

*Supplementary Materials for*

***Fusarium*: a treasure trove of bioactive secondary metabolites**

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**Table S1.** Alkaloids from the genus *Fusarium*

No.	Secondary metabolite	Strain	Host	Locality	Biological activity	Culture condition	Ref.
1	Fusaric acid						
2	Fusaricate A						
3	Fusaricate B						
4	Fusaricate C	<i>F. oxysporum</i> (GenBank accession No. KT373853)	<i>Drepanocarpus lunatus</i>	Douala (Cameroon)	Phytotoxicity	Medium 1; 20 °C for 30 days	1
5	Fusaricate D						
6	Fusaricate E						
7	Fusaricate F						
8	Fusaricate G						
9	10-Hydroxy-11-chlorofusaric acid						
10	Fusaricate H	<i>F. solani</i> HDN15-410	<i>Rhizophora apiculata</i> Blume	Sanya Bailu Park of Hainan Province (China)	—	Medium 2; 28 °C for 9 days at 180 rpm	2
11	Fusaricate I						
12	Fusaricate J						
13	Fusaricate K						
14	Fumonisin A <sub>1</sub>	<i>F. moniliforme</i> MRC 826	Maize	—	—	Medium 3; in the dark at 24 °C for 4 weeks	3 4
15	Fumonisin A <sub>2</sub>						
16	Fumonisin B <sub>1</sub>						
17	Fumonisin B <sub>2</sub>						
18	Fumonisin B <sub>3</sub>						5
19	Fumonisin C <sub>1</sub>	<i>F. moniliforme</i> M-2326	—	—	—	—	6
20	Fumonisin C <sub>3</sub>						
21	Fumonisin C <sub>4</sub>	<i>F. oxysporum</i> CAR	Carnation	Korea	—	Medium 4; for 4 weeks at 25 °C	7
22	Hydroxylated fumonisin C <sub>1</sub>						
23	Fumonisin P <sub>1</sub>						
24	Fumonisin P <sub>2</sub>	<i>F. moniliforme</i> M-2285	—	—	—	—	8
25	Fumonisin P <sub>3</sub>						
26	Fumonisin AK <sub>1</sub>	<i>F. proliferatum</i> M-1597	—	—	—	Medium 3	9
27	Fungerin	<i>Fusarium</i> sp.	<i>Miscanthus sacchariflorus</i>	—	Antibacterial Antifungal; Induce apoptosis	Medium 5; at 24 °C for two weeks	10 11
28	Fusagerin A	<i>Fusarium</i> sp. (Genbank)	Soil	Qinghai-Tibetan	—	Medium 6; at 25 °C for 40	12

29	Fusagerin B	accession No. JQ284030)		plateau (China)		days	
30	Fusagerin C						
31	Fusagerin D						
32	Fusagerin E						
33	Fusagerin F						
34	<i>N</i> -2-methylpropyl-2-methylbutenamide				—		
35	2-Acetyl-1,2,3,4-tetrahydro- $\beta$ -carboline				Antitumor		
36	Fusarine	<i>F. incarnatum</i> HKI0504	<i>Aegiceras corniculatum</i>	Mangrove	—	—	13
37	Fusamine				Antitumor		
38	3-(1-Aminoethylidene)-6-methyl-2 <i>H</i> -pyran-2,4(3 <i>H</i> )-dione				Antitumor		
39	8-Oxo fusatin	<i>F. pseudograminearum</i>	<i>Maize or Sorghum</i>	Australia	Cytokinin	Medium 7; for two weeks	14
40	Fusatinic acid	CS3096			—	at 25 °C in the dark	
41	Chlamydosporin	<i>F. chlamyosporum</i>	<i>Suaeda glauca</i>		Phytotoxicity	—	15
42	Fusarimine	<i>Fusarium</i> sp. LN-12	<i>Melia azedarach</i>	China	—	Medium 8; at 28 °C for 5 days	16
43	Fusaravenin	<i>F. avenaceum</i> SF-1502	Root tip soil of <i>Chlorophytum comosum</i>	Flowers and Plants Market in Lanzhou, China	—	Medium 9; 21 days at 26 °C and 160 rpm	17
44	(+)-Fusaspoid A	<i>Fusarium</i> sp. XBB-9	—	Hainan Sanya (China)	—	Medium 10; at 28 °C for 60 days.	18
45	(-)-Fusaspoid A						
46	7-Desmethylscorpinone	<i>F. solani</i> AURE-4	<i>Aponogeton undulatus</i>	Chalanbil area of Natore district (Bangladesh)	Antitumor	Medium 11; 28 days at 28 °C	19
47	7-Desmethyl-6-methylbostrycoidin		Roxb.				

