

Supplementary materials

Recent advances in chemistry and bioactivities of secondary metabolites from the genus *Acremonium*

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Table S1 Recent reported known compounds from the genus *Acremonium* (December 2016 to September 2023).

| Compounds | Producing strains | Sources | Ref. |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|----------------------------------------------|------|
| trichodimerol, dihydrotrichodimerol, tetrahydrotrichodimerol | <i>Acremonium citrinum</i> SS-g13 | the root of the plant <i>Fructus mori</i> | [8] |
| cylindrol B, LL-Z1272ε, ilicicolin C, ascochlorin, 4',5'-dihydro-4'-hydroxyascochlorin7, 10'-deoxy-10'α-hydroxyascochlorin, ascofuranone, ascofuranol, 10'-hydroxyilicicolinic acid D, cylindrocapol, chlorocylindrocapol, LL-Z1272α | <i>Acremonium sclerotigenum</i> GXIMD 02501 | coral <i>Pocillopora damicornis</i> | [10] |
| guignarderemophilane B, guignarderemophilane E, eremophil-1(10),11(12)-dien-2β,8β-diol, 2-oxo-3-hydroxyeremophila-1(10),3,7(11),8-tetraen-8,12-olide, the C-2 epimer of PF1092B, the C-3 epimer of PF1092C, the C-2 epimer of PF1092C (-)ternatin, [D-Leu]-ternatin, pseurotin A | <i>Acremonium</i> sp. TVG-S004-0211 | deep-sea sediments | [15] |
| | <i>Acremonium</i> sp. SF-7394 | an unidentified lichen | [17] |

| | | | |
|---------------------------------------------|-----------------------|-------------|------|
| crotocin, | <i>Acremonium</i> | the petiole | [18] |
| trichothecin, | <i>crotocinigenum</i> | of the | |
| 8-deoxytrichothecinol B, | <i>m</i> BCC 20012 | brackish | |
| 4-((Z)-but-2-enoyloxy)-8,12-dihydroxy-7, | | water palm | |
| 13-epoxytrichotec9-ene | | holothurian | [12] |
| virescenoside F, | <i>Acremonium</i> | | |
| virescenoside G, | <i>striatisporum</i> | | |
| lactone of virescenoside G, | KMM 4401 | | |
| aglycon of virescenoside A | | | |
| ascofuranone, | <i>Acremonium</i> | - | [19] |
| ascochlorin | <i>egyptiacum</i> | - | |
| ascofuranone, | <i>Acremonium</i> | - | [20] |
| Rac-AF, | <i>sclerotigenum</i> | | |
| CCB, | | | |
| (2E,6E)-8-(3-chloro-5-formyl-2,6- | | | |
| dihydroxy-4-methylphenyl)-2,6- | | | |
| dimethylocta-2,6-dien-1-yl pivalate, | | | |
| 3-chloro-5-((2E,6E)-3,7-dimethyl-8- | | | |
| ((tetrahydrofuran-2-yl)oxy)octa-2,6-dien-1- | | | |
| yl)-4,6-dihydroxy-2-methylbenzaldehyde, | | | |
| 3-chloro-4,6-dihydroxy-5-((2E,6E)-8- | | | |
| hydroxy-3,7-dimethylnona-2,6-dien-1-yl)-2- | | | |
| methylbenzaldehyde, (3E,7E)-9-(3-chloro- | | | |
| 5-formyl-2,6-dihydroxy-4-methylphenyl)- | | | |
| 3,7-dimethylnona-3,7-dien-2-yl acetate, | | | |
| 3-chloro-4,6-dihydroxy-2-methyl-5- | | | |
| ((2E,6E)-3,7,11-trimethyldodeca-2,6,10- | | | |
| trien-1-yl)benzaldehyde, | | | |
| methyl(2E,6E)-8-(3-chloro-5-formyl-2,6- | | | |
| dihydroxy-4-methylphenyl)-2,6- | | | |
| dimethylocta-2,6-dienoate, | | | |
| ascochlorin, | | | |
| (2E,6E)-8-(3-chloro-5-formyl-2,6- | | | |
| dihydroxy-4-methylphenyl)-3,6- | | | |
| dimethylocta-2,6-dien-1-yl pivalate, | | | |
| (2E,6E)-8-(3-chloro-5-formyl-2,6- | | | |
| dihydroxy-4-methylphenyl)-3,6- | | | |
| dimethylocta-2,6-dien-1-yl isobutyrate, | | | |
| (2E,6E)-8-(3-chloro-5-formyl-2,6- | | | |
| dihydroxy-4-methylphenyl)-2-methylocta- | | | |
| 2,6-dien-1-yl pivalate, | | | |
| 8-(3-chloro-5-formyl-2,6-dihydroxy-4- | | | |
| methylphenyl)-2,6-dimethyloctyl pivalate, | | | |
| (E)-7-(3-chloro-5-formyl-2,6-dihydroxy-4- | | | |

