μM) with low cytotoxicity toward Vero cells	[11]
Violaceimides B					exerted selective inhibition against the growth of human leukemia U937 (IC50 = 1.8 ± 0.6 μM) and human colorectal cancer cell HCT-8 (IC50 = 2.51 ± 0.51 μM) with low cytotoxicity toward Vero cells	
Violaceimides C					weak as inhibitory for different cancer cell lines	
Violaceimides D						
Violaceimides E					showed moderate activity to inhibit U937 cells (IC50 = 16.6 ± 8.3 μM)	
aspergillsteroid A	steroids	Aspergillus sp. LS116	marine sponge Haliclona	2019	displayed significant	[12]

			sp. collected in the Linshui, Hannan province, China		antibacterial activity against V. harveyi with a MIC value of 16 μg/mL [bacteria]	
neocyclocitrinol B					displayed non-significant antibacterial activity against V. harveyi	
luteoride E	prenylated tryptophan derivative	Aspergillus terreus	separated from the coral Sarcophyton subviride, which was collected from the coast of Xisha Island in the South China Sea	2018	showed significant inhibition against LPS-induced NO production with IC50 values = 24.64 μM	13
versicolactone G	butenolide derivative				showed potent inhibitory against α-glucosidase activity with IC50 = 104.8 ± 9.5 μM, which was lower than the positive control acarbose (IC50=154.7 ± 8.1 μM)	
					showed significant inhibition against LPS-induced NO production with IC50 values = 15.72 μM	
(3E,7E)-4,8-dimethyl-undecane-3,7-diene-1,11-diol	linear aliphatic alcohol				showed significant inhibition against LPS-induced NO production with IC50 values = 18.62 μM	
asterrelenin	alkaloids				non-significant as antidiabetic or anti-inflammatory agents	
methyl 3,4,5-trimethoxy-2-(2-(nicotinamido)benzamido)benzoate					showed significant inhibition against LPS-induced NO production with IC50 values 5.48 μM	
14α-hydroxyergosta-4,7,22-triene-3,6-dione	steroids				showed significant inhibition against LPS-induced NO production with IC50 values = 26.83 μM	
territrem A	Miscellaneous				showed significant inhibition against LPS-induced NO production with IC50 values = 29.34 μM	
territrem B					non-significant as antidiabetic or anti-inflammatory agents	
territrem C						
lovastatin					showed significant inhibition against LPS-induced NO production with IC50 values = 17.45 μM	
monacolin L acid methyl ester					non-significant as antidiabetic or anti-inflammatory agents	
monacolin						

L-asparaginase	enzymatic proteins	Aspergillus niger AKV-MKBU	marine-derived		exhibited noteworthy antiproliferative activity against various cancer cell lines tested (A549, U87MG, HepG2, JURKAT E6, and bone marrow derived chronic myeloid leukemia cells) with IC50 = 0.375, 0.399, 0.204, 0.22, and 0.2 U/mL respectively.	[14]
Brasilanones A	brasilane sesquiterpenoids	Aspergillus terreus [CFCC 81836]	marine-derived		showed moderate inhibitory effect with NO inhibition rates of 47.7% at the concentration of 40 μM.	[15]
Brasilanones B					not active as cytotoxic or NO production inhibition	
Brasilanones C						
Brasilanones D						
Brasilanones E					showed moderate inhibitory effect with NO inhibition rates of 37.3% at the concentration of 40 μM.	
Brasilanones F					not active as cytotoxic or NO production inhibition	
asperterreusines A	dihydrobenzofuran derivatives				showed cytotoxicity against HL-60 and SW-480 cell lines with IC50 values of 15.3 and 25.7 μM, respectively	
asperterreusines B					not active as cytotoxic or NO production inhibition	
asperterreusines C						
terreustoxins A	highly oxygenated meroterpenoids	Aspergillus terreus	soil sample which was collected from Penguin Island in Antarctic	2019	Not active for inhibition of inhibited the proliferation of Con A-induced murine T cells	[16]
terreustoxins B						
terreustoxins C					inhibited the proliferation of Con A-induced murine T cells at the concentration of 10 μM	
terreustoxins D					Not active for inhibition of inhibited the proliferation of Con A-induced murine T cells	
terreustoxins E						
terreustoxins F						
terreustoxins G						
terreustoxins H						
terreustoxins I						
terreustoxins J						
terreustoxins K						
terretonin J						
terretonin A						

terretonin					inhibited the proliferation of Con A-induced murine T cells at the concentration of 10 μM	
terrenoid					Not active for inhibition of inhibited the proliferation of Con A-induced murine T cells	
asperterpene M						
(R)-4-((2,2-dimethylchroman-6-yl)methyl)-3-(4-hydroxyphenyl)-5-methoxyfuran-2(5H)-one)	meroterpenoids	Aspergillus terreus OUCMDZ-2739	marine algicolous fungus	2018	not active as cytotoxic or antidiabetic	[17]
1-(2,2-dimethylchroman-6-yl)-3-(4-hydroxyphenyl)propan-2-one						
(R,E)-3-(2,2-dimethylchroman-6-yl)-4-hydroxy-5-((2-(2-hydroxypropan-2-yl)-2,3-dihydrobenzofuran-5-yl)methylene)furan-2(5H)-one					exhibited stronger a-glucosidase inhibition than 1-deoxynojirimycin and acarbose (positive controls) with IC50 values of 24.8, 191.7 and 555.1 μM, respectively	
methyl (R)-2-(2-(2-hydroxypropan-2-yl)-2,3-dihydrobenzofuran-5-yl) acetate					not active as cytotoxic or antidiabetic	
flavipesolide A	Butenolide derivatives					
flavipesolide B						
flavipesolide C						
rubrolide S	Halogenated furanones				The cytotoxicity was observed for K562 with IC50 values of 9.5, μM.	
					exhibited stronger a-glucosidase inhibition than 1-deoxynojirimycin and acarbose (positive controls) with IC50 values of 1.2, 191.7 and 555.1 μM, respectively	
					was an anticompetitive inhibitor with Ki value of 1.42 μM.	
5-[(3,4-dihydro-2,2-dimethyl-2H-1-benzopyran-6-yl)-methyl]-3-hydroxy-4(4-hydroxyphenyl)-2(5H)-furanone	Butenolide derivatives				The cytotoxicity was observed against MCF-7 and K562 cells with IC50 values of 10.1, 13.0 μM	
(3R,4R)-3,4-dihydro-4,8-dihydroxy-6,7-dimethoxy-3-methylisocoumarin	coumarins				not active as cytotoxic or antidiabetic	
(3R)-3,4-dihydro-6,8-dimethoxy-3-methylisocoumarin						
terretonin C	meroterpenoids				The cytotoxicity was observed against MCF-7 cell with IC50 values of 8.5 μM	
ergosterol	sterols				not active as cytotoxic or antidiabetic	
aspernolide B	Butenolide derivatives					

butyrolactone II						
butyrolactone IV						
butyrolactone I					exhibited stronger a-glucosidase inhibition than 1-deoxynojirimycin and acarbose (positive controls) with IC50 values of 61.6, 191.7 and 555.1 µM, respectively	
aspernolide A					not active as cytotoxic or antidiabetic	
asterrelenin	alkaloid					
(+)-terrein	Miscellaneous					
aspvanicin A	cryptic 3,4-dihydronaphthalen-(2H)-1-one (1-tetralone) derivatives	Aspergillus versicolor	through bacterial co-culture and OSMAC approaches			[18]
aspvanicin B					showed cytotoxic activity against the mouse lymphoma cell line L5178Y with IC50 = 22.8 µM.	
Methyl orsellinate	Cryptic metabolites				not active as cytotoxic or antibacterial	
Orsellinic acid						
Cordyol C						
sydowiol B						
20 p- Hydroxybenzaldehyde					revealed weak antibacterial activity against Staphylococcus aureus	
Fusarubin					not active as cytotoxic or antibacterial	
Sterigmatocystin	xanthones				showed cytotoxic activity against the mouse lymphoma cell line L5178Y with IC50 = 2.2 µM.	
Infectopyrone	Miscellaneous				not active as cytotoxic or antibacterial	
Versiol						
caletasin	N-methyl cyclic pentapeptide	Aspergillus sp. MEXU 27854	marine-facultative Aspergillus sp	2019	NA	[19]
butyrolactone II	Aromatic butenolides					
circumdatin M	benzodiazepine alkaloid	Aspergillus sp. FM242	a Hawaiian marine		inactive against A2780 and A2780CisR (ovarian cancer cell lines)	[20]
chitosan	oligosaccharides	Aspergillus griseoaurantiacus KX010988	algae and decayed salty wood samples collected from Port-Said Governorate, Egypt	2018	showed good antibacterial activity against Bacillus subtilis, Staphylococcus aureus, and Lactobacillus cereus with inhibition zone diameter = 19 ± 0.80, 21 ± 0.81, and 20 ± 0.71,	[21]

					respectively by 40 µg/well and antioxidant activities	
chitinase enzyme	enzymatic proteins				showed good antifungal activity against F.solani with inhibition zone diameter = 23 ± 1.20	
6,8,1'-tri-O-methylaverantin	anthraquinones	Aspergillus sp. SF-6796	a marine organism collected from the Ross Sea, Antarctica		Anti-neuroinflammatory effect via upregulation of heme oxygenase-1 in lipopolysaccharide-activated microglia	[22]
6,8-di-O-methylaverufin	xanthones				non-potent as anti-neuroinflammatory effect	
5-methoxysterigmatocystin						
4-n-nonylphenol	phenols	Aspergillus nomius and Aspergillus terreus	derived from Moshui river estuarine sediment of Jiaozhou bay, Qingdao, China		Hazordous material	[23]
nuatigenin	steroids	Aspergillus nidulans MCCC 3A00050	deep-sea-derived	2019	NA	[24]
1-dehydronuatigenone						
1-dehydroisonuatigenone						
3β,15α-dihydroxyl-(22E,24R)-ergosta-5,8(14),22-trien-7-one						
β,15β-dihydroxyl-(22E,24R)-ergosta-5,8(14),22-trien-7-one						
5α,6α-epoxy-3β-hydroxy-(22E)-ergosta-8(14),22-dien-7-one						
3β,5α,9α-trihydroxyergosta-7,22-diene-6-one						
3β,5α-dihydroxy-6β-acetoxy-ergosta-7,22-diene						
(3β,5α,6β,22E)-ergosta-7,22-diene-3,5,6-triol 6-palmitate						
5α,8α-epidioxyergosta-6,9(11),22-trien-3β-ol						
(17R)-4-hydroxy-17-methylincisterol						
ergosta-5,7,22-trien-3β-ol						
(22E,24R)-5α,8α-epidioxyergosta-6,22-dien-3β-ol						
6,8-di-O-methylaverufin	Anthraquinones					
6-O-methylaverufin						
aversin						
8-O-methylversicolorin A						
diorcinol	biphenyl derivatives					
versiol	Miscellaneous					
asperlides A	butenolide derivatives	Aspergillus terreus	was isolated from sea deposit, which was collected in 10-meter-deep from the Fengxian Bay, Shanghai, China.	2018	exhibited no obvious cytotoxic activities	[25]
asperlides B						
asperlides C						
(+)-3′,3′-di-(dimethylallyl) -butyrolactone II					exhibited the most potent cytotoxin of PANC-1 cell line,	

					with the IC50 values of 5.3 µM	
(2R)-Methyl 2-(3-((3,3-dimethyloxiran-2-yl)methyl)-4-hydroxybenzyl)-4-hydroxy-3-(4-hydroxyphenyl)-5-oxo-2,5-dihydrofuran-2-carboxylate					exhibited no obvious cytotoxic activities	
versicolactone B					exhibited the most potent cytotoxin of PANC-1 cell line, with the IC50 values of 9.4 µM	
(R)-Methyl 4-hydroxy-2-(4-hydroxy-3-(3-methylbut-2-en-1-yl)benzyl)-3-(4-hydroxyphenyl)-5-oxo-2,5-dihydrofuran-2-carboxylate					exhibited no obvious cytotoxic activities	
butyrolactone V						
(R)-Methyl 4-hydroxy-3-(4-hydroxyphenyl)-2-(((R)-2-(2-hydroxypropan-2-yl)-2,3-dihydrobenzofuran-5-yl)methyl)-5-oxo-2,5-dihydrofuran-2-carboxylate						
(R)-Methyl 4-hydroxy-2-(4-hydroxy-3-((R)-2-hydroxy-3-methylbutyl)benzyl)-3-(4-hydroxyphenyl)-5-oxo-2,5-dihydrofuran-2-carboxylate						
(R)-Methyl 2-((2,2-dimethylchroman-6-yl)methyl)-4-hydroxy-3-(4-hydroxyphenyl)-5-oxo-2,5-dihydrofuran-2-carboxylate						
DHICA (5,6- Dihydroxyindole-2-carboxylic acid	indole carboxylic acid	Aspergillus nidulans	marine imperfect		UVB protective potential	26
chitinase	enzymatic proteins	Aspergillus flavus (AUMC 13576)	Suez Gulf		NA	27
cyclo-(L-Leu-L-Pro)	peptides	Aspergillus sydowii	marine derived fungi then OSMAC modulation		(61.52 ± 0.26%) presented the second highest percentage of AChE inhibition. IC50 = 0.36 ± 0.17 µmol/mL	28
cyclo-(L-Val-L-Pro)					was the most active AChE inhibitor (93.25 ± 0.41%). IC50 = 0.36 ± 0.17 µmol/mL was similar to the one found for galanthamine (IC50=0.38 ± 0.15 µmol mL−1)	
cyclo-(L-Val-L-Leu)					was the less active one (22.45 ± 0.11%)	
cyclo-(L-Phe-L-Val)					(IC50=1.13 ± 0.32 µmol mL−1) as AChE inhibitor	
ergosterol peroxide	steroids				not active as AChE inhibitor	
versiconol B	anthraquinones	Aspergillus sp. F40	sponge-derived fungus		showed weak antimicrobial activity against S. aureus and V. parahaemolyticus with MIC values of 48 µg/mL and 24 µg/mL, respectively	29
oxisterigmatocystin I	xanthones				not active as antibacterial	