**Table S2.** Peptides from the genus *Fusarium*

No.	Secondary metabolite	Strain	Host	Locality	Biological activity	Culture condition	Ref.
48	Apicidin				Antiprotozoal; Antitumor		20
49	Apicidin A						21-23
50	Apicidin B	<i>F. pallidoroseum</i> ATCC	<i>Acacia</i> sp.	Costa Rica		—	24
51	Apicidin C	74289					
52	Apicidin D <sub>1</sub>				Antiprotozoal		
53	Apicidin D <sub>2</sub>						25
54	Apicidin D <sub>3</sub>						
55	Apicidin E	<i>F. semitectum</i> KCTC16676 mutants	Soybeans	Korea		Medium 12; at 25 °C for 3 weeks	26
56	Apicidin F				Antiprotozoal; Antimalarial		27
57	Apicidins J	<i>F. fujikuroi</i> IMI58289	—	Kew (UK)		—	28
58	Apicidins K						
59	Apicidin G				Antiprotozoal		
60	Apicidin H	<i>F. semitectum</i>	Cicada skin	Tawangmangu Botanic Garden (Indonesia)		Medium 13; for 21 days in the dark at room temperature	29
61	Apicidin I						
62							
63	Cyclic pentapeptides	<i>F. decemcellulare</i> LG53	<i>Mahonia fortunei</i>	Guangdong (China)	—	Medium 14; at room temperature for 50 days	30
64							
65	Sansalvamide	<i>Fusarium</i> sp. #CNL 292	<i>Halodule wrightii</i>	Little San Salvador Island (Bahamas)	Antitumor; Inhibitor of MCV topoisomerase	Medium 15; for 20 days (static) at 28 °C	31
							32
66	<i>N</i> -Methylsansalvamide	<i>Fusarium</i> sp. CNL-619	Green alga <i>Avrainvillea</i> sp.	St. Thomas at Bovoni Cay (USA)	Antitumor	—	33
							34
67	neo- <i>N</i> -methylsansalvamide	<i>F. solani</i> KCCM90040	Potato	Korea	Antitumor	Medium 16; at 25 °C for 7 days	35
68	Enniatin A				Antimalarial;		
69	Enniatin A <sub>1</sub>	<i>F. acuminatum</i> MRC 3308	—	South Africa	Antileishmanial	Medium 17; for 7 days at 220 rpm and 28 °C	36

70	Enniatin B						
71	Enniatin B <sub>1</sub>						
72	Enniatin B <sub>2</sub>						
73	Enniatin B <sub>3</sub>						
74	Enniatin B <sub>4</sub>						
75	Enniatin D						
76	Enniatin E <sub>1</sub>	<i>Fusarium</i> sp. FO-1305	Soil	Jingu Gaien, Tokyo (Japan)	Acyl-CoA inhibitor	—	37
77	Enniatin E <sub>2</sub>						
78	Enniatin F						
79	Enniatin J <sub>1</sub>						
80	Enniatin J <sub>2</sub>	<i>Fusarium</i> sp. F31 (GenBank accession No. AY442182)	<i>Pinus sylvestris</i>	Swedish	Antifungal	—	38
81	Enniatin J <sub>3</sub>						
82	Enniatin K <sub>1</sub>						
83	Enniatin Q	<i>F. tricinctum</i> Corda	<i>Hordeum sativum</i>	—	Antimalarial; Antileishmanial	Medium 13; at 25 °C for 3 weeks	39
84	Enniatin R						
85	Enniatin S	<i>F. proliferatum</i> (GenBank accession No. KT207283)	Insect	Tibet (China)	Cytotoxicity	Medium 6; at 25 °C for 35 days	40
86	Enniatin T						
87	Enniatin U						
88	Enniatin V						
89	Fusaripeptide A	<i>Fusarium</i> sp.	<i>Mentha longifolia</i>	Al Madinah Al Munawwarah (Saudi Arabia)	Antifungal; Anti-malarial; Antitumor	Medium 13; at room temperature for 30 days	41
90	[-(α-Oxyisohexanoyl-N-methyl-1 eucyl) <sub>2</sub> -]	<i>F. tricinctum</i> SYPF 7082	<i>Panax notoginseng</i>	China	Inhibit NO production	Medium 18; 40 days at 25 °C	42