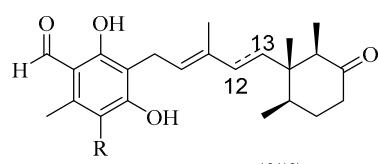
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|------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|----------------------|------|
| methylphenyl)-5-methylhept-5-en-1-yl pivalate, | | | |
| 7-(3-chloro-5-formyl-2,6-dihydroxy-4-methylcyclohexa-1,3-dien-1-yl)-5-methylheptyl pivalate, | | | |
| (E)-3-chloro-4,6-dihydroxy-2-methyl-5-(3-methyloct-2-en-1-yl)benzaldehyde, | | | |
| 3-chloro-4,6-dihydroxy-2-methyl-5-(3-methyloctyl)benzaldehyde, | | | |
| 5-((6E)-8-(3-acetyl-5-chloro-2,6-dihydroxy-4-methylphenyl)-6-methylocta-2,6-dien-2-yl)-2,2-dimethyldihydrofuran-3(2H)-one, | | | |
| (2E,6E)-8-(3-chloro-2,6-dihydroxy-5-(hydroxymethyl)-4-methylphenyl)-2,6-dimethylocta-2,6-dien-1-yl pivalate, | | | |
| 4-chloro-5-((2E,6E)-7-((R)-5,5-dimethyl-4-oxotetrahydrofuran-2-yl)-3-methylocta-2,6-dien-1-yl)-6-hydroxy-4-methoxy-2-methylbenzaldehyde, | | | |
| colletorin B, | | | |
| (E)-3-chloro-5-(3,7-dimethylocta-2,6-dien-1-yl)-4,6-dihydroxy-2-methylbenzaldehyde | | | |
| 3-bromoascochlorin | <i>Acremonium sclerotigenum</i> | coral | [21] |
| ascofuranone | <i>Pocillopora damicornis</i> | | |
| ascochlorin, | GXIMD | | |
| cylindrol B, | 02501 | | |
| ilicicolin E, | <i>Acremonium egyptiacum</i> | - | [23] |
| ilicicolin C, | <i>Acremonium furcatum</i> | sediment | [24] |
| LL-Z1272 ε , | CS- | samples | |
| 10'-deoxy-10' α -hydroxyascochlorin, | 280 | | |
| ascofuranol, | | | |
| ascofuranone, | | | |
| chlorocylindrocarpol | | | |
| ascochlorin, | <i>Acremonium</i> | the sponge | [25] |
| 10'-deoxy10' α -hydroxyascochlorin, | sp. IMB18- | | |
| 4',5'-dihydro-4'-hydroxyascochlorin, | 086 | <i>Haliclona</i> sp. | |
| ascofuranone, | | | |
| PF1171A | | | |
| lumichrome, | <i>Acremonium persicinum</i> | marine | [26] |
| ergosterol, | | sponge | |

| | | | |
|----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|------|
| ergosterol 5,8-endoperoxide acremonin A glucoside | KUFA 1007 <i>Acremonium</i> <i>masseei</i> CICY026 | <i>Mycale</i> sp. plant litter | [27] |
| fusidic acid, 16-desacetyl fusidic acid, $3\beta,20$ -dihydroxy-protosta-16,24-dien-29-oic acid | <i>Acremonium</i> <i>pilosum</i> F47 | the pedicel of the Chinese medicinal plant <i>Mahonia</i> <i>fortunei</i> | [28] |
| adenopeptin | <i>Acremonium</i> sp. PF1450 | sediments | [29] |
| XR586 | <i>Acremonium</i> <i>persicinum</i> SC0105 | sediments | [30] |
| destruxin B, guangomide A, guangomide B | <i>Acremonium</i> sp. NTU492 | marine alga <i>Mastophora</i> <i>rosea</i> | [32] |
| Al(III)-acremonopeptide D | <i>Acremonium</i> <i>persicinum</i> SCSIO 115 | marine sediments | [33] |
| Ga (III) - Acremonopeptide E, Ga (III) - Acremonopeptide F, aselacin C | <i>Acremonium</i> <i>persicinum</i> F10 | marine sponge <i>Phakellia</i> <i>fusca</i> | [35] |
| 3,3',6,6'-tetrahydroxy-4,4'-dimethyl-1,1'-bi-p-benzoquinon | <i>Acremonium</i> <i>cavaraeanum</i> CA022 | fruiting bodies of <i>Shiraia</i> <i>bambusicol</i> <i>a</i> | [36] |
| β -adenosine, acrepynrone A | <i>Acremonium</i> <i>citrinum</i> . MMF4 | the root of mangrove plant <i>Kandelia</i> <i>obovata</i> | [37] |
| (3 <i>R</i> ,4 <i>R</i>)-3,4-dihydro-3,4,8-trihydroxy-1(<i>H</i>)-naphthalenone | <i>Pleosporales</i> sp. F46 and <i>Acremonium</i> <i>pilosum</i> F47 | the pedicel of the medicinal plant <i>Mahonia</i> <i>fortunei</i> | [38] |
| aversin, 6,8-di- <i>O</i> -methylaverufin, | <i>Acremonium</i> <i>vitellinum</i> | the fresh inner tissue | [39] |