versiconol	polyketides				showed weak antimicrobial activity against V. parahaemolyticus with an MIC value of 12 µg/mL	
oxisterigmatocystin					showed weak antimicrobial activity against S. aureus with an MIC value of 48 µg/mL	
dihydrosterigmatocystin					NA	
sterigmatocystin						
sydowic acid						
versicolorin B						
secosterigmatocystin						
averufin						
penicitrinone A	citrinin analogues	Aspergillus sydowii EN-534	fresh tissue of the marine red alga Laurencia okamurai collected at Qingdao, China after coculture with Penicillium citrinum EN-535		showed activity against all tested microbes with MIC = 64, 16, 32, 32, 16 µg/mL, respectively (E. coli. M. luteus. Ed. ictaluri. V. alginolyticus. V. parahaemolyticus)	[30]
seco-penicitrinol A,					showed activity against Ed. ictaluri and V. alginolyticus with MICs = 64, 32 µg/mL, respectively	
penicitrinol L					exhibited inhibition against E. coli with MICs 64 µg/mL	
penicitrinone F					showed activity against Ed. ictaluri and V. alginolyticus with MICs = 64, 64 µg/mL, respectively. exhibited inhibition against V. parahaemolyticus with MICs = 32 µg/mL	
penicitrinol A					showed activity against all tested microbes with MIC = 8, 4, 16, 32, 8 µg/mL, respectively (E. coli. M. luteus. Ed. ictaluri. V. alginolyticus. V. parahaemolyticus)	
citrinin					showed activity against all tested microbes with MIC = 8, 16, 32, 16, 8 µg/mL, respectively (E. coli. M. luteus. Ed. ictaluri. V. alginolyticus. V. parahaemolyticus)	
dihydrocitrinone					not active as anti-bacterial	
decarboxydihydrocitrinone						

phenol A acid phenol A						
1-(2',6-Dimethylphenyl)-2-n-propyl-1,2-dihydropyridazine-3,6-dione	phenyl pyridazine derivative	Aspergillus sp. AV-2	isolated from the healthy leaves of the mangrove plant Avicennia marina, collected from the Red Sea coast close to Hurgada, Egypt		NA	[31]
dioxoauroglaucin	prenylated benzaldehyde derivative				weak as antiproliferative activity against Caco-2 cell lines (human epithelial colorectal adenocarcinoma)	
tetrahydroauroglaucin					potent as antiproliferative activity against Caco-2 cell lines (human epithelial colorectal adenocarcinoma)	
isotetrahydroauroglaucin						
isodihydroauroglaucin						
flavoglaucin					most potent as antiproliferative activity against Caco-2 cell lines, (human epithelial colorectal adenocarcinoma) (IC50 of 2.87 µM)	
2-(2`,3-epoxy-1`,3`,5`-heptatrienyl)-6-hydroxy-5-(3-methyl-2-butenyl) benzaldehyde					potent as antiproliferative activity against Caco-2 cell lines (human epithelial colorectal adenocarcinoma)	
echinulin	indole-diketopiprazine				weak as antiproliferative activity against Caco-2 cell lines (human epithelial colorectal adenocarcinoma)	
neoechinulin B					NA	
isoechinulin B						
variecolorin J						
neoechinulin E						
cryptoechinulin B (13, aurechinulin)						
cryptoechinulin D						
ergosterol	steroids					
ergosterol peroxide						
aperterpenes N	meroterpenoids	Aspergillus terreus EN-539	fresh tissue of the marine red alga Laurencia okamurai collected from the coast of Qingdao, China	2019	showed inhibitory activity against influenza neuraminidase (IC50=18.0 nM)	[32]
aperterpenes O					did not show obvious inhibitory activity in the influenza neuraminidase inhibitory assay.	
terretonins A						
terretonins G					showed inhibitory activity against Micrococcus luteus and Staphylococcus aureus, with MIC values of 32 and 8 µg/mL, respectively	

anthcolorin G	oxoindolo diterpene epimers	Aspergillus versicolor	isolated from the fruits of the mangrove Avicennia marina. The plant was collected from 17 K Safaga, Red Sea, Egypt		showed insignificant cytotoxic activity	[33]
anthcolorin H					showed insignificant cytotoxic activity against Hela cells (IC50 = 43.7 ± 0.43 µM)	
(S)-sydowic acid	Meroterpenes				showed insignificant cytotoxic activity	
(7R,8R)-8-hydroxysydowic acid						
(7S,10S)-10-hydroxy-sydowic acid						
(7S,11R)-12-hydroxy-sydowic acid						
(7S,11R)-12-acetoxy-sydowic acid						
(7R,10R)-Iso-10-hydroxy-sydowic acid						
(7R,8R)-1,8-epoxy-11-hydroxy-sydonic acid						
3-hydroxy-4-(1-oxo-ethane) benzoic acid	benzoic acid derivatives					
7-deoxy-7,14-didehydro-11-hydroxysydonic acid	Meroterpenes					
Engyodontiumone J	Miscellaneous					
Engyodontiumone I						
7-deoxy-7,14-didehydro-12-acetoxy-sydonic acid	Meroterpenes				showed insignificant cytotoxic activity against Hela cells (IC50 = 83.8 ± 5.2 µM)	
and (E)-7-deoxy-7,8-didehydro-12-acetoxy-sydonic acid						
(E)-7-Deoxy-7,8-didehydro-12-hydroxy-sydonic acid					showed insignificant cytotoxic activity against Hela cells (IC50 = 53.5 ± 2.1 µM)	
(7R)-11-hydroxy-sydonic acid 17					showed insignificant cytotoxic activity	
(7R)-11-hydroxy-sydonic acid methyl ester						
An epimeric mixture of (7R,11R) and (7R,11S)-12-acetoxy sydonic acid						
12-Acetoxy-1-deoxy-sydonic						
Diorcinol	Biphenyl derivatives					
Violaceol	Diphenyl ethers				showed insignificant cytotoxic activity against Hela cells (IC50 = 83.8 ± 0.44 µM)	
Macro-sporin	Anthraquinones				showed insignificant cytotoxic activity	
seco-clavatustide B	aminobenzoic peptide	Aspergillus clavatus AS-107	Ascidian-derived fungus		showed potent activity against aquatic pathogens Aeromonas hydrophilia and Pseudomonas aeruginosa with MIC values of 8.2 µM.	[34]
clavatustide B					showed potent activity against aquatic pathogens Aeromonas hydrophilia and Pseudomonas aeruginosa with MIC values of 8.8 µM.	

5-acetyl-2,4-dihydroxy-3-methylbenzoic acid	clavatoic acid derivative				showed certain antibacterial activity against M. luteus with an MIC value of 38.1 μM	
demethylsiderin	coumarin derivatives				not active as antibacterial	
4-methylcoumarin						
demethylkotanin						
Asperpentenone A	polyketides	Aspergillus sp. SCSIO 41024	the deep-sea	2020		[35]
1-((4aS,4bS,5aS,6aS,7R,8R)-7-Hydroxy-4a,6a,8-trimethyl-2-oxo-2,3,4,4a,5a,6,6a,7,8,9,9a,9b,10,11 -tetradecahydrocyclopenta[1,2]phenanthro[4,4a-b]oxiren-7-yl)butane-1,3-dione	steroid					
kojic acid	Miscellaneous				showed weak antibacterial activities against Bacillus thuringiensis and Acinetobacter baumannii with MIC values of 32 and 128 μg/mL, respectively	
phomapyrone C					not active as antibacterial	
phomaligols A						
phomaligols A1						
3,4-dihydroxy-phenylacetic acid methyl ester						
diketopiperazine alkaloid	indole alkaloids derivatives					
griseofamine A	indole alkaloids derivatives- a cyclopiazonic acid (CPA)-type alkaloid				exhibited weak antibacterial activity with an MIC value of 64 μg/mL against Escherichia coli	
oxisterigmatocystin D	xanthones	A. versicolor A-21-2-7	isolated from the deep-sea sediment (3 002 m) in South China Sea	2018	possessing moderate antioxidant activities (0.55 ± 0.13 Trolox equivalents)	
oxisterigmatocystin C					possessing moderate antioxidant activities (1.16 ± 0.18 Trolox equivalents)	
sterigmatocystine					possessing moderate antioxidant activities (0.65 ± 0.13 Trolox equivalents)	
dihydrosterigmatocystine					not active as cytotoxic or antioxidant	
versicolorin B	anthraquinones				possessing moderate antioxidant activities (1.03 ± 0.11 Trolox equivalents)	
					showed weak cytotoxicity on A549 with the IC50 values of 25.97 μmol/L	
UCT1072M1					potentially activated the expression of Nrf2-regulated gene (1.49 ± 0.28 folds to	

					control)	
					possessing moderate antioxidant activities (0.97 ± 0.01 Trolox equivalents)	
averantin					potentially activated the expression of Nrf2-regulated gene (1.58 ± 0.11 folds to control)	
					possessing moderate antioxidant activities (0.89 ± 0.10 Trolox equivalents)	
methyl-averantin					possessing moderate antioxidant activities (0.86 ± 0.08 Trolox equivalents)	
averythrin					potentially activated the expression of Nrf2-regulated gene (1.46 ± 0.08 folds to control)	
averufanin					possessing moderate antioxidant activities (0.82 ± 0.01 Trolox equivalents)	
averufine					possessing moderate antioxidant activities (0.94 ± 0.19 Trolox equivalents)	
					showed weak cytotoxicity on A549 with the IC50 values of 25.60 μmol/L	
nidurufin					potentially activated the expression of Nrf2-regulated gene (1.41 ± 0.05 folds to control)	
					possessing moderate antioxidant activities (0.62 ± 0.14 Trolox equivalents)	
aspergillusine A	alkaloid				NA	
kipukasin H						
kipukasin I						
N-Phenethylacetaminde						
versimide						
aspergillamides C	isomeric modified tripeptides	Aspergillus terreus SCSIO 41008	marine sponge Callyspongia sp., which was collected from the	2019	weak or not active as anti-tuberculosis protein tyrosine phosphatase B (MptpB) or as	[37]
aspergillamides D						
aspergillamide A	tripeptides					

aspergillamide B			seaside in Xuwen County, Guangdong Province, China		cytotoxic	
cis-Lphenyla-laninamide						
trans-L-phenylalaninamide						
terretrione B	polyketides					
terretrione C						
cyclo-(L-Pro-L-Phe)	peptides					
brevianamide F	prenylated indole alkaloids					
butyrolactone I	polyketides				exhibited strong inhibitory effects against Mycobacterium tuberculosis protein tyrosine phosphatase B (MptpB) with the IC50 being 5.11 ± 0.53 μmol/L	
1,8-dihydroxy-3-methoxy-6-methylanthracene-9,10-dione	Anthraquinones				weak or not active as anti-tuberculosis protein tyrosine phosphatase B (MptpB) or as cytotoxic	
1-methyl emodin						
methyl 6-acetyl-4-methoxy-5,7,8-trihydroxynaphthalene-2-carboxylate						
methyl 6-acetyl-4-methoxy-5, 8-dihydroxynaphthalene-2-carboxylate	polyketides					
(S)-6, 8-dimethoxy-3-methylisochroman-1-one						
Di-(2-ethylhexyl) Phthalate	Phthalates	Aspergillus awamori	River Nile water and sediment	2018	inhibitory activity against Candida albicans and Sarcina lutea with inhibition diameter zone of 20 mm and 23 mm	[38]
					active as cytotoxic against MCF7, HEPG2, HELA, and HCT 116 cell lines with IC50 = 6.525, 26.73, 42.2958, and 66.607, respectively	
(3 R,9S,12R,13S,17S,18S)-2-carbonyl-3-hydroxylemeniveol	indoloditerpene	Aspergillus versicolor ZZ761	separated from a marine mud sample, which was collected from Shengsi island at Zhoushan, China	2019	showed antimicrobial activities with MIC values of 20.6 μM against Escherichia coli and 22.8 μM against Candida albicans.	[39]
Diorcinol	biphenyl derivatives				had activities in inhibiting the proliferation of human glioma U87MG and U251 cells with IC50 values of 4.4 and 11.3 μM	
sterigmatin	xanthones				not active as antibacterial or antiproliferative agents	
sterigmatocystin						
demethylsterigmatocystin						
versicolorin B	anthraquinone				had activities in inhibiting the proliferation of human glioma U87MG and U251 cells with IC50 values of 6.2 and 30.5	

					μM, respectively	
emodin					not active as antibacterial or antiproliferative agents	
speramide B	prenylated indole alkaloids					
notoamide D	Indole alkaloids					
notoamide E						
deoxybrevianamide E	prenylated indole alkaloids					
notoamide B	Indole alkaloids					
(-)-versocplamide B						
notoamide A						
6-epi-stephacidin A	prenylated indole alkaloids					
notoamide F	Indole alkaloids					
(±)-asperteretal F	butenolide derivative	Aspergillus terreus SCSIO FZQ028	a deep-sea sediment sample (117_03”43’ E, 20_04”38’ N) at the depth of 1718 m collected from an open voyage to the South China Sea		not active as antioxidant, antibacterial and cytotoxic	[40]
asperteretal E					showed significant activities against DPPH with IC50 ranging from 5.89 to 10.07 μg/mL	
					showed moderate antimicrobial activities against all four tested bacteria.	
butyrolactone III					showed significant activities	

					against DPPH with IC50 ranging from 5.89 to 10.07 μg/mL	
aspernolide A					showed significant activities against DPPH with IC50 ranging from 5.89 to 10.07 μg/mL	
					showed moderate antimicrobial activities against all four tested bacteria.	
butyrolactone IV					not active as antioxidant, antibacterial and cytotoxic	
butyrolactone I						
aspernolide B					showed significant activities against DPPH with IC50 ranging from 5.89 to 10.07 μg/mL	
asperdiphenol A	diphenolic derivatives	Aspergillus niger 102	Zoanthidae collected in Xuwen, Zhanjiang City, Guangdong Province, China	2018	not active as antibacterial, cytotoxic or anti-inflammatory	[41]
fonsecione A	bis-naphtho-γ-pyrones				NA	
asperpyrone A						
aurasperone A						
dianhydro-aurasperone C						
asperpyrone C						
asperpyrone D						
asperpyrone B						
rubrofusarin B	polyketide naphthopyrones					
flavasperon	benzochromones					
epi-pinophilin B	azaphilone derivative	Aspergillus fumigatus 14–27	fresh inner tissue of gorgonian Carijoa spp., which was collected from the South China Sea	2019	not showed evident inhibitory activities for their antibacterial and cytotoxic activities.	[42]
pinophilin B						
pinazaphilone B						
pinophilin E						
acremolin C	alkaloid	Aspergillus sydowii SP-1	marine sediment sample, which was collected from site in the Antarctic Great Wall Station (62. 22 °S, 58. 96 °W)	2018	displayed weak inhibition activities against MRSA and MRSE with MIC values of 32 and 16 μg/mL, respectively	[43]
cyclo-(L-Trp-L-Phe)	peptides				showed moderate inhibitions against methicillin-resistant S. aureus (MRSA) and methicillin-resistant S. epidermidis (MRSE) as comparing to tigecycline with equal MIC values of 0.5 and 1 μg/mL, respectively	
4-hydroxyphenylacetic acid	Miscellaneous				not active as antibacterial	
(7S)-(+)-hydroxysydonic acid	sesquiterpenes				showed moderate inhibitions against methicillin-resistant S. aureus (MRSA) and methicillin-resistant S. epidermidis (MRSE)	