**Table S3.** Amides from the genus *Fusarium*

No.	Secondary metabolite	Strain	Host	Locality	Biological activity	Culture conditions	Ref.
91	Sambutoxin	<i>F. sambucinum</i> PZF-4	Potato	Korea	Antitumor; Antifungal; Antimitochondrial	Medium 4; 2 weeks at 25 °C followed by 2 weeks at 10 °C	43-46
92	Oxysporidinone	<i>F. oxysporum</i> CBS 330.95	Plant	Sweden	Antifungal	Medium 19; flasks were shaken (200 rpm) for 13 days at 26 °C	47
93	6- <i>epi</i> -Oxysporidinone				Antifungal		
94	Dimethyl ketal of oxysporidinone	<i>F. oxysporum</i> N17B	—	—	—	—	46
95	<i>N</i> -demethylsambutoxin				Antimitochondrial		48
96	4,6'-Anhydrooxysporidinone	<i>F. oxysporum</i> EPH2R <sub>AA</sub>	<i>Ephedra fasciculata</i>	Sonoran desert	—	Medium 11; 14 days at 28 °C	46
97	6-Deoxyoxysporidinone				Antimitochondrial		49
98	Oxysporidinone analog	<i>F. oxysporum</i> (GenBank accession No. GU250648)	<i>Cinnamomum kanehirae</i>	Jiaoban Mountain, Taiwan (China)	—	Medium 20; 25 °C for 40 days	50
99	Fusapyridon A	<i>Fusarium</i> sp. YG-45	<i>Maackia chinensis</i>	Göttingen (Germany)	Antibacterial	Medium 21; at 25 °C for 3 weeks	51
100	Fusapyridon B				—		
101	YCM1008A	<i>Fusarium</i> sp. YCM1008	Soil	Indonesia	Ca <sup>2+</sup> -Signaling Inhibitor	Medium 22; 5 days at 25 °C and 200 rpm	52
102	Fusaricide	<i>Fusarium</i> sp.	<i>Oxydendron arboreum</i>	Georgia State Botanical Garden in Athens, GA.	Antimicrobial	Medium 23; at 28 °C for 7 days	53
103	3-Hydroxyl-2-piperidinone derivative	<i>F. oxysporum</i> (GenBank accession No. GU250648)	<i>Cinnamomum kanehirae</i>	Jiaoban Mountain (China)	—	Medium 20; 25 °C for 40 days	50
104							
105							
106	7-Desmethyl fusarin C derivatives	<i>F. solani</i> JK10	<i>Chlorophora regia</i>	Asakraka forest (Ghana)	Antibacterial	Medium 14; for 60 days at room temperature.	54
107							
108							
109							

110							
111	Fusarisetin A						
112	Fusarisetin B						
113	Fusarisetin C	<i>F. equiseti</i> D39	unknown plant	Yellow Sea Qingdao (China)	Phytotoxicity	Medium 20; at 28 °C for 30 days	55-57
114	Fusarisetin D						
115	Equisetin						
116	<i>Epi</i> -equisetin						
117	<i>N</i> -demethylphiosetin					Coculture with	
118	Pallidorosetin A	<i>F. pallidoroseum</i> ATCC 74289	—	—	—	Saccharopolyspora erythraea ATCC 31772 in ISP2; 4 days at 27 °C and 200 rpm	58
119	Pallidorosetin B						
120	Rigidiusculamide E	<i>F. tricinctum</i> SYPF 7082	<i>Panax notoginseng</i>	Wen-Shan district, Yunnan (China)	—	Medium 18; 40 days at 25 °C	42
121	13 $\alpha$ -hydroxylucilactaene	<i>F. avenaceum</i>	<i>Larrea tridentata</i>	Arizona	—	Medium 9; 15 days at 26 °C and 120 rpm	59
122	Fusarithioamide A	<i>F. Chlamydosporium</i> (Genbank accession No. FC201936.1)	<i>Anvillea garcinii</i>	Saudi Arabia	Antifungal; Antibacterial; Antitumor	Medium 13; for 30 days at room temperature	60
123	Fusarithioamide B						
124	Fusaribenzamide A						
125	Cerebroside	<i>Fusarium</i> sp. IFB-121	<i>Quercus variabilis</i>	Zijin Mountain Nanjing (China)	Antibacterial; Xanthine oxidase inhibitory	Medium 24; at 28 °C for 30 days	63
126	Fusaruside						