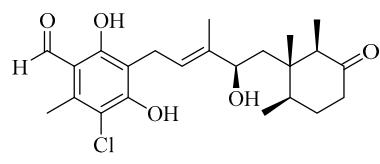
| | | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|-------------------------------------------------------|------|
| 6,8-di- <i>O</i> -methylnidurufin | MH726097 | of an unidentified marine red alga | |
| orsellinic acid, ethyl orsellinate, 5-chloroorsellinic acid, orcinol, <i>O</i> -methylorcinol, 2-chloro-3,5-dihydroxytoluene, aryl bromide, ethyl 4-hydroxyphenylacetate, (3 <i>S</i>)-3,5-dimethyl-8-methoxy-3,4-dihydro-1 <i>H</i> -isochromen-6-ol, nectriatone C | <i>Acremonium sclerotigenum</i> GXIMD 02501 | coral | [40] |
| 5 α ,8 α -epidioxy ergosta-6,22-diene-3 β -ol, microperturanone | <i>Acremonium fusidioides</i> RZ01 | sea water | [41] |
| sorbiuinol, (2 <i>E</i> ,4 <i>E</i>)-1-(2,6dihydroxy-3,5-dimethyl-phenyl)hexa-2,4-dien-1-one, clavatol, sorbicillin, 4-hydroxybenzoic acid, <i>N</i> -(2-hydroxyphenyl)-acetamide, trichodimerol, dihydrotrichodimerol, tetrahydrotrichodimerol | <i>Acremonium sp.</i> AN-13 | marine sediments | [43] |
| trichotetronine, dihydrotrichotetronine, 10,11-dihydrobislongiquinolide, 10,11,16,17-tetrahydrobislongiquinolide, bisvertinolone, dihydrobisvertinolone, tetrahydrobisvertinolone, penicillone B | <i>Acremonium citrinum</i> SS-g13 | the root of the terrestrial plant <i>Fructus mori</i> | [44] |
| trichotetronine, trichodimerol, demethyltrichodimerol, trichopyrone, oxosorbicillinol | <i>Acremonium chrysogenum</i> C10 | - | [45] |
| tetrahydrotrichodimerol, dihydrotrichodimerol, lactariamide B, | <i>Acremonium alternatum</i> | the deep-sea sediments | [46] |

| | | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|----------------------------------------------------------------------|------|
| (2S,2'R,3R,4E,8E,3'E)-2-(2'-hydroxy-3-octadecenoylamino)-9-methyl-4,8-octadecadiene-1,3-diol, | | | |
| (22E,24R)-ergosta-5,7,22-trien-3 β -ol, ergosterol endoperoxide, 6-O-acetyl-NGA0187, 7-NGA0187 | <i>Acremonium</i> sp. NBUF150 | the sponge <i>Ciocalypta</i> sp. | [47] |
| (22E)5 α ,8 α -epidioxyergosta-6,22-dien-3 β -ol, | | | |
| (22E,24R)3 β ,5 α ,9 α ,14 α -tetrahydroxyergosta-7,22-dien-6-one, (22E,24R)-3 β -hydroxy-5,9-epoxyergosta-7,22-dien-6-one | | | |
| fusidic acid, | <i>Acremonium</i> | the pedicel | [48] |
| (22E,24R)-5 α ,8 α -epidioxy-ergosta-6,22dien-3 β -ol, | <i>pilosum</i> F47 | of the Chinese medicinal plant | |
| (3 β ,5 α ,22E,24R)-dihydroxy-ergosta7,22-dien-6-one, | | | |
| (3 β ,5 α ,6 β ,22E,24R)-trihydroxy-ergosta-7,22-dien-6-one | | <i>Mahonia</i> <i>fortune</i> | |
| 3 β ,5 α ,6 β ,7 α -tetrahydroxyergosta-8(14),22-diene | <i>Acremonium</i> <i>persicinum</i> | fungi in plant materials, sediments and water samples | [49] |
| chloramphenicol, corynecin-I | <i>Acremonium</i> <i>vitellinum</i> MH726097 | fresh inner tissue of an unidentified marine red alga | [50] |
| campyridone D, campyridone A, ilicicolin H, phenazine-1-carboxylic acid | <i>Acremonium</i> <i>sclerotigenum</i> GXIMD 02501 | coral <i>Pocillopora</i> <i>damicornis</i> | [52] |
| acremine P, acremine A, acremine Q | <i>Acremonium</i> <i>persicinum</i> | the marine sponge <i>Anomoianth</i> <i>ella rubra</i> | - |

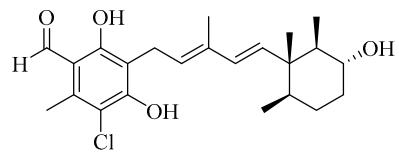
Chemical structures of recent reported known compounds from the genus *Acremonium* (December 2016 to September 2023).