					as comparing to tigecycline with equal MIC values of 0.5 and 1 µg/mL, respectively	
(7S, 11S)-(+)-12-hydroxysydonic acid					not active as antibacterial	
acremolin A	alkaloid				showed moderate inhibitions against methicillin-resistant S. aureus (MRSA) and methicillin-resistant S. epidermidis (MRSE) as comparing to tigecycline with equal MIC values of 0.5 and 1 µg/mL, respectively	
acremolin B	alkaloid				not active as antibacterial	
sinulolide I	butenolide fatty acid	Aspergillus terreus SCSIO 41202	deep-sea sediment of the South China Sea coast	2020	exhibited significant antifungal activity against citrus postharvest pathogen Penicillium italicum (MICs = 0.125 mg/mL)	[44]
(9Z,12Z)-N-(2-hydroxyethyl) octadeca-9,12-dienamide	Fatty acids				exhibited significant antifungal activity against citrus postharvest pathogen Penicillium italicum (MICs around 0.062 mg/mL)	
dodecanoic acid					exhibited significant antifungal activity against citrus postharvest pathogen Penicillium italicum (MICs around 0.031 mg/mL)	
decanoic acid					exhibited significant antifungal activity against citrus postharvest pathogen Penicillium italicum (MICs around 0.062 mg/mL)	
(7R, 11S)-12 methyl hydroxylated sydowic acid	aromatic bisabolene-type sesquiterpenoid	Aspergillus versicolor SD-330	marine sediment sample collected from the South China Sea at a depth of 1487 m	2019	exhibited selective inhibitory activities against zoonotic pathogenic bacteria such as Aeromonas hydrophilia, E. coli, Edwardsiella tarda and Vibrio harveyi, with the MIC valuesranging from 1.0 to 8.0 µg/mL.	[45]
aspergoterpenin C						
(7S,11S)-(+)-12-hydroxysydonic acid					exhibited some selective activities against the zoonotic pathogenic bacteria.	
(S)-(+)-11-dehydrosydonic acid						
engyodontiumone I					exhibited selective inhibitory activities against zoonotic	

					pathogenic bacteria such as Aeromonas hydrophilia, E. coli, Edwardsiella tarda and Vibrio harveyi, with the MIC valuesranging from 1.0 to 8.0 µg/mL	
chaetominine A	alkaloids	Aspergillus fumigatus MF029	isolated from a marine sponge sample of H. perleve collected from the Bohai Sea, China.		not active as antimicrobial	[46]
sphingofungin I	imminolactones					
emodin	Anthraquinones				displayed moderate antibacterial activities against MRSA and S. aureu with MIC values of 50 µg/mL, and significant activity against BCG with MIC value of 1.25 µg/mL	
chaetominine	alkaloids				not active as antimicrobial	
sphingofungin D	Imminolactones					
trypacidin	diphenyl ethers or seco-anthraquinones				showed moderate antibacterial activities against MRSA and S. aureu with MIC values of 50 µg/mL, and significant activities against against B. subtilis and BCG (potential antitubercular activity) with MIC values of 12.5 and 1.25 µg/mL, respectively	
Asperfurandiones A	furandione analogs	Aspergillus versicolor	isolated from a coastal sediment collected at Dongji Island, China	2018	showed moderate antifungal activity against Gaeumannomyces graminis, Cryptococcus neoformans, and C. albicans with MIC values of 64 µg/mL	[47]
Asperfurandiones B						[47]
aspergillolide	12-membered macrolide	Aspergillus sp. S-3-75	isolated from the intestine of sea cucumber at 44.42 W, 60.54 S in the Antarctic		no significant immunosuppressive effects at concentrations 10 µmol,1.0 µmol and 0.1 µmol, examined on splenocyte proliferation	[48]
2,4-dihydroxy-6-methylacetophenone	Miscellaneous					
pannorin	Naphthopyrones					
2-hydroxy-4-(3-hydroxy-5-methylphenoxy)-6-methylbenzoic acid	Miscellaneous					
3,3'-dihydroxy-5,5'-dimethyldiphenyl ether						
aloesone	chromones					
aloesol						
acremolin	alkaloids					
cyclo-(L-Trp-L-Phe)	peptides					
cyclo-(L-Trp-L-Leu)						
asperpene D	Miscellaneous	Aspergillus sp. SCS-KFD66	isolated from a bivalve mollusk, Sanguinolaria	2019	Not active as antioxidant or anti cholinesterase or antidiabetic	[49]

asperpene E			chinensis, collected from Haikou Bay		at a concentration of 50 μg/ml, showed weak inhibitory activities against AChE, with an inhibition rate of 19.5% (tacrine as positive control, IC50 0.02 mM), and showed DPPH radical Scavenging activity, with IC50 value of 0.48 mM (ascorbic acid as positive control, IC50 0.04 mM).	
niveoglaucins A	auroglaucin-derived compounds	Aspergillus niveoglaucus	Vietnamese marine sediment	2018	increased viability of 6-OHDA-treated cells by 20–25% (Neuroprotective effect)	[50]
niveoglaucins B					NA	
5-hydroxy-6-(3-methylbut-2-enyl)-2-(pent-1-enyl)benzofuran-4-carbaldehyde	benzfurans				Not active as neuroprotective	
flavoglaucin	prenylated benzaldehyde derivative				increased viability of 6-OHDA-treated cells by 20–25% (Neuroprotective effect)	
tetrahydroauroglaucin					Not active as neuroprotectve	
aspergin						
isodihydroauroglaucin						
α-CPA	cyclopiazonic acids	Aspergillus oryzae HMP-F28	marine sponge Hymeniacidon perleve collected from the Bohai Sea off the shore at Lingshuiqiao in Dalian, China		NA	[51]
β-CPA						
speradine A						
3-hydroxysperadine A						
Sorbicillin	Sorbicillinoids	A. protuberus MUT 3638	Barents sub-Sea sediments			[52]
Sorbicillinol						
Dihydrosorbicillinol						
Oxosorbicillinol						
Sorbicillactone A						
Bisvertinol						
Bisvertinolone					display significant activity against Staphylococcus aureus with a minimum inhibitory concentration (MIC) of 30 μg/mL	
Dihydrobisvertinolone					NA	
4-deoxyterphenyllin	p-terphenyl derivates	Aspergillus candidus	the Atlantic Ocean (_3542 m)	2019	did not show anti-proliferative effect	[53]
4’’-dehydroxyterphenyllin						
terphenyllin					showed potent antiproliferative	

					effect against four cancer cells of Hela, Eca-109, Bel-7402, and PANC-1 with IC50 values ranging from 5.5 μM to 9.4 μM	
prenylterphenyllin					showed potent antiproliferative effect against four cancer cells of Hela, Eca-109, Bel-7402, and PANC-1 with IC50 values ranging from 5.5 μM to 9.4 μM	
versiperol A	biphenyl derivative	Aspergillus versicolor	deep-sea sediment of the Pacific Ocean collected at a depth of at a depth of 2721 m	2018	showed moderate anti-S. aureus with MIC value of 8 μg/mL	[54]
2,4-dimethoxyphenol	phenols				displayed weak inhibition with MIC values of 64 μg/mL	
diorcinol	biphenyl derivatives					
3,4-dimethoxyphenyl α-D-ribofuranoside	phenolic glycosides	Aspergillus amstelodami AUMC	The leaf parts of the mangrove plant Avicennia marina were collected from kilo 17, Safaga, Red Sea, Egypt	2019	selectively suppressed melanin production in B16 melanoma cells, using arbutin as a positive control. Their IC50 values were 52.6±6.64 μM	[55]
3β-(β-D-glucopyranosyloxy)-olean-12-ene-23,28,30-trioic acid	triterpenoidal glycosides				did not show any significant anti-allergic activity in RBL-2H3 cells	
echinulin	indole-diketopiprazine				selectively suppressed melanin production in B16 melanoma cells, using arbutin as a positive control. Their IC50 values were 98.0±1.16 μM	
					did not show any significant anti-allergic activity in RBL-2H3 cells	
tardioxopiperazine B					selectively suppressed melanin production in B16 melanoma cells, using arbutin as a positive control. Their IC50 values were 30.8±5.57 μM	
arestrictin A					did not show any significant anti-allergic activity in RBL-2H3 cells	
neochinulin D					selectively suppressed melanin production in B16 melanoma cells, using arbutin as a positive control. Their IC50 values were 112.0±0.22 μM	

					did not show any significant anti-allergic activity in RBL-2H3 cells	
variecolorin O					selectively suppressed melanin production in B16 melanoma cells, using arbutin as a positive control. Their IC50 values were 38.5±6.08 µM	
					did not show any significant anti-allergic activity in RBL-2H3 cells	
claudine A	indole derivatives					
uracil	nucleotides				selectively suppressed melanin production in B16 melanoma cells, using arbutin as a positive control. Their IC50 values were 144.7±2.35 µM	
					did not show any significant anti-allergic activity in RBL-2H3 cells	
thymine						
adenine					selectively suppressed melanin production in B16 melanoma cells, using arbutin as a positive control. Their IC50 values were, 100.4±3.05 µM	
					did not show any significant anti-allergic activity in RBL-2H3 cells	
blumenol A	isoprenoids					
stigmasterol-3-O-β-D-glucoside	sterol glucoside					
mequinol	4-OH-anethole					
ferulic acid	phenolic acid					
Questin	Anthraquinones	Aspergillus flavipes HN4-13	Marine derived		exhibited favourable antibacterial and bactericidal activity against V. harveyi by disrupting the cell wall and membrane, which caused the destruction of permeability and integrity of cell wall and membrane, resulting in the leakage of intracellular biological components and change of cell morphology (MIC = 31.25 µg/mL)	56
4’-Chloroasterric Acid	diphenyl ethers	A. flavipes	isolated from coastal	2020	showed moderate to strong	57

methyl chloroasterrate			sediment collected in Dalian, Liaoning Province of China		antibacterial effects on different Gram-positive bacteria with MIC values that ranged from 3.13 to 50 μg/mL	
penicillither						
iizukine A						
asterric acid						
monomethylosoic acid						
butyl 2,4-dichloroasterrate						
2,4-dichloroasterric acid						
methyl dichloroasterrate						
geodin hydrate						
monochlorsulochrin	benzophenones					
dihydrogeodin						
methyl (2-chloro-l,6-dihydroxy-3-meth- ylxanthone)-8-carboxylate	xanthones					
methyl (4-chloro-l,6-dihydroxy-3-methylxanthone)-8-carboxylate						
malformin C	polypeptides	A. niger 15F41-1-3	was isolated from an unidentified marine sponge, which was collected at North Pagai Island, Indonesia, after coculture with Mycobacterium smegmatis		isolated for its previous potent cytotoxicity but NA IN this study	[58]
TMC-256A1	naphtho-γ-pyrones				NA	
desmethylkotanin	coumarine derivatives					
aurasperone C	bis-naphtho-γ-pyrones					
Isodihydroauroglaucin	prenylated benzaldehyde derivative	A. ruber (H-1)	isolated from gorgonians (XS-2009-13) collected from the Xisha Islands	2018	showed significant antiviral activity against HSV-1 virus with EC_{50} values of 4.73 μM.	[59]
					showed moderate cytotoxic activities against Vero cell lines	
					showed weak inhibitory activity towards B. cereus and S. typhimurium with the same MIC value of 12.5 μM	
Flavoglaucin					showed significant antiviral activity against HSV-1 virus with EC_{50} values of 6.95 μM.	
					showed moderate cytotoxic activities against Vero cell lines	
Erythroglaucin	Anthraquinones				weak as antibacterial	
Physcion						
Neoechinulin A	indole-diketopiprazine					
Echinulin						
8″-hydroxy-9″-en-butyrolactone I	butyrolactones	Aspergillus sp	Marine derived		NA	[60]
butyrolactone VII						
3-hydroxy-4-(4-hydroxyphenyl)-5-methoxycarbonyl-5-(4-hydroxy-3-formylbenzyl)-2,5-dihydro-2-furanone						

butyrolactone III						
epicoccolide A	polyoxygenated polyketides	Aspergillus micronesiensis	seaweed Kappaphycus alvarezii collected of Van Phong bay, Khanh Hoa, Vietnam	2019	exhibited meaningful cytotoxic activity with the IC50 values = 4.01, 4.08, 4.71 µg/mL against Hep-G2, LU-1, Vero cells	[61]
epicoccolide B					exhibited meaningful cytotoxic activity with the IC_{50} values = 4.66 µg/mL against Vero cells	
2-O-methylbutyrolactone II					not active as cytotoxic	
NC3B					exhibited meaningful cytotoxic activity with the IC_{50} values = 3.97, 4.09 µg/mL against Hep-G2, , Vero cells	
epicoccone B					not active as cytotoxic	
(22E,24R)-5α,8α-epidioxy-24-methyl-cholesta-6,22-dien-3β-ol						
4-hydroxybenzaldehyde						
rubrofusarine B	naphto-c-pyrones	Aspergillus foetidus KMM 4694	marine-derived		induce ROS production in these cells in cytotoxic concentration, 10.53% at 100 µM	[62]
TMC 256 A1					not active as cytotoxic	
fansecinones A					induce ROS production in these cells in cytotoxic concentration, at 12.53% at 10 µM	
fansecinones B					not active as cytotoxic	
aurasperones A						
aurasperones B						
aurasperones F						
dianhydro-aurasperone C						
asperpyrone B						
aspergillspins A	b-carboline alkaloids	Aspergillus sp. SCSIO 41501	gorgonian Melitodes squamata collected from the South China Sea, Sanya (18_11'N, 109_25'E), Hainan Province, China		not active as cytotoxic or antibacterial	[63]
aspergillspins B						
aspergillspins C	quinolone alkaloids				NA	
aspergillspins D						
aspergillspins E						
aspergillspins F	isocoumarins				not active as cytotoxic or antibacterial	
aspergillspins G						
(3S)-1,2,3,4-tetrahydro-b-carboline-3-carboxylic acid	Alkaloids				NA	
transtorine						
marinamide						
methyl marinamide						
2 R-(2-hydroxypropan-2-yl)-6,7-dihydroxymethyl-2,3-dihydrobenzofuran	dihydrobenzofuran derivative	Aspergillus ustus KMM 4664	sediment (Sea of Okhotsk)		showed non-significant ability of inhibition of the ability of	[64]