**Table S4.** Terpenoids from the genus *Fusarium*

No.	Secondary metabolite	Strain	Host	Locality	Biological activity	Culture condition	Ref.		
127	Fusoxysporone	<i>F. oxysporum</i> IMB FO 1/82	—	—	—	Medium 41; for 7 weeks	64		
128	Deoxynivalenol	<i>Fusarium</i> sp.	—	—	Proteins-, DNA- and RNA synthesis inhibitor	—	65		
129	Nivalenol								
130	T-2 toxin								
131	15-Hydroxyculmorone	<i>F. culmorum</i> CMI 14764	—	—	—	Medium 25; for 8 days at 350 rpm at 28 °C	67		
132	5-Hydroxyculmorin								
133	12-Hydroxyculmorin								
134	15-Hydroxyculmorin								
135	Tricinonoic acid	<i>F. tricinctum</i>	<i>Rumex hymenosepalus</i>	Sierra Ancha (Arizona)	—	Medium 9; for 15 days at 26 °C and 120 rpm	68		
136	Tricindiol								
137	Cyclonerotriol B	<i>F. avenaceum</i> SF-1502	The root tip soil of <i>Chlorophytum comosum</i>	Lanzhou (China)	—	Medium 9; for 21 days at 26 °C and 160 rpm	17		
138	3 $\beta$ -hydroxy- $\beta$ -acorenol	<i>F. proliferatum</i> AF-04	Green Chinese onion	China	—	Medium 26; for 28 days at 26 °C			
139	Fusarielin A	<i>Fusarium</i> sp. K432	—	—	Antifungal; Anti-angiogenic; Antibacterial	Medium 9; for 20 days at 20 °C	69		
140	Fusarielin B				Antifungal Antibacterial			70	
141	Fusarielin C				Antifungal				71
142	Fusarielin D								
143	Fusarielin E								
144	Fusarielin F	<i>F. graminearum</i> PH-1	—	—	Antitumor; Antibacterial; Mycoestrogens	Medium 7	73		
145	Fusarielin G				Antitumor; Mycoestrogens			74	
146	Fusarielin H				Antitumor; Mycoestrogens				71
147	Fusarielin J				<i>F. tricinctum</i>				
148	Fusarielin K								



149	Fusarielin L						
150	3- <i>epi</i> -Fusarielin H						
151	3-Methoxyl-fusarielin H	—	—	—	Antibacterial	Medium 21; at 25 °C for 30 days	74
152	3-Methoxyl- <i>epi</i> -fusarielin H						
153	Neomangicol A				Antitumor		
154	Neomangicol B				Antitumor; Antibacterial		76
155	Neomangicol C				Antitumor		
156	Mangicol A						
157	Mangicol B	<i>F. heterosporum</i> CNC-477	Mangrove driftwood	Sweetings Cay, Bahamas	Antiinflammatory	—	
158	Mangicol C						
159	Mangicol D						77
160	Mangicol E				Antitumor		
161	Mangicol F						
162	Mangicol G						
163	Fusaprolifin A	<i>F. proliferatum</i> MA-84	<i>Bruguiera</i> <i>sexangula</i>	Hainan (China)	Anti- <i>Artemia salina</i>	Medium 28; at room temperature for 30 days	78
164	Fusaprolifin B						
165	Proliferin	<i>F. proliferatum</i> ITEM 1494	Maize	Italy	Anti- <i>Artemia salina</i> ; Antitumor	—	79-82
166	Integracide A						
167	Integracide B	<i>Fusarium sp.</i> ATCC74469	Soil	Tanzania	Inhibitors of HIV-1 integrase	—	83
168	Integracide C						
169	Integracide D						
170	Integracide F						
171	Integracide G				Antitumor; Anti-leishmanial		84
172	Integracide H	<i>F. Chlamydosporium</i> (Genbank accession No. FC201936.1)	<i>Mentha longifolia</i>	Saudi Arabia	—	Medium 13; at room temperature for 30 days	
173	Integracide I						85
174	Integracide J				Antitumor; Anti-leishmanial		
175	Sambacide	<i>F. sambucinum</i> B10.2	—	Yunnan University Kunming (China)	Antibacterial; Antifungal	—	86
176	Helvolic acid methyl ester	<i>Fusarium sp.</i> FL10	<i>Ficus carica</i>	Qinling Mountain	Antifungal	Medium 29; for 9 days at 28 °C	87

				(China)	Antibacterial	and 120 rpm	
<b>177</b>	Fusariumin A	<i>Fusarium</i> sp. YD-2	<i>Santalum album</i>	Dongguan, (China)	Antibacterial	Medium 13; at room temperature	88
<b>178</b>	Fusariumin B				Anti-inflammatory	for 28 days	
<b>179</b>	Fusartricin	<i>F. tricinctum</i> Salicorn 19	<i>Salicornia bigelovii</i>	The salt lake, Xinjiang (China)	Antimicrobial	Medium 43; for 30 days at 28 °C	89