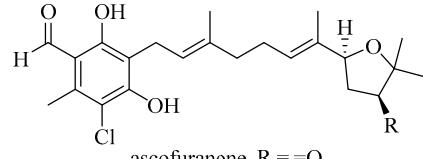
cylindrol B, R = H, $\Delta^{12(13)}$
LL-Z1272, R = H,
ilicicolin C, R = Cl,
ascochlorin, R = H, $\Delta^{12(13)}$



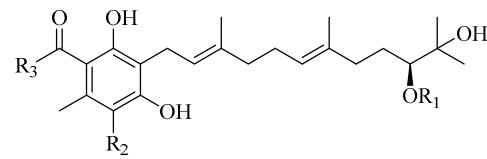
4',5'-dihydro-4'-hydroxyascochlorin 7



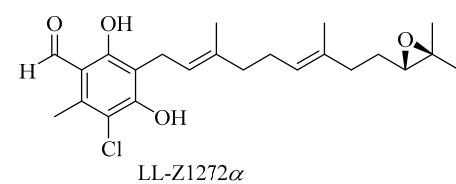
10'-deoxy-10'- α -hydroxyascochlorin



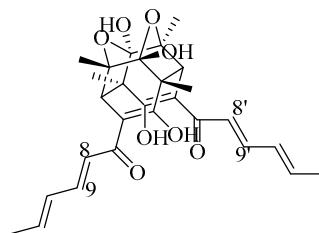
ascofuranone, R == O
ascofuranol, R = OH



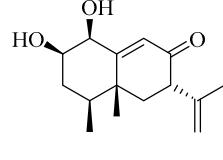
10'-hydroxyilicolinic acid D, R₁ = H, R₂ = Cl, R₃ = OH
cylindrocarpol, R₁ = R₂ = R₃ = H
chlorocylindrocarpol, R₁ = R₃ = H, R₂ = Cl



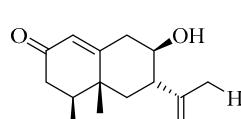
LL-Z1272 α



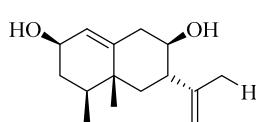
trichodimerol
dihydrotrichodimerol : 8,9-dihydro
tetrahydrotrichodimerol : 4 8,9-dihydro 8',9'-dihydro



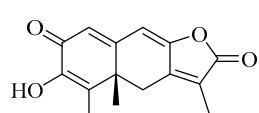
guignarderemophilane B



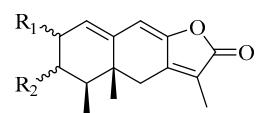
guignarderemophilane E



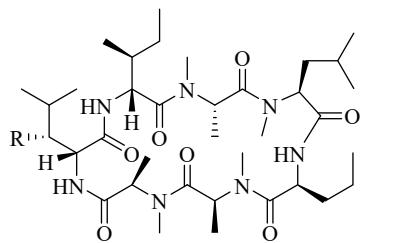
eremophil-1(10),11(12)-dien-2 β ,8 β -diol



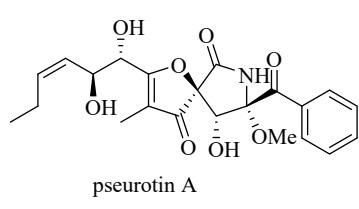
2-oxo-3-hydroxyeremophilal-1(10),3,7(11),8-tetraen-8,12-oxide



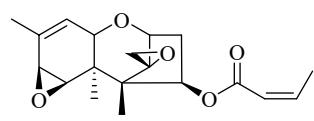
the C-2 epimer of PF1092B, R₁ = 2 α -OH, R₂ = 3 β OAc
the C-3 epimer of PF1092C, R₁ = 2 β -OH, R₂ = 3 α -OH
the C-2 epimer of PF1092C, R₁ = 2 α -OH, R₂ = 3 β OH



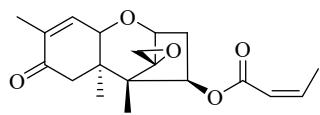
(-)-ternatin, R = OH
[D-Leu]-ternatin, R = H