emericellamide A	depsipeptide				spermatozoa to fertilize egg-cells of of the sea urchin S. intermedius.	
12-hydroxyalbrassitriol	drimanes sesquiterpenes					
2α,9α,11-trihydroxy-6-oxodrim-7-ene						
9,11-dihydroxy-6-oxodrim-7-ene						
11,12-O-isopropylidenealbrassitriol	artifact drimane derivatives				NA	
11,12-O-isopropylidene-6-epi-albrassitriol ester of (E,E)-6,7-dihydroxy-2,4-octadienoic acid					showed significant ability of inhibition of the ability of spermatozoa to fertilize egg-cells of of the sea urchin S. intermedius. with IC_{50} value 21 μM.	
sydowiones A	2-pyrone derivatives	Aspergillus sydowii SCSIO 00305	the South China Sea gorgonian Verrucella unbracculum		showed moderate toxicity towards brine shrine naupalii with LC_{50} values of 19.5, μM	[65]
					showed antioxidant activity against (DPPH) radicals with IC_{50} values of 46.0 μM	
sydowiones B					showed moderate toxicity towards brine shrine naupalii with LC_{50} values of 14.3, μM	
					showed antioxidant activity against (DPPH) radicals with IC_{50} values of 46.6 μM	
sydowione C	cyclopentenone derivative				showed moderate toxicity towards brine shrine naupalii with LC_{50} values of 8.3 μM	
6-methoxyl austocystin A	xanthones				showed moderate toxicity towards brine shrine naupalii with LC_{50} values of 2.9 μM	
paecilpyrone A	2-pyrone derivatives				NA	
austocystin A	xanthones					
3-hydroxy pinselin		Aspergillus versicolor MF160003	a sediment sample collected from China Bohai Sea		not active as antimicrobial	[66]
					showed moderate bioactivities against BCG with MIC values of 40 μg/mL	
					showed moderate bioactivities against BCG with MIC values of 20 μg/mL	
ochramides A	pyrazin-2(1H)-one derivatives	Aspergillus ochraceus LCJ11-102	marine coral-derived	2018	Not active as antimicrobial	[67]
ochramides B					showed antimicrobial activities against Enterobacter aerogenes	

					with the MIC = 40.0 μM	
ochramides C					Not active as antimicrobial	
ochramides D						
ochralate A					showed antimicrobial activities against Enterobacter aerogenes with the MIC = 18.9 μM	
aluminiumneoaspergillin					showed antimicrobial activities against Enterobacter aerogenes with the MIC = 20.1 μM	
flavacol					Not active as antimicrobial	
3-isobutyl-6-(1-hydroxy-2-methylpropyl)-2(1H)-pyrazinone						
asperochrins D	Polyketides	Aspergillus sp. ZF-79	unidentified marine sponge in the Xisha Islands, Hainan province, in China	2019	show obvious activity against Chromobacterium violaceum. the MIC = 50 μM	[68]
asperochrins E					Not active as anti Chromobacterium violaceum	
asperochrins F					show obvious activity against Chromobacterium violaceum. the MIC = 100 μM	
(3R,4R)-4,7-dihydroxymellein					show obvious activity against Chromobacterium violaceum. the MIC = 50 μM	
asperochrin A					show obvious activity against Chromobacterium violaceum. the MIC = 6.25 μM	
asteltoxin					Not active as anti Chromobacterium violaceum	
asteltoxin B						
(±)-tylopilusin D	diphenolic derivative	Aspergillus sp. SF-5929	marine-derived	2018	exhibited strong PTP1B inhibitory activity with IC_{50} = 8.1 ± 0.4 μM	[69]
funalenone	phenalenones				exhibited strong PTP1B inhibitory activity with IC_{50} = 6.1 ± 0.3 μM	
rubrofusarin B	polyketide naphthopyrones				exhibited strong PTP1B inhibitory activity with IC_{50} = 6.5 ± 0.3 μM	
TMC-256A1					exhibited strong PTP1B inhibitory activity with IC_{50} = 5.1 ± 0.3 μM	
aurasperone F					exhibited strong PTP1B inhibitory activity with IC_{50} = 7.9 ± 0.4 μM	
fonsecin					exhibited strong PTP1B inhibitory activity with IC_{50} =	

					3.3 ± 0.2 µM	
malformin A1	Polypeptides				exhibited strong PTP1B inhibitory activity with IC_{50} = 5.2 ± 0.5 µM	
carbonarone A	γ-pyrone				Not active as PTP1B inhibitory activity	
pyranonigrin A						
campyrone C	α- pyrone					
campyrone A						
protuboxepin C	diketopiperazine alkaloids	Aspergillus sp SCSIO XWS02F40	sponge-derived		no inhibitory activity against A549 cells with IC_{50} = 100 µM. IC_{50} against HeLa cells = 61 µM	70
protuboxepin D					no inhibitory activity against A549 cells with IC_{50} = 190 µM. IC_{50} value against HeLa cells = 114 µM	
methyl chloroasterrate	diphenyl derivatives	Aspergillus sp	soft coral Sinularia sp. collected from the South China Sea		not active as antibacterial	71
methyl dichloroasterrate						
methyl 3-chloroasterric acid						
asterric acid						
dichloroasterric acid					showed selectively inhibitory activity towards S. aureus with the MIC value of 12.5 µM.	
geodin					showed significant cytotoxic activity against six human cancer cell lines, including breast cancer cell BT474, large cell lung cancer cell NCI-H460, non-small cell lung cancer cell H-1975, chronic myelogenous leukemia cell K562, prostate cancer cell DU145, and lung cancer cell A549 with IC_{50} = 8.88, 9.22, 9.96, 11.14, 14.44, and 11.05 µM.	
methyl asterrate		Aspergillus sp	internal fresh tissue of the soft coral Sinularia sp	2019	not active as antifouling, antibacterial, cytotoxic	72
sulochrin					showed moderate activity against V. anguillarum and A. salmonicida with MICs of 15.06 and 30.12 µM (Sea-Nine 211, MIC = 1.08 µM) as antifouling	
					exhibited strong antibacterial activity against P. aeruginosa with MICs of 7.53 µM (ciprofloxacin, MIC = 1.88 µM)	

(–)-bis-dechlorogeodin	Diphenyl ethers				showed moderate activity against V. anguillarum and A. salmonicida with MICs of 15.15 and 30.30 μM (Sea-Nine 211, MIC = 1.08 μM) as antifouling	
					exhibited strong antibacterial activity against P. aeruginosa with MICs of 3.78 μM (ciprofloxacin, MIC = 1.88 μM)	
					displayed moderate activity against Jurkat, A549, and HeLa cells with IC_{50} values of 10.69, 10.69, and 3.56 μM (adriamycin, IC_{50} = 0.53, 0.60, 0.86 μM), respectively	
emodin	Anthraquinones				not active as antifouling, antibacterial, cytotoxic	
questinol						
questin						
2-hydroxy-6-formyl-vertixanthone	Xanthones	Aspergillus sydowii C1-S01-A7	deep sea-derived	2018	showed weaker activities than the positive control chloramphenicol with MIC values ranging from 15 to 32 μg/mL	[73]
					showed non-poent activities gainst HepG2, with IC_{50}= 32.7 ± 0.9 μg/mL	
12-O-acetyl-sydowinin					showed weaker activities than the positive control chloramphenicol with MIC values ranging from 15 to 32 μg/mL	
					showed non-poent activities gainst A549, HepG2, Hela cells with IC_{50}= 25.2 ± 0.9, 42.3 ± 0.6 33.6 ± 0.7 μg/mL	
13-O-acetyl-sydowinin B					not active as, antibacterial, cytotoxic	
sydowinin B					showed weaker activities than the positive control erythromycin with MIC values in the range of 16–33 μg/mL against Vibrio strains	
pinselin					not active as, antibacterial, cytotoxic	
12-O-acetyl-AGI-B4						
aspergillusone A					showed weaker	

					activities than the positive control chloramphenicol with MIC values ranging from 15 to 32 µg/mL	
AGI-B4					showed weaker activities than the positive control erythromycin with MIC values in the range of 16–33 µg/mL against Vibrio strains	
					showed weaker activities than the positive control chloramphenicol with MIC values ranging from 15 to 32 µg/mL	
					displayed selectively cytotoxic activity against A549 cell line with IC_{50} value below 10 µM and stronger cytotoxic activities than the other xanthone derivatives for both A549 and HepG2 (IC_{50} = 30.7 ± 0.9 µM) cell lines	
questin					showed non-poent activities gainst A549, HepG2, Hela cells with IC_{50}= 40.0 ± 0.3, 42.2 ± 0.5, 36.2 ± 0.9 µg/mL	
yicathin C					showed non-poent activities gainst A549 cell lines, with IC_{50}= 37.7 ± 0.3 µg/mL	
demethoxy-10-methoxy-wentiquinone C	polyketides				showed weaker activities than the positive control chloramphenicol with MIC values ranging from 15 to 32 µg/mL	
emodin	Xanthones				showed weaker activities than the positive control erythromycin with MIC values in the range of 16–33 µg/mL against Vibrio strains	
					showed weaker activities than the positive control chloramphenicol with MIC values ranging from 15 to 32 µg/mL	

					showed non-poent activities gainst Hela cell lines, with IC_{50}= 27.1 ± 0.8 µg/mL	
WIN 64821	diketopiperazine alkaloids				NA	
(+)-sydonic acid	Sesquiterpene derivatives					
(+)-dehydrosydonic acid						
sydowic acid						
disydonol B	bisabolane sesquiterpenoids					
diorcinol	biphenyl derivatives					
ergosterol peroxide	sterol					
b-sitosterol						
ergosta-7,22-dien-3b-ol						
ergosterol						
4-hydroxybenzaldehyde	aldehydes					
2-acetylaminobenzamide	amides					
terretonin D1	meroterpenoid	Aspergillus terreus ML-44	Marine-derived		it weakly inhibited the nitric oxide (NO) production of RAW264.7 macrophages stimulated by lipopolysaccharide (LPS), with inhibitory rates of 22–34% at 50 µg/mL	[74]
terretonin						
terretonin A						
terretonin D						
Terretonin O		Aspergillus terreus LGO13			showed only low activity against P. aeruginosa and S. aureus	[75]
					wasnot active against the human cervix carcinoma cell line KB-3-1	
terretonins M					showed no or low activity against S. aureus P. aeruginosa C.albicans Saccharomyces cerevisiae Bacillus cereus, A. niger	
terretonins N						
terrelumamide A	peptides					
terrein	Miscellaneous					
methyl-3,4,5-trimethoxyl-2-[2-(nicotinamide)benzamido] benzoate	Alkaloid					
butyrolactones I	butyrolactones					
butyrolactones II						
butyrolactones III						
aspulvinone O	Butenolide derivatives					
ergosterol	Sterols					
ergost-4-ene-3-one	Sterols					
methyl linoleate	Fatty acids					
L-asparaginase	Enzymatic proteins	Aspergillus niger AKV-MKBU			NA	[76]

(+)-geodin	diphenyl ethers or seco-anthraquinones	Aspergillus versicolor (TA01-14)	gorgonian Carijoa sp. (GX-WZ-2010001), which was collected from the South China Sea	2019	showed antibacterial activity against Staphylococcus albus, S. aureus, and Vibrio anguillarum with MIC values of 25.0 μM	77
					not exhibited AChE and Topo I inhibitory activities	
chlorotrypacidin					showed antibacterial activity against Staphylococcus albus, S. aureus, and Vibrio anguillarum with MIC values of 25.0 μM	
					displayed cytotoxic activity against tumor cell lines HCT-116, HepG2, and HL-60, with IC_{50} values of 15.2, 17.6, and 18.5 μM, respectively	
					not exhibited AChE and Topo I inhibitory activities	
dichloroasterric acid	diphenyl ethers				not exhibited AChE and Topo I inhibitory activities or as antibacterial and cytotoxic	
penicillither						
6′-chloroasterric acid						
3′-(5′-chloro-4′-methyl-γ-resorcyloyl)-6′-hydroxy-m-anisic acid methyl ester	benzophenones					
dihydrogeodin						
1,7-dihydroxy-3-methoxy-6-methyl anthraquinone	anthraquinone					
isorhodoptilometrin						
methyl-6-acetyl-4-methoxy-5,7,8-trihydroxynaphthalene-2-carboxylate	naphthalene derivatives					
prenylterphenyllins F	prenylated p-terphenyls	Aspergillus candidus LDJ-5	root of Rhizophora apiculata Blume collected from Sanya Bailu Park of Hainan Province, China		exhibited activities with IC_{50} = 19.9, 11.0, 9.3, 12.4, 10.2, 10.4, 8.3, 7.1 μM against the L-02, MGC-803, HCT-116, BEL-7402, A549, SH-SY5Y, HeLa, U87, cell lines, respectively	78
prenylterphenyllins G					exhibited activities with IC_{50} = 29.7, 12.5, 16.9, 12.6, 16.3, 12.4, 11.5 μM against the L-02, MGC-803, HCT-116, BEL-7402, A549, SH-SY5Y, HeLa, cell lines, respectively	
prenylcandidusins D					not active as cytotoxic against L-02, MGC-803, HCT-116,	

					BEL-7402, A549, SH-SY5Y, HeLa, U87, K562, and HL-60	
prenylterphenyllins H					Was highly active against Proteus species, P.aeruginosa, B. subtilis, Monilia albicans, and Mycobacterium phlei with MIC = 22 μg/mL	
					exhibited the best activities with IC50 values of 3.5, 0.7, 0.5, 0.4, 0.6, and 2.0 μM against the L-02, MGC-803, HCT-116, A549, SH-SY5Y, and HeLa cell lines, respectively	
prenylterphenyllins I					Was active against Proteus species, P.aeruginosa, B. subtilis, Monilia albicans, and Mycobacterium phlei	
					exhibited activities with IC_{50} = 24.4, 14.5, 14.7, 11.1, 14.8, 16.7, 11.4 μM against the L-02, MGC-803, HCT-116, BEL-7402, A549, SH-SY5Y, HeLa, cell lines, respectively	
prenylterphenyllins J					Was active against Proteus species, P.aeruginosa, B. subtilis, Monilia albicans, and Mycobacterium phlei	
					exhibited activities with IC_{50} = 8.1, 6.2, 7.6, 15.6, 8.5, 15.9 μM against MGC-803, HCT-116, A549, SH-SY5Y, U87.	
prenylcandidusins E					exhibited activities with IC_{50} = 16.7, 16.3, 19.8, 14.9, 19.1, 17.9, 14.0, 10.3, 5.0 μM against L-02, MGC-803, HCT-116, BEL-7402, A549, SH-SY5Y, HeLa, U87.	
prenylcandidusins F					not active as cytotoxic against L-02, MGC-803, HCT-116, BEL-7402, A549, SH-SY5Y, HeLa, U87, K562, and HL-60	
prenylcandidusins G					exhibited activities with IC_{50} = 17.9, 1.4, 0.9, 16.0, 2.8, 2.2, 10.1, 3.4 μM against the L-02, MGC-803, HCT-116, BEL-	