**Table S5.** Quinones from the genus *Fusarium*

No.	Secondary metabolite	Strain	Host	Locality	Biological activity	Culture condition	Ref.
180	4-Hydroxydihydronorjavanicin				—		
181	Dihydronaphthalenone				Antitumor		
182	Dihydronaphthalenone diastereomer				Antimycobacterial; Antitumor		
183	5-Hydroxydihydrofusarubin A				Antitumor		
184	5-Hydroxydihydrofusarubin B				—		
185	5-Hydroxydihydrofusarubin D	<i>Fusarium</i> sp. BCC14842	Bamboo	Bamboo forest at Nam Nao National Park (Thailand)	—	Medium 9; for 20 days at 25 °C and 250 rpm	90
186	5-Hydroxy-3-methoxydihydrofusarubin A				Antimycobacterial; Antitumor		
187	5-Methoxydihydrofusarubin B				Antitumor		
188	3,5-Dimethoxydihydrofusarubin B				—		
189	5-Hydroxydihydrofusarubin D derivative				—		
190	3,5-Dimethoxydihydrofusarubin D				—		
191	3-O-butyl-4a, 10a-dihydrofusarubin A						
192	3-O-3'-methylbutyl-4a, 10a-dihydrofusarubin A						
193	3-O-2'-Methylbutyl-4a, 10a-dihydrofusarubin A	<i>Fusarium</i> sp. Mj-2	Soil	Reisekizan (Japan)	—	Medium 30; for 14 days at 25 °C in the dark	91
194	3-O-2'-Phenethyl-4a, 10a-dihydrofusarubin A						
195	3-Demethoxyl-fusarnaphthoquinone B				—		
196	(2 <i>S</i> ,3 <i>S</i> ,4 <i>S</i> )-8-Dehydroxy-8-methoxyl- dihydronaphthalenone	<i>Fusarium</i> sp. HP-2	Chinese agarwood “Qi-Nan”	Ledong County, Hainan (China)	AChE inhibitory activity	Medium 6; at room temperature for 45 days	92
197	Fusatricinone A						
198	Fusatricinone B						
199	Fusatricinone C	<i>F. tricinctum</i>	<i>Aristolochia paucinervis</i>	Mountains Beni-Mellal (Morocco)	—	Co-cultured with <i>Streptomyces lividans</i> TK24 on rice medium at room temperature	93
200	Fusatricinone D						
201	Dihydrolateropyrone						

<b>202</b>	Karuquinone A	<i>F. solani</i> (GenBank				Medium 9; at room	
<b>203</b>	Karuquinone B	accession No.	Soil	Karuizawa (Japan)	Antitumor	temperature in the dark for	94
<b>204</b>	Karuquinone C	HM054145)				21 days	
<b>205</b>	6-Hydroxy-astropaquinone B	<i>F. napiforme</i> IP-28	<i>Rhizophora mucronata</i>	Indonesia	Antibacterial;	Medium 6; at 25 °C	95
<b>206</b>	Astropaquinone D				Phytotoxicity	for one month	
<b>207</b>	6-Deoxybikaverin	<i>F. oxysporum</i> CEC1S	<i>Cylindropuntia echinocarpus</i>	Sonoran desert	Antitumor	Medium 9; at 28 °C for 14 days	96
<b>208</b>	9-Desmethylherbarine	<i>F. solani</i> AURE-4	<i>Aponogeton undulatus</i> Roxb.	Chalanbil area of Natore district (Bangladesh)	Antitumor	Medium 11; at 28 °C for 28 days	19
<b>209</b>	Solaninaphthoquinone	<i>F. solani</i> PSU-RSPG227	Soil	Thailand	Antitumor; Antimalarial	Medium 9; at room temperature for 4 weeks	97
<b>210</b>	Fusaquinon A	<i>Fusarium</i> sp.	Mangrove sediment	Zhuhai (China)	Antitumor	Medium 31; at 30 °C for 21 days.	98
<b>211</b>	Fusaquinon B	ZH-210					
<b>212</b>	Fusaquinon C						
<b>213</b>	Fusaranthraquinone	<i>Fusarium</i> sp.	Gorgonian sea fan	Koh Hin Ran Pet, Suratthani Province	—	Medium 9; at room temperature for four weeks	99
<b>214</b>	Fusarnaphthoquinone A	PSU-F14 and	( <i>Annella</i> sp.)				
<b>215</b>	Fusarnaphthoquinone B	PSU-F135					
<b>216</b>	Fusarnaphthoquinone C						
<b>217</b>	Fusarone						
<b>218</b>	Karimunone A	<i>Fusarium</i> sp. KJMT.FP.4.3	<i>Xestospongia</i> sp.	Karimunjawa National Park (Indonesia)		Medium 33; for 7 days at 30 °C and 200 rpm	100
<b>219</b>	5-Acetyl-2-methoxy-1,4,6-trihydroxy-anthra-quinone	<i>Fusarium</i> sp. No. b77	—	Shenzhen coast	—	Medium 34; for 5 weeks at 30 °C	101
<b>220</b>	(11 <i>S</i> )-1,3,6-Trihydroxy-7-(1-hydroxyethyl) anthracene-9,10-dione	<i>F. equiseti</i> P18	unidentified marine plant	Yellow Sea in Qingdao (China)	Antimicrobial	Medium 32; at 28 °C for 4 weeks.	102