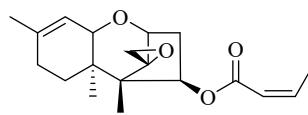
pseurotin A



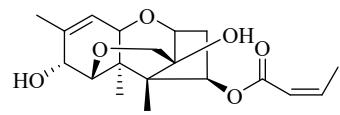
crotocin



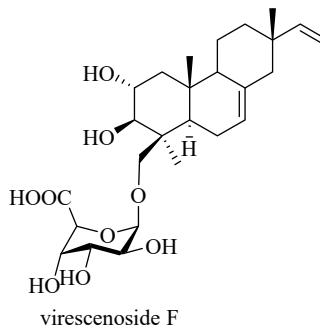
trichothecin



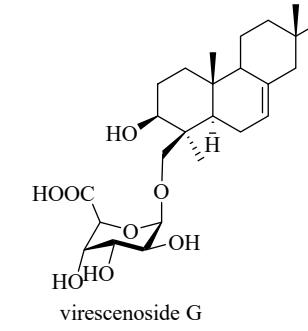
8-deoxytrichothecinol B



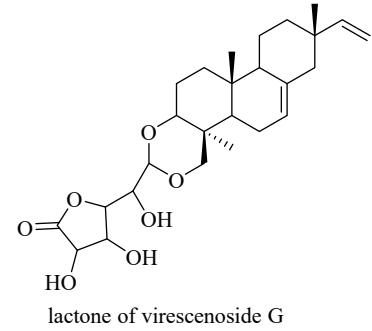
4-(Z)-but-2-enoyloxy-8,12-dihydroxy-
7,13-epoxytrichothec9-ene



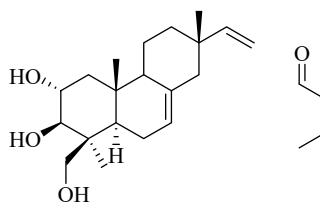
virescenoside F



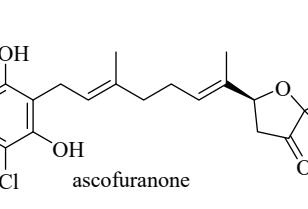
virescenoside G



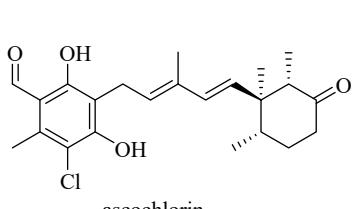
lactone of virescenoside G



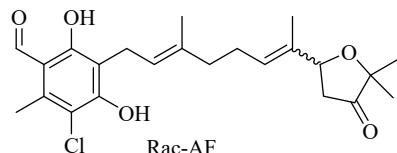
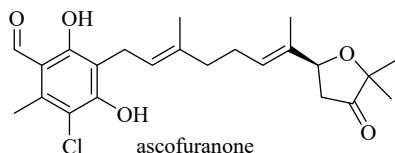
aglycon of virescenoside A



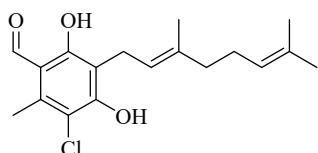
ascofuranone



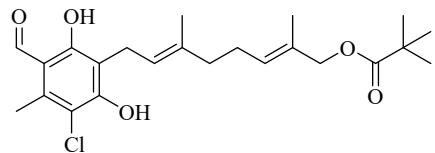
ascochlorin



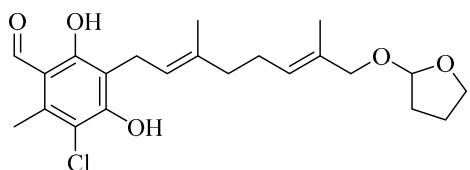
Rac-AF



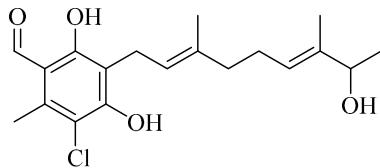
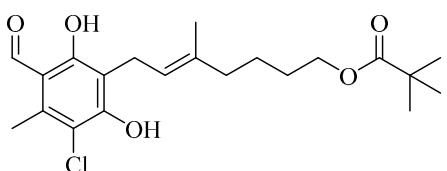
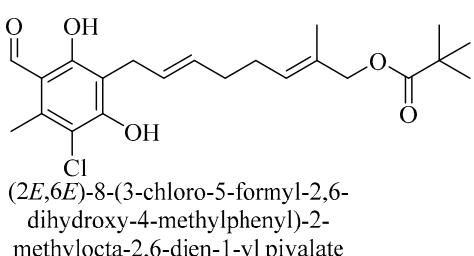
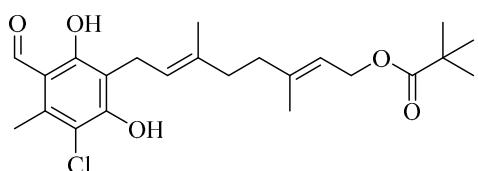
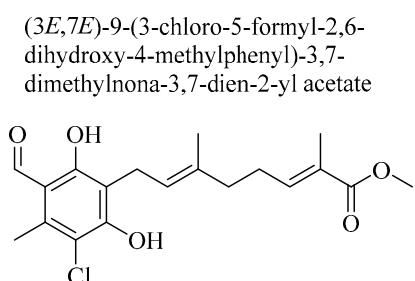
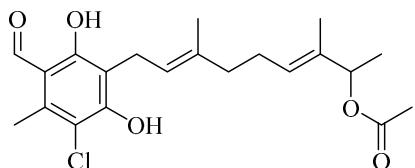
CCB