					7402, A549, SH-SY5Y, HeLa, U87, cell lines, respectively	
asperaustins A asperaustins B asperaustins C austin isoaustinone (5′S)-isoaustinone austinoneol A preaustinoid A2 precalidodehydroaustin dehydroaustin	meroterpenoids	Aspergillus sp. fungus ZYH026	superficial mycobiota of the brown alga Saccharina cichorioides f. sachalinensis collected from the South China Sea		NA Not showed notable inhibitory activity against AChE	[79]
Aspermeroterpene A aspermeroterpenes B aspermeroterpenes C		Aspergillus terreus GZU-31-1	Marine derived		showed significant inhibitory activities against lipopolysaccharide (LPS)-induced nitric oxide (NO) production in RAW 264.7 cells compared to positive control. IC_{50} values ranging from 13.4 to 17.8 μM compared to positive controls (indomethacin, IC50 = 24.0 μM)	[80]
Petromurin C	bis-indolyl benzenoid	Aspergillus candidus KUFA0062	the marine sponge Epipolasis sp.	2020	Induces Protective Autophagy and Apoptosis in FLT3-ITD-Positive AML: Synergy with Gilteritinib	[81]
aspergixanthones A	prenylxanthones	Aspergillus sp. ZA-01	the Bohai Sea of Huanghuagang, Hebei Province of China	2018	displayed selective cytotoxicity against the A-549 cell line with the IC_{50} value of 1.8 μM	[82]
					not active as antibacterial against M. lysodeikticus, B. anthraci, S. typhi, and E. aerogenes	
aspergixanthones B					exhibited very low cytotoxicity to any of the above cell lines (IC_{50} > 10.0 μM)	
					not active as antibacterial against M. lysodeikticus, B. anthraci, S. typhi, and E. aerogenes	
aspergixanthones C					showed broad-spectrum cytotoxicities against five tumor cell lines with the IC_{50} values ranging from 1.1 to 9.8 μM	

					not active as antibacterial against M. lysodeikticus, B. anthraci, S. typhi, and E. aerogenes	
aspergixanthones D					exhibited very low cytotoxicity to any of the above cell lines (IC_{50} > 10.0 μM)	
					not active as antibacterial against M. lysodeikticus, B. anthraci, S. typhi, and E. aerogenes	
aspergixanthones E					exhibited very low cytotoxicity to any of the above cell lines (IC_{50} > 10.0 μM)	
					not active as antibacterial against M. lysodeikticus, B. anthraci, S. typhi, and E. aerogenes	
aspergixanthones F					showed cytotoxicity against the A-549 cell line with the IC_{50} value of 1.1 μM	
					showed broad-spectrum cytotoxicities against five tumor cell lines with the IC_{50} values ranging from 1.1 to 9.8 μM	
					not active as antibacterial against M. lysodeikticus, B. anthraci, S. typhi, and E. aerogenes	
aspergixanthones G					exhibited antibacterial activity against Micrococcus lysodeikticus with the MIC value of 0.78 μg/mL	
					exhibited very low cytotoxicity to any of the above cell lines (IC_{50} > 10.0 μM)	
					showed antibacterial activity against M. lysodeikticus, B. anthraci, S. typhi, and E. aerogenes, with MIC values of 0.78, 12.5, 6.13 and 6.13 μg/mL	
aspergixanthones H					exhibited very low cytotoxicity to any of the above cell lines (IC_{50} > 10.0 μM)	

					showed antibacterial activity against M. lysodeikticus, B. anthraci, S. typhi, and E. aerogenes, with MIC values of 6.13, 12.5, 6.13 and 6.13 µg/mL	
shamixanthone					exhibited very low cytotoxicity to any of the above cell lines (IC_{50} > 10.0 µM)	
					not active as antibacterial against M. lysodeikticus, B. anthraci, S. typhi, and E. aerogenes	
cotteslosin C	cyclic pentapeptide	A. versicolor and cocultured with B. subtilis	the sponge Agelas oroides, which was collected at a depth of 10m in Aliağa-İzmir, Turkey	2019	revealed no cytotoxic activity against the mouse lymphoma cell line L5178Y Not active as antibacterial against certain gram positive bacteria	[83]
cotteslosin A						
22-epi-aflaquinolone B	aflaquinolone					
aflaquinolone A						
aflaquinolone F						
aflaquinolone G						
3-O-methylviridicatin						
9-hydroxy-3-methoxyviridicatin						
Isoversicolorin B	Anthraquinones					

6,8-O-Dimethylbipolarin						
bipolarin						
versiconol						
versiconol acetate						
versicolorin B					displayed inhibitory activity against S. aureus with MIC = 50 µM	
8-O-methylversicolorin B					exhibited mild cytotoxic activity against the mouse lymphoma cell line L5178Y, with IC_{50} values = 21.2 µM	
					Not active as antibacterial against certain gram positive bacteria	
averufin					revealed no cytotoxic activity against the mouse lymphoma cell line L5178Y	
					displayed inhibitory activity against several gram-positive bacteria with MIC values ranging from 12.5 to 25 µM	
endocrocin					revealed no cytotoxic activity against the mouse lymphoma cell line L5178Y	
					Not active as antibacterial against certain gram positive bacteria	
O-demethylsterigmatocystin	Xanthones				exhibited substantial cytotoxic activity against the mouse lymphoma cell line L5178Y, with IC_{50} values = 5.8 µM	

					Not active as antibacterial against certain gram positive bacteria	
sterigmatocyctin					exhibited strong cytotoxic activity against the mouse lymphoma cell line L5178Y, with IC_{50} = 2.2 μM	
					Not active as antibacterial against certain gram positive bacteria	
sterigmatin					exhibited strong cytotoxic activity against the mouse lymphoma cell line L5178Y, with IC_{50} values = 2.3 μM	
					Not active as antibacterial against certain gram positive bacteria	
AGI-B4					exhibited strong cytotoxic activity against the mouse lymphoma cell line L5178Y, with IC_{50} values = 2.0 μM	
					Not active as antibacterial against certain gram positive bacteria	
sydowinin B					revealed no cytotoxic activity against the mouse lymphoma cell line L5178Y Not active as antibacterial against certain gram positive bacteria	
notoamide D	Indole alkaloids					
speramide B	prenylated indole alkaloids					
notoamide E	Indole alkaloids					
stephacidin A	prenylated indole alkaloids					
notoamide R	Indole alkaloids					
protuboxepin B	diketopiperazine alkaloids					
3,10-dehydrocyclopeptine	benzodiazepine alkaloid					
penicillanone	Benzophenone					
diorcinol D	biphenyl derivatives				revealed no cytotoxic activity against the mouse lymphoma cell line L5178Y	
					displayed inhibitory activity against several gram-positive bacteria with MIC values ranging from 12.5 to 50 μM	

diorcinol G					revealed no cytotoxic activity against the mouse lymphoma cell line L5178Y	
					displayed inhibitory activity against several gram-positive bacteria with MIC = 12.5 µM	
diorcinol I					revealed no cytotoxic activity against the mouse lymphoma cell line L5178Y	
					displayed inhibitory activity against several gram-positive bacteria with MIC values ranging from 25 to 50 µM	
radiclonic acid	Fatty acid				revealed no cytotoxic activity against the mouse lymphoma cell line L5178Y	
					Not active as antibacterial against certain gram positive bacteria	
17-hydroxynotoamide D	prenylated indole alkaloids	Aspergillus sulphureus KMM 4640	Marine derived then coculture with Isaria felina Marine derived then coculture with Isaria felina	2018	not active as cytotoxic human prostate cancer cells 22Rv1	[84]
17-O- ethylnotoamide M					is able to inhibit the colony formation of human prostate cancer cells 22Rv1 at non-cytotoxic concentration of 10 µM by 25%	
					inhibited the colony formation of 22Rv1 prostate cancer cells at a concentration of 100 µM	
10-O-acetylsclerotiamide					NA	
10-O-ethylsclerotiamide						
10-O-ethylnotoamide R					not active as cytotoxic human prostate cancer cells 22Rv1	
(–)-notoamide B					inhibited the colony formation of 22Rv1 prostate cancer cells at a concentration of 100 µM	
dehydronotoamide C					not active as cytotoxic human prostate cancer cells 22Rv1	
notoamide C					inhibited the colony formation of 22Rv1 prostate cancer cells at a concentration of 100 µM	
notoamide D					not active as cytotoxic human	

					prostate cancer cells 22Rv1	
notoamide F					NA	
notoamide Q						
17-epi-notoamide Q						
notoamide M					inhibited the colony formation of 22Rv1 prostate cancer cells at a concentration of 100 μM	
					is able to inhibit the colony formation of human prostate cancer cells 22Rv1 at non-cytotoxic concentration of 10 μM by 55%	
sclerotiamide					inhibited the colony formation of 22Rv1 prostate cancer cells at a concentration of 100 μM	
SF5280-415	diketopiperazine dimer	Aspergillus sp. SF-5280	unidentified sponge that was collected at Cheju Island, Korea		showed inhibitory effects against PTP1B activity (for diabetes and obesity) with IC_{50} = 14.2 ± 0.7 μM	85
SF5280-451					showed inhibitory effects against PTP1B activity (for diabetes and obesity) with IC_{50} = 12.9 ± 0.7 μM	
misszrtine A	indole alkaloid	Aspergillus sp. SCSIO XWS03F03	sponge which was collected from the sea area Xuwen County, Guangdong Province, China		exhibited a potent antagonistic activity on HL60 (IC_{50} = 3.1μM) and LNCaP (IC_{50} = 4.9μM) cell lines.	86
aspergimarins A	dihydroisocoumarins	Aspergillus sp. NBUF87	the sponge Hymeniacidon sp. obtained from the Paracel Islands in the South China Sea	2019	showed significant inhibitory effects on the lateral root growth of Arabidopsis thaliana Columbia-0 (Col-0) AT 100 μM	87
aspergimarins B					inactive in vitro against acetylcholinesterase (AChE) (IC_{50} > 100 mM), four different types of human-derived cancer cell lines (IC_{50} > 50 μM), as well as methicillin-resistant S. aureus and E. coli (MIC > 50 μg/mL), and Plasmodium falciparum W2 (EC50 > 100 μg/mL)	
aspergimarins C						
aspergimarins D						
aspergimarins E					showed significant inhibitory effects on the lateral root growth of Arabidopsis thaliana	

					Columbia-0 (Col-0) AT 100 μM	
					at 100 μM, it also possessed notable inhibition against the primary root growth of Col-0.	
aspergimarins F					inactive in vitro against acetylcholinesterase (AChE) (IC_{50} > 100 mM), four different types of human-derived cancer cell lines (IC_{50} > 50 μM), as well as methicillin-resistant S. aureus and E. coli (MIC > 50 μg/mL), and Plasmodium falciparum W2 (EC50 > 100 μg/mL)	
aspergillumarin B						
penicimarin B						
penicimarin C						
penicilloxalone B						
(R)-3-(3-hydroxypropyl)-8-hydroxy-3,4-dihydroisocoumarin						
aspersecosteroids A	11(9 → 10)-abeo-5,10-secosteroids with dioxatetraheterocyclic ring system	Aspergillus flocculosus 16D‑1	sponge derived	2018	demonstrated inhibitory effects on key pro-inflammatory cytokine production in THP-1 cells	88
aspersecosteroids B						
asperflosterol	ergosteroid					
asperflocin	asymmetric diketopiperazine dimer	Aspergillus versicolor 16F-11	inner tissue of the sponge Phakellia fusca obtained from Yongxing Island, the South China Sea		showed moderate cytotoxic activity against A375 cell line with an IC_{50} value of 10.29 ± 2.37 μM.	89
WIN 64821					showed no cytotoxic activity against A375 cell line	
preussin C	pyrrolidine alkaloids	Aspergillus flocculosus 16D-1	Marine Sponge Phakellia fusca		. showed moderate inhibitory activity toward IL-6 production in lipopolysaccharide-induced THP-1 cells with IC_{50} = 21 μM, but was inactive against normal tumor cell lines and fungi.	90
preussin D					showed moderate inhibitory activity toward IL-6 production in lipopolysaccharide-induced THP-1 cells with IC_{50} = 22 μM, but was inactive against normal tumor cell lines and fungi	
preussin E					showed moderate inhibitory activity toward IL-6 production in lipopolysaccharide-induced THP-1 cells with IC_{50} = 8.2 μM, but was inactive against normal tumor cell lines and fungi.	
preussin F					showed moderate inhibitory	

					activity toward IL-6 production in lipopolysaccharide-induced THP-1 cells with IC_{50} = 9.9 μM, but was inactive against normal tumor cell lines and fungi.	
preussin G					showed strong inhibitory activity toward IL-6 production in lipopolysaccharide-induced THP-1 cells with IC_{50} = 0.11 μM, but was inactive against normal tumor cell lines and fungi.	
preussin H					showed moderate inhibitory activity toward IL-6 production in lipopolysaccharide-induced THP-1 cells with IC_{50} = 14 μM, but was inactive against normal tumor cell lines and fungi.	
preussin I					showed strong inhibitory activity toward IL-6 production in lipopolysaccharide-induced THP-1 cells with IC_{50} = 0.19 μM, but was inactive against normal tumor cell lines and fungi.	
(11R)/(11S)-preussin J					showed strong inhibitory activity toward IL-6 production in lipopolysaccharide-induced THP-1 cells with IC_{50} = 2.3 μM, but was inactive against normal tumor cell lines and fungi.	
(11R)/(11S)-preussins K					showed moderate inhibitory activity toward IL-6 production in lipopolysaccharide-induced THP-1 cells with IC_{50} = 16 μM, but was inactive against normal tumor cell lines and fungi.	
himeic acid A	2,5-disubstituted 4-pyrone compound with fatty acid and amide side chains	Aspergillus japonicus MF275	the mussel Mytilus edulis galloprovincialis		NA	[91]
himeic acid B						
himeic acid C	4-pyridone derivative of himeic acid A					
Chaetominine	quinazolinone alkaloid	Aspergillus fumigatus CY018	Marine derived	2019		[92]