**Table S6.** Pyranones from the genus *Fusarium*

No.	Secondary metabolite	Strain	Host	Locality	Biological activity	Culture condition	Ref.
221	Fusapyrone	<i>F. semitectum</i>	Maize	Southern Italy	Antifungal;	Medium 35; at room	103
222	Deoxyfusapyrone	ITEM-393			Anti- <i>Artemia salina</i>	temperature for 4 weeks	
223	Neofusapyrone	<i>Fusarium</i> sp. FH-146	Driftwood	Oga peninsula (Japan)	Antifungal	Medium 21; at 25 °C for 3 weeks	104
224	Fusarester A	<i>Fusarium</i> sp. Hungel	Marine sediment	Futian Mangrove Reserve in Shenzhen (China)	Antitumor;	Medium 13; at 28 °C for 25 days	105
225	Fusarester B						
226	Fusarester C						
227	Fusarester D						
228	Fusarester E						
229	Fusolanone A	<i>F. solani</i>	<i>Rhizophora apiculata</i>	Sanya Bailu Park of Hainan Province (China)	Antibacterial	Medium 2; 28 °C for 9 days on a rotary shaker at 180 rpm	2
230	Fusolanone B	HDN15-410	<i>Blume</i>		—		
231	Fusariumin	<i>Fusarium</i> sp. LN-10	<i>Melia azedarach</i>	Campus of Northwest A&F University, Shanxi (China)	Anti- <i>Artemia salina</i>	Medium 11; for 5 days at 28 °C	107
232	Fusarilactone A	<i>Fusarium</i> sp. #001	<i>Eupatorium adenophorum</i>	Kunming (China)	Antitumor	Medium 13; at 25 °C for 21 days	108
233	Fusarilactone B				—		
234	Prolipyrone A	<i>F. proliferatum</i> MA-84	<i>Bruguiera sexangula</i>	Hainan (China)	—	Medium 28; at room temperature for 30 days	78
235	Prolipyrone B						
236	Prolipyrone C						
237	Karimunone B	<i>Fusarium</i> sp. KJMT.FP.4.3	Sponge <i>Xestospongia</i> sp.	Karimunjawa National Park (Indonesia)	Antibacterial	Medium 33; for 7 days at 30 °C and 200 rpm	100
238	6 $\alpha$ -Chlamydosporol	<i>F. chlamydosporum</i> 447	Rice	—	—	Medium 13; at 27 °C for 14 days in the dark	109
239	6 $\beta$ -Chlamydosporol						
240	Fupyrone A	<i>Fusarium</i> sp. F20	<i>Mahonia fortunei</i>	Qingdao (China)	—	Medium 36; at 28 °C for 30 days	110
241	Fupyrone B						
242	Fusarpyrone A	<i>F. solani</i>	Soil	Rajjaprabha Dam (Thailand)	—	Medium 9; at room temperature for four weeks	111
243	Fusarpyrone B	PSU-RSPG37					

244	Bromomethylchlamydosporol A	<i>F. tricinctum</i>	<i>Sargassum ringgoldium</i>	GeoMun Island (Korea)	Antibacterial	Medium 37; for 10 days at 29 °C and 120 rpm	112
245	Bromomethylchlamydosporol B	MFB392-2					
246	Subglutinol A	<i>F. subglutinans</i>	<i>Tripterygium wilfordii</i>	China	Asteogenic; Estrogenic	–	113-115
247	Subglutinol B						
248	Pysarone A	<i>Fusarium</i> sp. HP-2	Chinese agarwood “Qi-Nan”	Ledong County, Hainan (China)	–	Medium 6; at room temperature for 45 days	92
249	Cladobotrin V derivative	<i>Fusarium</i> sp. IM-37	<i>Rhizophora mucronata</i>	Muara Angke (Indonesia)	Ca <sup>2+</sup> -signaling inhibitor	Medium 21; at 25 °C for 4 weeks	116
250	<i>O</i> -Methylated SMA93	<i>F. proliferatum</i> ZS07	<i>Longhorned grasshoppers</i>	Jinhua (China)	Phytotoxic; Antibacterial	Medium 38; for 7 days at 28 ± 0.5 °C and 150 rpm	117
251	Isochaetochromin B <sub>1</sub>						
252	Isochaetochromin B <sub>2</sub>	<i>Fusarium</i> sp.	<i>Podocarpus dactyloides</i>	Te Anau (New Zealand)	Inhibitors of HIV-1 Integrase	–	118
253	Isochaetochromin D <sub>1</sub>						
254	Oxychaetochromin B						