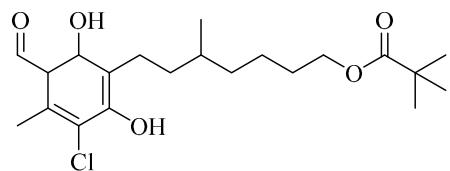
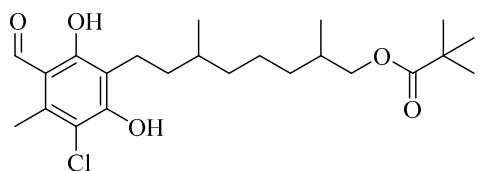
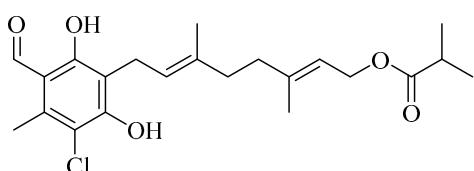
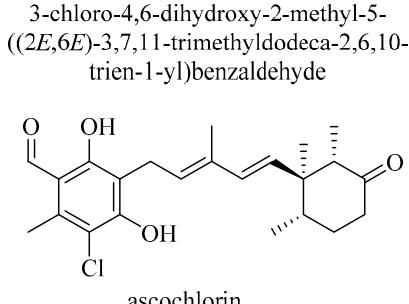
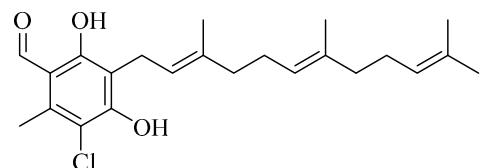
(2E,6E)-8-(3-chloro-5-formyl-2,6-dihydroxy-4-methylphenyl)-2,6-dimethylocta-2,6-dien-1-yl pivalate

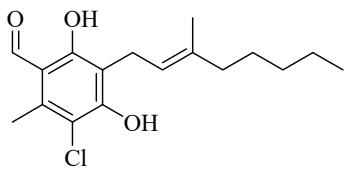


3-chloro-5-((2E,6E)-3,7-dimethyl-8-((tetrahydrofuran-2-yl)oxy)octa-2,6-dien-1-yl)-4,6-dihydroxy-2-methylbenzaldehyde

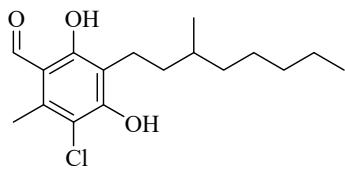


3-chloro-4,6-dihydroxy-5-((2E,6E)-8-hydroxy-3,7-dimethylnona-2,6-dien-1-yl)-2-methylbenzaldehyde

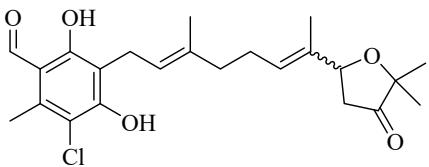




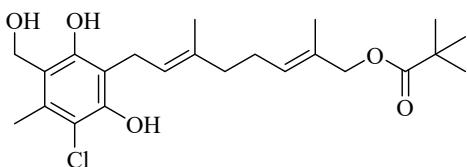
(*E*)-3-chloro-4,6-dihydroxy-2-methyl-5-(3-methylocta-2-en-1-yl)benzaldehyde



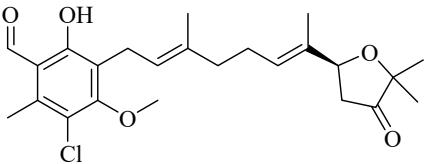
3-chloro-4,6-dihydroxy-2-methyl-5-(3-methylocta-2-en-1-yl)benzaldehyde



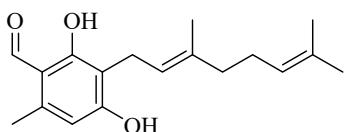
3-chloro-5-((2*E*)-7-(5,5-dimethyl-4-oxotetrahydrofuran-2-yl)-3-methylocta-2,6-dien-1-yl)-4,6-dihydroxy-2-methylbenzaldehyde