taichunamide H	indole alkaloid	A. versicolor HDN11-84	rhizosphere soil of the mangrove plant Thespesia populnea	2018	was screened for cytotoxicity (against NB4, HL-60, Hela, K562, and HCT-116 cell lines), antibacterial activity (on E. coli, Bacillus subtilis, MRSA, and Mycobacterium smegmatis), and activity against anti-H1N1 influenza virus but showed no activity in the above-mentioned bioassays.	[93]
Asperversiamides A	prenylated indole alkaloids	Aspergillus versicolor	the mud of the South China Sea		not exhibited iNOS inhibitory activities	[94]
Asperversiamides B					exhibited potential iNOS inhibitory activities and inhibited the release of NO in LPS-induced Raw264.7 WITH IC_{50} = 9.95 ± 0.46, 17.24 ± 1.32 μM	
Asperversiamides C					exhibited potential iNOS inhibitory activities and inhibited the release of NO in LPS-induced Raw264.7 WITH IC_{50} = 16.58 ± 0.57, 25.09 ± 2.21	
Asperversiamides D					not exhibited iNOS inhibitory activities	
Asperversiamides E						
Asperversiamides F					exhibited potential iNOS inhibitory activities and inhibited the release of NO in LPS-induced Raw264.7 WITH IC_{50} = 13.86 ± 1.22, 23.72 ± 1.89	
Asperversiamides G					exhibited a potent inhibitory effect against iNOS with an IC_{50} value of 5.39 μM	
Asperversiamides H					not exhibited iNOS inhibitory activities.	
dihydrocarneamide A						
deoxybrevianamide E						
asteltoxin G	trienic α-pyrone derivative	A. ochraceopetaliformis	inner part of the marine sponge Reniochalina sp. collected from the Xisha Islands in the South China Sea		did not show cytotoxicity against THP-1 cells after 24 h treatment. Not exhibited anti-inflammatory activity against IL-6 and TNF-α expression of the LPS-induced THP-1 cells	[95]
asteltoxin						
asteltoxin B						
asteltoxin C						

ochratoxin A1	ochratoxin derivative				exhibited anti-inflammatory activity against IL-6 and TNF-α expression of the LPS-induced THP-1 cells with inhibitory rates of 74.4 and 67.7% at concentration of 10 μM	
					did not show cytotoxicity against THP-1 cells after 24 h treatment	
ochratoxin A						
ochratoxin A methyl ester					did not show cytotoxicity against THP-1 cells after 24 h treatment. Not exhibited anti-inflammatory activity against IL-6 and TNF-α expression of the LPS-induced THP-1 cells	
ochratoxin B					showed a significant decrease in the LPS-induced expression of IL-6 and TNF-α with inhibitory rates of 91.6, 72.8	
					did not show cytotoxicity against THP-1 cells after 24 h treatment	
ochratoxin B methyl ester					showed a significant decrease in the LPS-induced expression of IL-6 and TNF-α with inhibitory rates of 89.7% 72.9%	
					did not show cytotoxicity against THP-1 cells after 24 h treatment	
1,2-dehydro-terredehydroaustin	austinoid meroterpenoids	Aspergillus terreus H010	mangrove endophytic fungus		exhibited weak inhibition effect against the production of nitric oxide (NO) in lipopolysaccharide (LPS)-induced RAW 246.7 mouse macrophages with an IC_{50} value of 42.3 μM	[96]
					the cytotoxicity against the RAW 246.7 cells was assayed and no affection of the cell viability was detected with the concentration up to 100 μM	

acetoxydehdroaustin B	meroterpenoids				NA	
1,2-dehydro-acetoxydehydroaustin B						
luteoride E	prenylated tryptophan derivative	Aspergillus terreus	was separated from the coral Sarcophyton subviride, which was collected from the coast of Xisha Island in the South China Sea		showed significant inhibitory potency with IC_{50} 24.64 μM (LPS-induced NO production). Not active for α-Glucosidase inhibitory activity	[97]
versicolactone G	a butenolide derivative				showed potent inhibitory potency with IC50 value of 104.8 ± 9.5 μM, which was lower than the positive control acarbose (IC50=154.7 ± 8.1 μM) (α-glucosidase)	
					showed significant inhibitory potency with IC50 = 15.72 μM (LPS-induced NO production)	
(3E,7E)-4,8-dimethyl-undecane-3,7-diene-1,11-diol	linear aliphatic alcohol				showed significant inhibitory potency with IC50 = 18.62 μM (LPS-induced NO production). Not active for α-Glucosidase inhibitory activity	
asterrelenin	Alkaloid				not active as Inhibitory activity against LPS-induced NO production	
methyl 3,4,5-trimethoxy-2-(2-(nicotinamido)benzamido)benzoate					showed significant inhibitory potency with IC50 = 5.48 μM (LPS-induced NO production)	
14α-hydroxyergosta-4,7,22-triene-3,6-dione	sterols				showed significant inhibitory potency with IC50 = 26.83 μM (LPS-induced NO production)	
territrem A	Miscellaneous				showed significant inhibitory potency with IC50 29.34 μM (LPS-induced NO production)	
territrem B					not active as Inhibitory activity against LPS-induced NO production	
territrem C						
lovastatin					showed significant inhibitory potency with IC50 = 17.45μM (LPS-induced NO production)	
monacolin L acid methyl ester					not active as Inhibitory activity against LPS-induced NO production	
monacolin L						
Ochratoxin	Ochratoxin derivatives	Aspergillus alliaceus (teleomorph:	marine alga by Bioviotica GmbH		not active as cytotoxic against the HCT-116 colon cancer and	[98]

nalgiovensin	anthraquinone	Petromyces alliaceus)			SK-Mel-5 melanoma cell lines	
nalgiolaxin						
Allianthrone A	bianthrones					
allianthrones B						
allianthrones C						
ochraceopone F	α-pyrone merosesquiterpenoid	Aspergillus flocculosus	a sponge Stylissa sp. collected in Vietnam		had no anti-proliferative effect on human cancer cell lines up to 30 μg/mL	99
aspertetranone D	meroterpenoids				exhibited weak osteoclast differentiation inhibitory activity at 10 μg/mL	
cycloechinulin	diketopiperazine alkaloids				had no anti-proliferative effect on human cancer cell lines up to 30 μg/mL	
wasabidienone E	cyclohexadienone derivative,				exhibited weak osteoclast differentiation inhibitory activity at 10 μg/mL	
mactanamide	diketopiperazine alkaloids				had no anti-proliferative effect on human cancer cell lines up to 30 μg/mL	
					showed a potent suppression effect of osteoclast differentiation without any evidence of cytotoxicity	
asperphenone A	phenome derivatives	Aspergillus sp. YHZ-1.	unidentified mangrove plant from Hainan Island, China		exhibited weak antibacterial activity against four Gram-positive bacteria, S. aureus CMCC(B) 26003, S. pyogenes ATCC19615, B. subtilis CICC 10283 and Micrococcus luteus, with the MIC values higher than 32.0 μM	100
asperphenone B						
asperphenone C					NA	
4-epi-seco-shornephine A methyl ester	diketomorpholine derivarives	Aspergillus alabamensis EN-547	fresh inner tissue of the marine red alga Ceramium japonicum collected at Qingdao, China		showed inhibitions against human pathogens (E. coli and M. luteus) hand aquatic bacteria (Ed. ictaluri and V. alginolyticus), with MIC values ranging from 16 to 64 μg/mL	101
					not showed inhibitions against V. anguillarum, V. parahaemolyticus, and V. vulnificus (MIC > 64 μg/mL)	

4-epi-seco-shornephine A carboxylic acid					showed inhibitions against human pathogens (E. coli and M. luteus) hand aquatic bacteria (Ed. ictaluri and V. alginolyticus), with MIC values ranging from 16 to 64 µg/mL	
					not showed inhibitions against V. anguillarum, V. parahaemolyticus, and V. vulnificus (MIC > 64 µg/mL)	
28-acetoxy-12b,15a,25-trihydroxyergosta-4,6,8(14),22-tetraen-3-one	Highly Conjugated Ergostane-Type Steroid				showed inhibitions against human pathogens (E. coli and M. luteus) hand aquatic bacteria (Ed. ictaluri and V. alginolyticus), with MIC values ranging from 16 to 64 µg/mL	
					not showed inhibitions against V. anguillarum, V. parahaemolyticus, and V. vulnificus (MIC > 64 µg/mL)	
shornephine A	diketomorpholine derivarives				showed inhibitions against human pathogens (E. coli and M. luteus) hand aquatic bacteria (Ed. ictaluri and V. alginolyticus), with MIC values ranging from 16 to 64 µg/mL	
					not showed inhibitions against V. anguillarum, V. parahaemolyticus, and V. vulnificus (MIC > 64 µg/mL)	
hydroxyergosta-4,6,8(14),22-tetraen-3-one	Highly Conjugated Ergostane-Type Steroid				not showed inhibitions against human pathogens (E. coli and M. luteus) hand aquatic bacteria (Ed. ictaluri and V. alginolyticus)	
25,28-dihydroxyergosta-4,6,8(14),22-tetraen-3-one						
12b,15a,25,28-tetrahydroxyergosta-4,6,8(14),22-tetraen-3-one					not showed inhibitions against V. anguillarum, V. parahaemolyticus, and V. vulnificus (MIC > 64 µg/mL). showed inhibitions against human pathogens (E. coli and M. luteus) hand aquatic bacteria	

					(Ed. ictaluri and V. alginolyticus)	
candidusin D	bis-indolyl benzenoid	Aspergillus candidus KUFA	marine sponge Epipolasis sp., which was collected, by scuba diving at a depth of 15–20 m from the coral reef at Similan Island National Park (8o390'09'' N, 97O38'27'' E), Phang-Nga province, Southern Thailand		not exhibited an inhibitory effect against S. aureus ATCC 29213 and E. faecalis ATCC29212 as well as both methicillin-resistant S. aureus (MRSA) and vancomycin-resistant enterococci (VRE) strains	102
					showed cytotoxicity against HepG2, HT29, HCT116, A549, A 375, MCF-7, U-251, and T98G	
preussin C	hydroxypyrrolidine alkaloid				NA	
palmitic acid,	Fatty acids					
clionasterol	sterols					
ergosterol 5,8-endoperoxides						
chrysophanic acid	Anthraquinones				not exhibited an inhibitory effect against S. aureus ATCC 29213 and E. faecalis ATCC29212 as well as both methicillin-resistant S. aureus (MRSA) and vancomycin-resistant enterococci (VRE) strains	
					showed no cytotoxicity against HepG2, HT29, HCT116, A549, A 375, MCF-7, U-251, and T98G	
emodin					NA	
asterriquinol D dimethyl ether	bis-indolyl benzenoids				not exhibited an inhibitory effect against S. aureus ATCC 29213 and E. faecalis ATCC29212 as well as both methicillin-resistant S. aureus (MRSA) and vancomycin-resistant enterococci (VRE) strains	
					showed no cytotoxicity against HepG2, HT29, HCT116, A549, A 375, MCF-7, U-251, and T98G	

petromurin C					not exhibited an inhibitory effect against S. aureus ATCC 29213 and E. faecalis ATCC29212 as well as both methicillin-resistant S. aureus (MRSA) and vancomycin-resistant enterococci (VRE) strains showed cytotoxicity against HepG2, HT29, HCT116, A549, A 375, MCF-7, U-251, and T98G	
kumbicin B					not exhibited an inhibitory effect against S. aureus ATCC 29213 and E. faecalis ATCC29212 as well as both methicillin-resistant S. aureus (MRSA) and vancomycin-resistant enterococci (VRE) strains showed cytotoxicity against HepG2, HT29, HCT116, A549, A 375, MCF-7, U-251, and T98G	
kumbicin A					not exhibited an inhibitory effect against S. aureus ATCC 29213 and E. faecalis ATCC29212 as well as both methicillin-resistant S. aureus (MRSA) and vancomycin-resistant enterococci (VRE) strains showed no cytotoxicity against HepG2, HT29, HCT116, A549, A 375, MCF-7, U-251, and T98G	
2’’-oxoasterriquinol D methyl ether					not exhibited an inhibitory effect against S. aureus ATCC 29213 and E. faecalis ATCC29212 as well as both methicillin-resistant S. aureus (MRSA) and vancomycin-resistant enterococci (VRE) strains	

					showed cytotoxicity against HepG2, HT29, HCT116, A549, A 375, MCF-7, U-251, and T98G	
kumbicin D					not exhibited an inhibitory effect against S. aureus ATCC 29213 and E. faecalis ATCC29212 as well as both methicillin-resistant S. aureus (MRSA) and vancomycin-resistant enterococci (VRE) strains	
					showed no cytotoxicity against HepG2, HT29, HCT116, A549, A 375, MCF-7, U-251, and T98G	
preussin	hydroxypyrrolidine alkaloid				exhibited an inhibitory effect against S. aureus ATCC 29213 and E. faecalis ATCC29212 as well as both methicillin-resistant S. aureus (MRSA) and vancomycin-resistant enterococci (VRE) strains	
					showed cytotoxicity against HepG2, HT29, HCT116, A549, A 375, MCF-7, U-251, and T98G	
(3S, 6S)-3,6-dibenzylpiperazine-2,5-dione	Miscellaneous				not exhibited an inhibitory effect against S. aureus ATCC 29213 and E. faecalis ATCC29212 as well as both methicillin-resistant S. aureus (MRSA) and vancomycin-resistant enterococci (VRE) strains	
					showed no cytotoxicity against HepG2, HT29, HCT116, A549, A 375, MCF-7, U-251, and T98G	
4-(acetylamino) benzoic acid					NA	
Asperversins A	meroterpenoids	Aspergillus versicolor	mud of the South China Sea		no displayed any inhibitory activity against the AChE	[103]
Asperversins B						