**Table S7.** Miscellaneous compounds from the genus *Fusarium*

No.	Secondary metabolite	Strain	Host	Locality	Biological activity	Culture condition	Ref.
255	Spiroleptosphol U	<i>F. avenaceum</i> 05,001	Grain	Finnish	—	Medium 40; at 25 °C in the dark for 14 days	119
256	Spiroleptosphol T <sub>1</sub>						
257	Spiroleptosphol T <sub>2</sub>						
258	Spiroleptosphol W						
259	Spiroleptosphol V						
260	Spiroleptosphol Z						
261	Spiroleptosphol Y						
262	Spiroleptosphol X						
263	Fusaspirol A	<i>F. solani</i> B-18	Forest litters	Mount Merapi (Indonesia)	Stimulated osteoclastic differentiation in murine macrophage derived RAW264.7 cells	Medium 21; at 25 °C for four weeks	120
264	Fusaspirol B				—		
265	Fusaspirol C				—		
266	Fusaspirol D				—		
267	7-Hydroxy-14- <i>de-O</i> -methyl-lasiodiplodin				—		
268	Ethyl-3,5-dihydroxy-7-(6,8-dihydroxynonyl)benzoate	<i>F. solani</i> T-13	Dead branch	Mt. Gassan (Japan)	Ca <sup>2+</sup> -signal transduction inhibitor	Medium 21; at 25 °C for four weeks	121
269	7-Ethylbenzoate-7-heptanoic acid				—		
270	4-(4-Hydroxyphenethoxy)-4-oxobutanoic acid	<i>F. solani</i> PSU-RSPG227	Soil	Thailand	—	Medium 9; at room temperature for 4 weeks	106 107
271	Fusaramin	<i>Fusarium</i> sp. FKI-7550	Soil around the root of <i>Cerasus yedoensis</i>	Tokushima, Japan	Antibacterial; Antifungal; Antimitochondrial	Medium 6; at 27 °C for 12 days.	46
272	Fusariumins C	<i>F. oxysporum</i> ZZP-R1	<i>Rumex madaio</i>	Putuo Island (China)	Antibacterial	Medium 29; at 200 rpm at 30 °C for 7 days	106

**Table S8.** The most frequently used medium for fermentation of *Fusarium* strains

Type	Composition
Medium 1	Rice 100 g, sea salt 3.5 g, demineralized water 110 mL
Medium 2	Mannitol 20 g, maltose 20 g, glucose 10 g, aginomoto 20 g, yeast extract 3 g, corn steep liquor 1 g, magnesium sulfate heptahydrate 0.3 g and monopotassium phosphate 0.5 g, purified 1 L, pH = 6.5
Medium 3	Corn medium
Medium 4	Wheat 200 g and distilled water 120 mL
Medium 5	Czapek-yeast-pepton medium
Medium 6	Rice medium
Medium 7	Yeast extract 5 g, glucose 30 g, adenine 0.225 g, histidine 0.225 g, leucine 0.225 g, lysine 0.225 g, uracil 0.225 g, agar 20 g, and deionized water 1 L
Medium 8	CaCl <sub>2</sub> 0.5 g, KH <sub>2</sub> PO <sub>4</sub> 0.1 g, KCl 0.05 g, MgSO <sub>4</sub> ·7H <sub>2</sub> O 0.1 g, glucose 20 g, peptone 15 g, and 1 L H <sub>2</sub> O.
Medium 9	Potato 200 g, dextrose 20 g, 1 L H <sub>2</sub> O
Medium 10	Glucose 20 g, peptone 5 g, yeast extract 2 g, Trp 2 g, Phe 2 g, sea salt 30 g, H <sub>2</sub> O 1 L, pH 7.5.
Medium 11	Potato 200 g, dextrose 20 g, agar 15-20g
Medium 12	Rice 150 g and distilled water 90 ml
Medium 13	Rice 100 g and sterile water 100 mL
Medium 14	Rice 80 g, peptone 0.6 g, H <sub>2</sub> O 120 mL
Medium 15	Yeast extract 5 g, peptone 5 g, glucose 10 g, crab meal 2 g, and seawater 1 L
Medium 16	Rice and water, the moisture level was adjusted to 40% (w/w)
Medium 17	Maltose 50 g, peptone 8 g, yeast extract 5 g, KH <sub>2</sub> PO <sub>4</sub> 0.75 g, MgSO <sub>4</sub> ·7H <sub>2</sub> O 0.5 g, and CaCl <sub>2</sub> ·H <sub>2</sub> O 0.007 g, 1 L water
Medium 18	Rice 90 g, sterile water 110 mL
Medium 19	Yeast extract 20 g, sucrose 150 g, ZnSO <sub>4</sub> ·7H <sub>2</sub> O 0.018 g, and CuSO <sub>4</sub> ·5H <sub>2</sub> O 0.008 g, 1 L water, pH 6.4
Medium 20	Rice 80 g and distilled water 120 mL
Medium 21	Unpolished rice medium
Medium 22	Sucrose 30 g, soluble starch 20 g, Ebios 50 g, malt extract 10 g, corn steep liquor 50 g, V8 vegetable juice 20 g, calcium carbonate 50 g, and 1 L deionized water, pH 6.5
Medium 23	Mashed potato 30 g, dextrose 10g, Esusan Mi-to (defatted soybean meal) 10 g, yeast extract 2 g, NaCl 2.5 g, and agar 10 g, in 1L deionized water, pH 7.0
Medium 24	Millet 7.5 g, bran 7.5 g, yeast extract 0.5 g, FeSO <sub>4</sub> ·7H <sub>2</sub> O 0.01 g, sodium tartrate 0.1 g, sodium glutamate 0.1 g, and pure corn oil 0.1 mL in 15 mL of water
Medium 25	Sucrose 40 g, glycerol 10 g, NaCl 5 g, KH <sub>2</sub> PO <sub>4</sub> 3.5 g, (NH <sub>4</sub> ) <sub>2</sub> HPO <sub>4</sub> 1 g, MgSO <sub>4</sub> ·7H <sub>2</sub> O 0.2 g, and water to 1L, sterile rapeseed oil 5 mL, sterile potassium carbonate solution (10% w/v)
Medium 26	Rice 120 g and purified H <sub>2</sub> O 150 mL
Medium 27	Banana juice, apple juice or carrot juice 110 ml and rice 100 g
Medium 28	Rice 100 g, peptone 0.6 g, sea water 100 mL