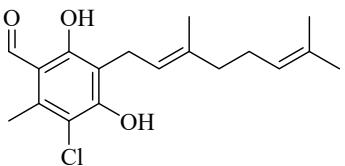
(2*E*,6*E*)-8-(3-chloro-2,6-dihydroxy-5-hydroxymethyl)-4-methylphenyl)-2,6-dimethylocta-2,6-dien-1-yl pivalate



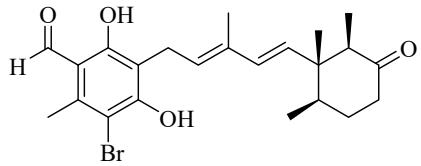
3-chloro-5-((2*E*,6*E*)-7-((*S*)-5,5-dimethyl-4-oxotetrahydrofuran-2-yl)-3-methylocta-2,6-dien-1-yl)-6-hydroxy-4-methoxy-2-methylbenzaldehyde



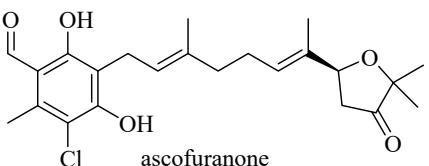
collectorin B



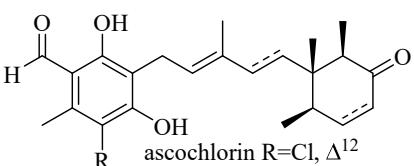
(*E*)-3-chloro-5-(3,7-dimethylocta-2,6-dien-1-yl)-4,6-dihydroxy-2-methylbenzaldehyde



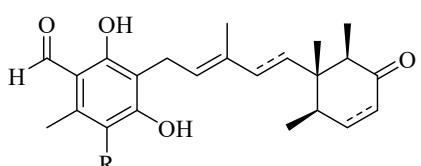
3-bromoascochlorin



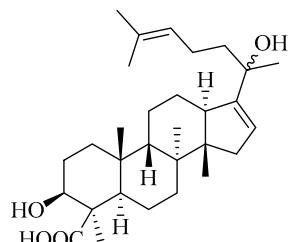
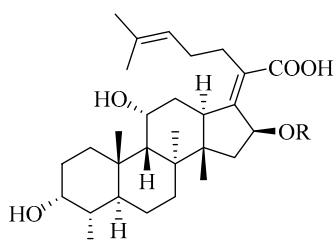
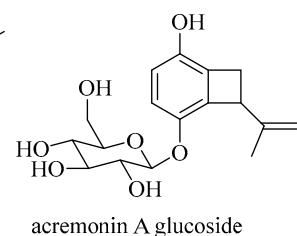
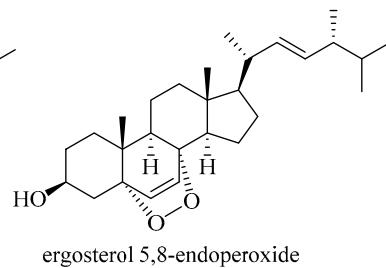
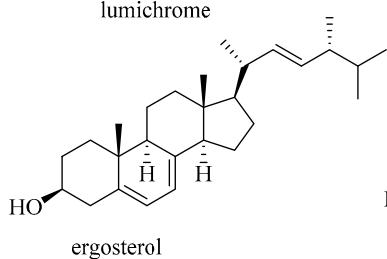
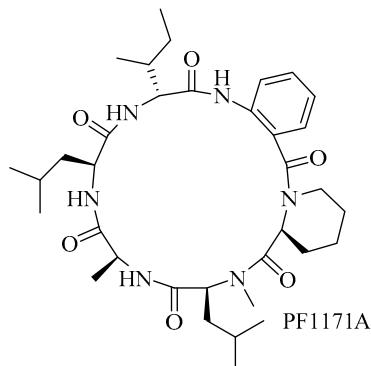
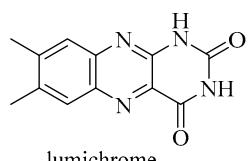
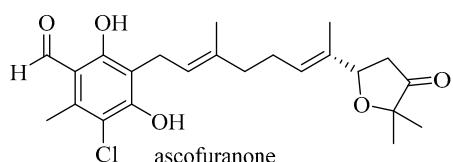
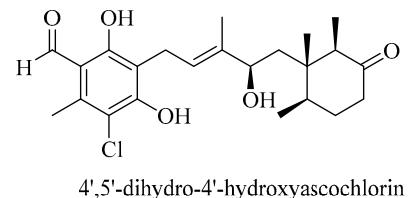
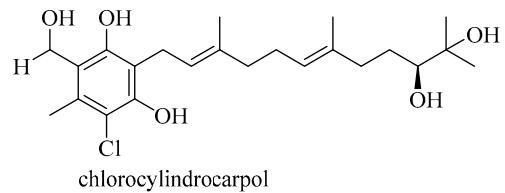
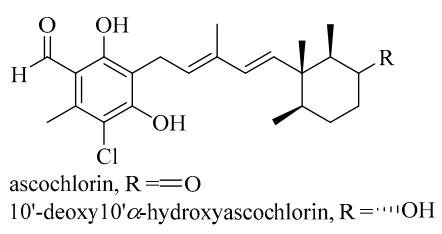
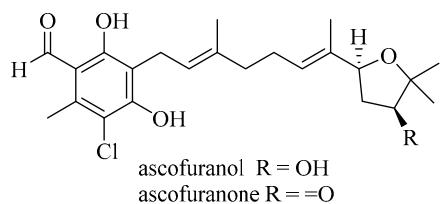
ascofuranone