Asperversins C						
Asperversins D						
Asperversins E						
Asperversins F						
Asperversins G					displayed moderate inhibitory activity against the AChE with an IC_{50} value of 13.6 μM.	
asperdemin					NA	
Butyrolactone-I	Butyrolactone	Aspergillus terreus	coral Porites pukoensis in Zhanjiang seawaters of the South China Sea		could inhibit the phosphorylation of p65 and I_B. Furthermore, molecular docking study suggested that ZB5-1 bound at the active sites of NF-_B to prevent its translocation to the nucleus. Therefore, we suggest ZB5-1 has a potential to reduce the anti-inflammatory response in LPS-induced BV-2 cells	104
4-(3-hydroxyphenoxy)benzene-1,2-diol	diphenyl ethers	Aspergillus flavus QQSG-3	fresh branch of the mangrove plant Kandelia obovata collected from Huizhou in Guangdong Province, China		showed moderate inhibitory effects with IC50 = 165.2 μM against α-glucosidase	105
2,4-dihydroxybutyl 2-hydroxy-4-(3-hydroxy-5-methylphenoxy)benzoate					showed moderate inhibitory effects with IC_{50} = 129.9 μM against α-glucosidase	
3-(3,5-Dihydroxy-4-(1-hydroxy-5-methylhexyl)benzyl)-5-methylbenzene-1,2-diol	phenolic bisabolane sesquiterpenoids				showed strong inhibitory effects with IC_{50} = 4.5 μM aginst α-glucosidase	
(E)-2-(6-Hydroxy-6-methylhept-2-en-2-yl)-5-(hydroxymethyl)phenol					not showed any inhibitory effects against α-glucosidase	
peniciaculin B					showed strong inhibitory effects with IC_{50} = 3.1 μM against α-glucosidase	
5-(hydroxymethyl)-2-(5-isopropyl-2-methyltetrahydrofuran-2-yl)phenol					not showed any inhibitory effects against α-glucosidase	
diorcinol					showed weak inhibitory effects with IC_{50} = 532.5 μM against α-glucosidase	
(E)-5-(hydroxymethyl)-2-(60-methylhept-20-en-20-yl)phenol					not showed any inhibitory effects against α-glucosidase	
sydonol						

peniciaculin A	mixed diphenyl ethers and phenolic bisabolane sesquiterpenoids				showed strong inhibitory effects with IC_{50} = 1.5 μM against α-glucosidase	
expansol D					showed strong inhibitory effects with IC_{50} = 2.3 μM against α-glucosidase	
aspergixanthones I	prenylxanthone derivatives	Aspergillus sp. ZA-01	Marine derived		showed the strongest anti-Vibrio activity against V. parahemolyticus (MIC = 1.56 μM), V. anguillarum (MIC = 1.56 μM), and V. alginolyticus (MIC = 3.12 μM)	[106]
aspergixanthones J					showed anti-Vibrio activities to three pathogenic Vibrio spp., with MIC values between 1.56 and 25.0 μM	
aspergixanthones K						
aspergixanthone A						
15-acetyl tajixanthone hydrate						
tajixanthone hydrate						
16-chlorotajixanthone						
5-epi-asperdichrome	tetrahydroxanthone dimers	Aspergillus versicolor HDN1009	mangrove-derived		showed promising antibacterial activities against Vibrio parahemolyticus, B. subtilis, Mycobacterium phlei, and P.aeruginosa, with MIC values ranging from 100 μM to 200 μM;	[107]
versixanthones N					exhibited extensive cytotoxicities against five cancer cell lines (HL-60, K562, H1975, MGC803, and HO-8910), with IC_{50} values ranging from 1.7 μM to 16.1 μM	
versixanthones O						
tricochalasin A	aspochalasins	Aspergillus sp. Z4	marine isopod Ligia oceanica which was collected in seaside of Dinghai in Zhoushan, Zhejiang Province of China		showed weak activity against the prostate cancer PC3 cell line	[108]
aspochalasin A2						
aspochalasins D					showed strong activity against the prostate cancer PC3 cell line with IC50 = 11.14 μM	
aspergilluchalasin					showed weak activity against the prostate cancer PC3 cell line	
aspochalasins T						
aspewentins I	20-nor-isopimarane diterpenoid epimers	Aspergillus wentii SD-310	the deep sea sediment-derived		exhibited inhibitory activities against zoonotic pathogenic bacteria such as Edwardsiella tarda, Vibrio harveyi, and V. parahaemolyticus with MIC = 8 μg/mL	[109]
aspewentins J						

aspewentins K aspewentins L					not exhibited inhibitory activities against zoonotic pathogenic bacteria such as E. coli, Edwardsiella tarda, Vibrio harveyi, and V. parahaemolyticus and not showed potent activity against the plant pathogen Fusarium graminearum	
aspewentin M					showed potent activity against the plant pathogen Fusarium graminearum with MIC = 4 μg/mL	
methyl-(2-chloro-l,6-dihydroxy-3-methylxanthone)-8-carboxylate	xanthones	Aspergillus iizukae KL33	coastal saline soil in Kenli, Shandong Province of China		exhibited anti-H1N1 activity with IC50 values of 133.4 μM	110
					showed a strong anti-HSV-1 activity with IC50 values of 55.5 μM	
methyl-(4-chloro-l,6-dihydroxy-3-methylxanthone)-8-carboxylate					exhibited distinctly strong activity towards influenza virus (H1N1), herpes simplex virus types 1 (HSV-1) and 2 (HSV-2) with IC_{50} values of 44.6, 21.4, and 76.7 μM	
methyl-(4-chloro-6-hydroxy-1-methoxy-3-methylxanthone)-8-carboxylate					not exhibited anti-H1N1 activity. showed a moderate anti-HSV-1,-2 activity	
methyl-(6-hydroxy-1-methoxy-3-methylxanthone)-8-carboxylate						
4-chloro-1,6-dihydroxy-3-methylxanthone-8-carboxylic acid						
2,4-dichloro-1,6-dihydroxy-3-methylxanthone-8-carboxylic acid						
methyl-(l,6-dihydroxy-3-methylxanthone)-8-carboxylate					exhibited anti-H1N1 activity with IC50 values of 140.4 μM	
					showed a strong anti-HSV-1 activity with IC50 values of 75.7 μM	
					possessed a strong anti-HSV-2 effect with IC50 values of 95.4 μM	
questin	Anthraquinones				NA	
penipurdin A						
questinol						
cordyol C-3-O-a-D-ribofuranoside	diphenyl ethers	Aspergillus sydowii FNA026	marine water collected in the sea of China		exhibit selective cytotoxicity against different cancer cell lines (4T1, U937, PC3, HL-60, HT-29, A549, NCI-H460, and K562)	111

diorcinol-3-O-a-D-ribofuranoside					not exhibit selective cytotoxicity against different cancer cell lines (4T1, U937, PC3, HL-60, HT-29, A549, NCI-H460, and K562)	
4-methoxycarbonyl diorcinol-3-O-a-D-glucoside						
2-(ethoxycarbonyl)-40-carboxydiorcinal						
7-ethyldiorcinol					exhibit selective cytotoxicity against different cancer cell lines (4T1, U937, PC3, HL-60, HT-29, A549, NCI-H460, and K562)	
3-hydroxydiorcinol		Aspergillus sydowii FNA026			exhibit selective cytotoxicity against different cancer cell lines (4T1, U937, PC3, HL-60, HT-29, A549, NCI-H460, and K562)	
4-methoxycarbonyl diorcinol					not exhibit selective cytotoxicity against different cancer cell lines (4T1, U937, PC3, HL-60, HT-29, A549, NCI-H460, and K562)	
diorcinol					exhibit selective cytotoxicity against different cancer cell lines (4T1, U937, PC3, HL-60, HT-29, A549, NCI-H460, and K562)	
glyceryl diorcinolic acid						
cordyol C						
aspergilol E						
4-hydroxy-2-(3'-hydroxy-4-methoxycarbonyl-5'-methylphenoxy)-6-methylbenzoic acid					not exhibit selective cytotoxicity against different cancer cell lines (4T1, U937, PC3, HL-60, HT-29, A549, NCI-H460, and K562)	
gibellulin B						
diorcinols F						
3,7-dihydroxy-1,9-dimethyldibenzofuran						
4-carboxydiorcinal						
aspermutarubrol						
candidusin A	prenylated p-terphenyls	Aspergillus sp. KMM 4676	unidentified colonial ascidian (Shikotan Island, Pacific Ocean)		protected Neuro2a cells against the damaging influence of 6-OHDA to varying degrees	112
4''-dehydroxycandidusin A						
mactanamide	diketopiperazine alkaloids	Aspergillus flocculosus				
asperpene A	Miscellaneous	Aspergillus sp. SCS-KFD66	a bivalve mollusk, Sanguinolaria chinensis, collected from Haikou Bay, Hainan province, in China		not showed inhibitory activity against E. coli ATCC 25922. Not showed inhibitory activities against α-glucosidase and acetylcholinesterase	113
					showed weak DPPH radical scavenging activity, with IC50 values of 1.8, mM	

asperpene B					not showed inhibitory activity against E. coli ATCC 25922. Not showed inhibitory activities against α-glucosidase and acetylcholinesterase	
asperpene C					showed weak DPPH radical scavenging activity, with IC50 values of 0.6 mM	
dedihydroversiol					not showed inhibitory activity against E. coli ATCC 25922. Not showed inhibitory activities against α-glucosidase and acetylcholinesterase	
					showed weak DPPH radical scavenging activity, with IC50 values of 1.1 mM	
methyl 6-oxo-3,6-dihydro-2H-pyran-4-carboxylate					not showed inhibitory activity against E. coli ATCC 25922. Not showed inhibitory activities against α-glucosidase and acetylcholinesterase	
versiol					showed inhibitory activities against B. subtilis ATCC 6633, with MIC values of 4 µg/mL	
(E)-4-oxonon-2-enoic acid					showed inhibitory activity against S. aureus ATCC 6538, with MIC values of 16 µg/mL	
					not showed inhibitory activity against E. coli ATCC 25922. Not showed inhibitory activities against α-glucosidase and acetylcholinesterase	
ergosta-5,7,22-triene-3b-ol	sterols				showed inhibitory activities against B. subtilis ATCC 6633, with MIC values of 128 µg/mL	
					not showed inhibitory activity against E. coli ATCC 25922. Not showed inhibitory activities against α-glucosidase and acetylcholinesterase	
					showed weak DPPH radical scavenging activity, with IC50 values 0.6 mM	
b-sitosterol					not showed inhibitory activity against E. coli ATCC 25922.	
(22E)-5α,8α-epidioxyergosta-6,22-dien-3b-ol						

15a-hydroxy-(22E,24R)-ergosta-3,5,8(14),22-tetraen-7-one					Not showed inhibitory activities against α-glucosidase and acetylcholinesterase	
					showed weak DPPH radical scavenging activity, with IC50 values of 1.2 mM	
volemolide	norsterol				showed inhibitory activities against B. subtilis ATCC 6633, with MIC values of 128 µg/mL	
					not showed inhibitory activity against E. coli ATCC 25922. Not showed inhibitory activities against α-glucosidase and acetylcholinesterase	
oxaline	alkaloid				showed inhibitory activities against B. subtilis ATCC 6633, with MIC values 128 µg/mL	
					not showed inhibitory activity against E. coli ATCC 25922. Not showed inhibitory activities against α-glucosidase and acetylcholinesterase	
fumitremorgin B	indolyl diketopiperazine alkaloids				showed inhibitory activity against S. aureus ATCC 6538, with MIC values of 128 µg/mL	
					not showed inhibitory activity against E. coli ATCC 25922. Not showed inhibitory activities against α-glucosidase and acetylcholinesterase	
helvolic acid	tetracyclic triterpenoids				showed inhibitory activity against S. aureus ATCC 6538, with MIC values of 2 µg/mL	
					had inhibitory activity against L. monocytogenes ATCC 1911, with MIC value of 128 µg/mL	
					not showed inhibitory activity against E. coli ATCC 25922. Not showed inhibitory activities against α-glucosidase and acetylcholinesterase	
					showed weak DPPH radical scavenging activity, with IC_{50} values of 0.7 mM	

3-[6-(2-methylpropyl)-2-oxo-1H-pyrazin-3-yl] propanamide	pyrazine derivatives	Aspergillus versicolor OUCMDZ-2738	a piece of fresh tissue from the algae Enteromorpha prolifera, collected from the Shilaoren beach, Qingdao, China		not active as antimicrobial neither as anti-α-glucosidase	114
(+)-brevianamide X	prenylated indole alkaloids					
(-)-brevianamide X						
(+)-brevianamide R						
(-)-brevianamide R						
(+)-brevianamide Q						
(-)-brevianamide Q						
brevianamide V						
brevianamide W						
brevianamide K						
diorcinol B	biphenyl derivatives				not active as antimicrobial	
diorcinol C						
diorcinol E					displayed a-glucosidase inhibitory activity with IC50 values of 117.3 µM	
diorcinol J					exhibited better α-glucosidase inhibitory activity than the assay control acarbose with IC50 values of 117.3 and 255.3 µM, respectively	
					not active as antimicrobial	
diorcinol					showed selective antibacterial against P. aeruginosa with a minimum inhibitory concentration (MIC) of 17.4 µM	
					displayed a-glucosidase inhibitory activity with IC50 values of 275.3 µM	
4-methoxycarbonyldiorcinol					showed selective antibacterial against P. aeruginosa with a minimum inhibitory concentration (MIC) of 13.9 µM and and C. glabrata with MIC values of 27.8 µM	
					not active as anti-α-glucosidase	
Wentiquinone C	anthraquinone	Aspergillus wentii EN-48	marine brown alga		powerful antioxidant	115
(8-hydroxy-6-(hydroxymethyl)-3-methoxy-9-oxo-9H-xanthene-1-carboxylic acid	xanthone				NA	

calyxanthone						
waspergillamide B	Nitro depsi-Tetrapeptide Diketopiperazine	Aspergillus ochraceus	marine sponge Agelas oroides, which was collected at a depth of 10 m in Sı ˘gaçık-˙Izmir, Turkey	2019		116
ochraspergillic acid A	penicillic acid derivatives				not active as cytotoxic	
ochraspergillic acid B						
violaceotide A	cyclopeptides					
penicillic acid	lactones					
dihydropenicillic acid						
dihydroaspyrone						
xanthomegnin	naphthoquinone derivatives					
viomellein					exhibited strong cytotoxicity against the A2780 human ovarian carcinoma cells with IC50 values of 5.0 µM	
					showed significant cytotoxicity against the mouse lymphoma cell line L5178Y with an IC50 value of 5.3 µM.	
					Inactive against the human Jurkat T and Ramos B cancer cell lines	
cycloanthranilylproline	amino acid derivatives				not active as cytotoxic	
circumdatin F	benzodiazepine alkaloids					
circumdatin G						
circumdatin E						
circumdatin H						
circumdatin B						
circumdatin L						
ochratoxin A	Phenyl alanine derivatives				weak as cytotoxic	
ochratoxin B					exhibited strong cytotoxicity against the A2780 human ovarian carcinoma cells with IC50 values of 3.0 µM	
stephacidin A	prenylated indole alkaloids				not active as cytotoxic	
(-)-7,8-epoxy-brevianamide Q ,	diketopiperazines	Aspergillus versicolor MF180151	a sediment sample collected from the Bohai Sea, China		showed no activities against the pathogens	117
(+)-7,8-epoxy-brevianamide Q						
(-)-8-hydroxy-brevianamide R						
(+)-8-hydroxy-brevianamide R						
(-)-8-epihydroxy-brevianamide R						
(+)-8-epihydroxy-brevianamide R						
(-)-brevianamide R	prenylated indole alkaloids					