Medium 29	Sucrose 30 g, NaCl 30 g, NaNO <sub>3</sub> 3 g, K <sub>2</sub> HPO <sub>4</sub> 1 g, NaF 1 g, KCl 0.5 g, MgSO <sub>4</sub> ·7H <sub>2</sub> O 0.5 g, FeSO <sub>4</sub> 0.01 g and purified H <sub>2</sub> O 1 L
Medium 30	Glucose 30 g, peptone 3 g, malt extract 50g, and tap water 1L
Medium 31	Glucose 10 g, peptone 2 g, yeastextract 1 g, and NaCl 30g, purified water 1 L
Medium 32	Rice 40 g and H <sub>2</sub> O 30 mL
Medium 33	Soluble starch 20 g, glucose 5 g, glycerol 20 g, yeast extract 3 g, Pharmamedia (Traders Protein) 15 g, and Diaion HP-20 (Mitsubishi Chemical Co.)10 g, purified water 1 L, pH 7.0
Medium 34	Glucose 10 g, peptone 20 g, yeast extract 10 g and NaCl 25 g, purified water 1 L
Medium 35	Rice and water, the moisture level was adjusted to 45% (w/w)
Medium 36	Rice 80 g, peptone 0.24 g and H <sub>2</sub> O 120 mL
Medium 37	Soytone 1 g, soluble starch 10 g, and seawater 1 L, CaBr <sub>2</sub> 50 mM
Medium 38	Malt extract 20 g, sucrose 20 g, peptone 1 g, distilled water 1 L
Medium 39	Glycerol 50 g, potatoes 50 g, malt extract 5 g and yeast extract 5 g, water 1 L
Medium 40	Ecological yellow-brown banana including peel (Musa acuminata, Cavendish cultivar subgroup Grand Nain) 200 g, agar 15 g, Milli-Q water 1 L
Medium 41	Biomalt 20g and H <sub>2</sub> O 1 L
Medium 42	Glucose 30 g, (NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> 20 g, yeast extract 10 g, MgSO <sub>4</sub> ·7H <sub>2</sub> O 1 g, FeSO <sub>4</sub> ·7H <sub>2</sub> O 0.05g, purified water 1L, pH 5.5.
Medium 43	Maltose 20 g, mannitol 20 g, glucose 10 g, monosodium glutamate 10 g, MgSO <sub>4</sub> ·7H <sub>2</sub> O 0.3 g, KH <sub>2</sub> PO <sub>4</sub> 0.5 g, yeast extract 3 g, and corn steep liquor 1 g, purified water 1L, pH 7.0

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