(+)-brevianamide R						
versicolorin B	Anthraquinone				howed moderate activities against S. aureus and methicillin-resistant S. aureus	
averufin					howed moderate activities against S. aureus and methicillin-resistant S. aureus	
cephalimysin M	spiro-heterocyclic –lactam derivatives	Aspergillus fumigatus Strain CUGBMF170049	a sediment sample that was collected from the Bohai Sea, China		not active as antibacterial	[118]
cephalimysin N						
pseurotin A						
FD-838						
16-O-propionyl-16-O-deacetylhelvolic acid	helvolic acid derivatives				showed antibacterial activities against both S. aureus and MRSA	
6-O-propionyl-6-O-deacetylhelvolic acid						
helvolic acid						
1,2-dihydrohelvolic acid					not active as antibacterial	
nipyrone A	4-hydroxy-α-pyrones	Aspergillus niger	Marine sponge Haliclona sp. was collected at Lingshui, Hainan Province, China		exhibited moderate antibacterial efficacy against four pathogenic bacteria with MIC values of 32–64 μg/mL (Staphylococcus aureus, Escherichia coli, Bacillus subtilis, methicillin-resistant Staphylococcus aureus)	[119]
nipyrone B						
nipyrone C					showed promising activity against S. aureus and B. subtilis, with minimum inhibitory concentration (MIC) values of 8 μg/mL and 16 μg/mL, respectively, and displayed weak antitubercular activities against M. tuberculosis, with MIC value of 64 μg/mL	
germicidin C					not active as antibacterial	
14,15-dehydro-6-epi-ophiobolin K	sesterterpenes (Ophiobolin Derivatives)	Aspergillus flocculosus	the algae Padina sp., collected at a depth of 10 m in Son Tra peninsular, Da Nang, Vietnam		showed potent cytotoxicity with GI50 values ranging from 0.14 to 2.01 μM	[120]
14,15-dehydroophiobolin K					showed potent cytotoxicity with GI50 values ranging from 0.14 to 2.01 μM	
14,15-dehydro-6-epi-ophiobolin G						
14,15-dehydro-ophiobolin G						
14,15-dehydro-(Z)-14-ophiobolin G						
6-epi-ophiobolinC						
ophiobolin C						
6-epi-ophiobolin N						
ophiobolin N						
Ochrazepine A	Circumdatin-Aspyrone	Aspergillus ochraceus LCJ11-	the coral Dichotella		exhibited cytotoxic activity	[121]

	Conjugates	102	gemmacea (Valenciennes) collected in Lingao, Hainan province, China the coral Dichotella		against 10 human cancer cell lines	
Ochrazepine B					selectively inhibited U251 (human glioblastoma cell line)	
Ochrazepine C					was active against A673 (human rhabdomyoma cell line), U87 (human glioblastoma cell line), and Hep3B (human liver cancer cell line) with IC50 (half maximal inhibitory concentration) values of 2.5–11.3 μM among 26 tested human cancer cell lines	
Ochrazepine D					selectively inhibited U251 (human glioblastoma cell line)	
2-hydroxycircumdatin C					not active as anticancer	
aspyrone						
Preussin	a Hydroxypyrrolidine Derivative	Aspergillus candidus KUFA 0062	marine sponge Epipolasis sp. from the coral reef at the Similan Island National Park in Phang-Nga province, Southern Thailand		showed cytotoxic and antiproliferative activities in breast cancer cell lines in 2D and 3D cultures	122
asperiene A	drimane sesquiterpene esters	Aspergillus flavus	marine sediment collected from the Bohai Sea in July		displayed potent bioactivities towards four cell lines with the IC50 values ranging from 1.4 to 8.3 μM.	123
asperiene B						
asperiene C						
asperiene D						
aspergillusidone G	depsidone derivative	A. unguis DLEP2008001	seaweed collected in Dalian, China		showed moderate to strong activity towards different microbes	124
agonodepside A						
nornidulin					exhibited potent larvicidality against brine shrimp	
nidulin						
aspergillusidone F					showed moderate to strong activity towards different microbes	
					exhibited potent larvicidality against brine shrimp	
unguinol					not active	
aspergillusidone C					showed moderate to strong activity towards different microbes	
2-chlorounguinol						
aspergillusidone A					inhibited acetylcholinesterase (AChE) with IC50 in 56.75 μM	

unguisin A	Cyclic peptide				not active	
diorcinol L	prenylated diphenyl ether	A. tennesseensis OUCMB I 140430	fresh inner tissue of an unidentified marine alga, which was collected at Qingdao, China	2018	exhibited antimicrobial activities against some human- and plant-pathogenic microbes with MIC values ranging from 2 to 64 μg/mL	[125]
(R)-diorcinol B						
(S)-diorcinol B						
9-acetyldiorcinol B						
diorcinol C						
diorcinol D						
diorcinol E						
diorcinol J						
dihydrobenzofuran derivative					displayed considerable inhibitory activity against the THP-1 cell line in vitro, with an IC50 value of 7.0 μg/mL	
fumigatoside E	alkaloids	Aspergillus fumigatus SCSIO 41012	deep-sea sediments, which were collected from the Indian Ocean at a depth of 3614 m		showed significant antifungal activity against Fusarium oxysporum f. sp. momordicae with MIC at 1.56 μg/mL	[126]
fumigatoside F					exhibited significant activity against A. baumanii ATCC 19606 with a MIC value of 6.25 μg/mL	
Fumiquinazoline C	indole alkaloids				not active	
fumiquinazoline G					exhibited significant higher activity against S. aureus (16,339 and 29,213) with MIC values of 1.56 and 0.78 μg/mL, respectively	
epi-aszonalenin A					not active	
7-diketo-cephalosporin P1	cephalosporins [strrols]					
helvolic acid	strrols					
22-Oacetylisocyclocitrinol A						
2-(4-hydroxybenzyl)-4-(3-acetyl)quinazolin-one	quinazolinone alkaloid	Aspergillus sydowii SW9	seawater sample collected from Yangma Island, Yantai, China	2019	exhibited selective inhibitory activities against the human pathogenic bacteria E.coli, S. aureus, S. epidermidis, and S. pneumoniae, with MIC values ranging from 2.0 to 16 μg/mL	[127]
----------	aromatic bisabolene-type sesquiterpenoid					
----------	chorismic acid analogue					
2-(4-hydroxybenzoyl)-4(3H)-quinazolinone	quinazolinone alkaloid					
chrysotriazole A	triazole derivative				not active	
cryptoechinuline B enantiomers	echinulin-related indolediketopiperazine alkaloids	Aspergillus niveoglaucus	a marine sediment sample (Nha Trang Bay, South China Sea, Vietnam)	2020	(1a) exhibited neuroprotective activity in 6-OHDA-, paraquat-, and rotenone-induced in vitro models of Parkinson's disease	[128]

cryptoechinuline D					(1b) protected the neuronal cells against paraquat-induced damage in a Parkinson's disease model	
echinulin					not active	
neoechinulin B					exhibited cytoprotective activity in a rotenone-induced model	
neoechinulin C					protected the neuronal cells against paraquat-induced damage in a Parkinson's disease model	
neoechinulin E					NOT active	
neoechinulin					showed activity in the 6-OHDA-induced model	
Quellenin	diketopiperazine	Aspergillus sp. YK-76	Osedax sp. annelid, commonly called bone-eating worm, collected at the São Paulo Ridge in off Brazil	2018	showed anti-S. parasitica activity	129
diorcinol	diphenyl ethers					
violaceol-I						
violaceol-II						
insulicolide B	Nitrobenzoyl sesquiterpenoids	Aspergillus ochraceus Jcma1F17	a marine alga Coelarthrum sp. collected in the South China Sea		NA	130
14-O-acetylinsulicolide A					displayed activities with IC50 values of 0.89 to 8.2 μM against renal cancer cell lines	
					arrested the cell cycle at the G0/G1 phase at a concentration of 1 μM and induced late apoptosis at a concentration of 2 μM after a 72 h treatment of 786-O renal cancer cells	
insulicolide C					not active	
6β,9α-dihydroxy-14-pnitrobenzoylcinnamolide					displayed activities with IC50 values of 0.89 to 8.2 μM against renal cancer cell lines	
insulicolide A						
insulicolide A					not active	
6β,14-dihydroxy-7α-methoxyconfertifolin	sesquiterpenoid derivatives				not active	
2-(dimethoxymethyl)-1-hydroxyanthracene-9,10-dione	anthraquinone	Aspergillus versicolor	deep sea sediment		exhibited strong inhibitory activities against MRSA ATCC 43300 and MRSA CGMCC 1.12409 (with MIC values of 3.9 and 7.8 μg/mL respectively) and moderate activities against tested strains of Vibrio (with MIC values ranging from 15.6 to 62.5 μg/mL)	131

2-methylanthracene-9,10-dione					NA	
2-methylanthracene-9,10-dione						
damnacanthal						
rubiadin						
xanthopurpurin						
rubianthraquinone						
6-hydroxyrubiadin						
emodin						
stearic acid	aliphatic acid					
(7R,10S)-7,10-epoxysydonic acid	phenolic bisabolane sesquiterpenoids	Aspergillus sp. xy02	the leaves of a Thai mangrove Xylocarpus moluccensis			132
(7S,10S)-7,10-epoxysydonic acid					displayed moderate inhibitory activities against Staphylococcus aureus ATCC 25923 with IC50 values ranging from 31.5 to 41.9 μM	
(7R,11S)-7,12-epoxysydonic acid						
(2), (3), (7S,11S)-7,12-epoxysydonic acid					NA	
7-deoxy-7,14-didehydro-12-hydroxysydonic acid					displayed moderate inhibitory activities against Staphylococcus aureus ATCC 25923 with IC50 values ranging from 31.5 to 41.9 μM	
(Z)-7-deoxy-7,8-didehydro-12-hydroxysydonic acid					NA	
(E)-7-deoxy-7,8-didehydro-12-hydroxysydonic acid					displayed moderate inhibitory activities against Staphylococcus aureus ATCC 25923 with IC50 values ranging from 31.5 to 41.9 μM	
(+)-1-hydroxyboivinianic acid					NA	
engyodontiumone I					displayed moderate inhibitory activities against Staphylococcus aureus ATCC 25923 with IC50 values ranging from 31.5 to 41.9 μM	
(+)-sydonic acid					NA	
(+)-hydroxysydonic acid					displayed moderate inhibitory activities against Staphylococcus aureus ATCC 25923 with IC50 values ranging from 31.5 to 41.9 μM	
(−)-(7S)-10-hydroxysydonic acid					showed mild antioxidative activity to scavenge DPPH radical with an IC50 of 72.1 μM	
					displayed moderate inhibitory	

					activities against Staphylococcus aureus ATCC 25923 with IC50 values ranging from 31.5 to 41.9 µM	
cyperin-2-O-®-D-glucoside	diphenyl ether	Aspergillus sp. CZDF18	marine derived		NA	[133]
quercilolin						
1,2-dihydroxy-3-aminobenzene	Miscellaneous					
2-hydroxy-6-methylbenzoic acid						
(2S, 4S, 5R)-4,5-dihydroxy-2- methyl cyclo hexanone						
3-hydroxybenzyl alcohol						
5-hydroxymethyl-furan-2-carboxylic acid					exhibited moderate anticancer activity with 66.1% inhibition against PC-3 cell lines at the concentration of 10 µg/mL	
					exhibited favourable BRD4 inhibitory activity with 78.5 % inhibition at the concentration of 10 µg/mL	
4-(hydroxymethyl) catechol	catechol				exhibited favourable BRD4 inhibitory activity with 76.4% inhibition at the concentration of 10 µg/mL	
benzylamine	Miscellaneous				NA	
BAGGE chlorohydrin						
11-hydroxysydonic acid	diphenyl derivatives					
phenylacetic acid	Miscellaneous					
2-methoxylcordyol C	diphenyl ethers					
3,7-dihydroxy-1,9-dimethyldibenzofuran	Miscellaneous					
ditryptophenaline	peptides					
diorcinol	diphenyl ethers					
violaceol I						
cordyol C						
orcinol						
trans-cyclo-(D-tryptophanyl-L-tyrosyl)	peptides					
(-)-sydowic acid	sesquiterpene derivatives					
Versixanthone G	dimeric xanthones	Aspergillus vericolor			showed Topo I inhibition properties	[134]
Versixanthone H					showed Topo I inhibition properties. was confirmed to inhibit Topo I-mediated DNA relaxation by targeting Topo I, thereby, arresting the cell cycle process and inducing necrosis in cancer cells	

Versixanthone I					NA	
Versixanthone J						
Versixanthone K					showed Topo I inhibition properties	
Versixanthone L					NA	
Versixanthone M						
(3S,3'S,5aR,5'aR,10bR,10'bR,11aS,11'aS)-3,3'-dibenzyl-2,2',3,3',5a,5'a,6,6',11,11a,11',11'a-dodecahydro-[10b,10'b-bipyrazino[1',2':1,5]pyrrolo[2,3-b]indole]-1,1',4,4'-tetraone	asymmetrical bispyrrolidinoindoline diketopiperazines	Aspergillus sp. DX4H	marine shrimp which was collected in seaside of Dinghai in Zhoushan, Zhejiang Province of China			135
(3R,3'S,5aR,5'aR,10bR,10'bR,11aS,11'aS)-3,3'-dibenzyl-2,2',3,3',5a,5'a,6,6',11,11a,11',11'a-dodecahydro-[10b,10'b-bipyrazino[1',2':1,5]pyrrolo[2,3-b]indole]-1,1',4,4'-tetraone						
(3R,3'S,5aR,5'aR,10bR,10'bR,11aS,11'aS)-3,3'-dibenzyl-2,2',3,3',5a,5'a,6,6',11,11a,11',11'a-dodecahydro-[10b,10'b-bipyrazino[1',2':1,5]pyrrolo[2,3-b]indole]-1,1',4,4'-tetraone						
diorcinol K	diphenyl ether	Aspergillus sp. CUGB-F046	sediment sample collected from the Bohai Sea, China		displayed significant antibacterial activities against Staphylococcus aureus and methicillinresistant S. aureus with MIC values of 3.125, µg/mL	136
diorcinols D					displayed significant antibacterial activities against Staphylococcus aureus and methicillinresistant S. aureus with MIC values of 6.25 and µg/mL	
diorcinols F					NA	
diorcinols I					displayed significant antibacterial activities against Staphylococcus aureus and methicillinresistant S. aureus with MIC values of 6.25 µg/mL	
ophiobolins X	ophiobolins	Aspergillus ustus 094102	the rhizosphere soil of Bruguiera gymnorrhiza		NA	137
ophiobolins Y						
21-dehydroophiobolin U						
ophiobolin Z					showed cytotoxicities against the G3K, MCF-7, MD-MBA-231, MCF/Adr,A549, and HL-60 human cancer cell lines with the IC50 values ranging from 0.6 to 9.5 µM.	
21-epi-ophiobolin Z						
ophiobolin K						
6-epi-ophiobolin K						
ophiobolin G						
epi-ophiobolin G					NA	

ophiobolin P 6-epi-ophiobolin G 21-epi-ophiobolin O ophiobolin O deoxyophiobolin K ophiobolin Q					showed cytotoxicities against the G3K, MCF-7, MD-MBA-231, MCF/Adr,A549, and HL-60 human cancer cell lines with the IC50 values ranging from 0.6 to 9.5 μM.	
ophiobolin H 5,6-di-epi-ophiobolin H ophiobolin U					NA	

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