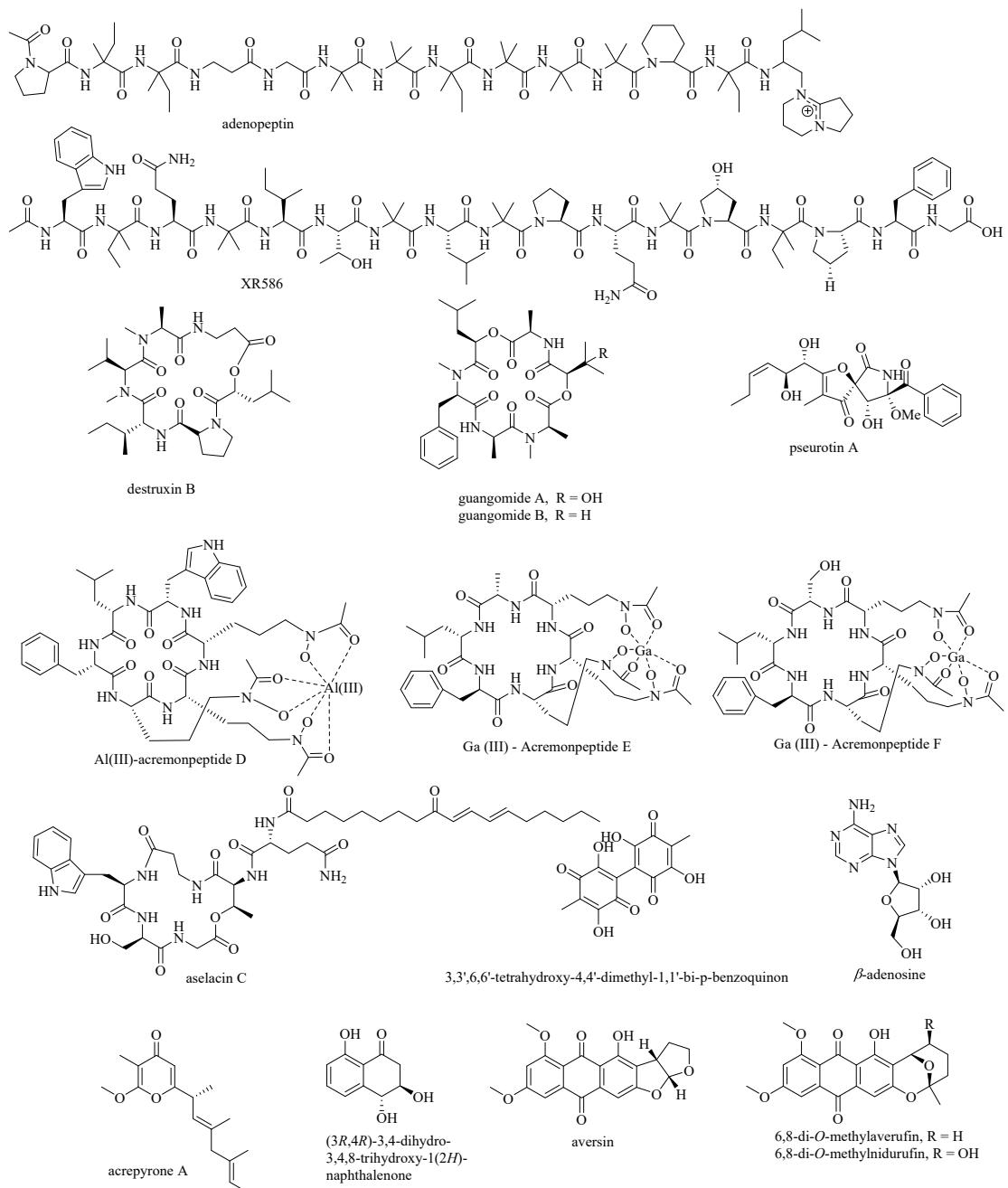
ascochlorin R=R=Cl, Δ^{12}
cylindrol B R=H, Δ^{12}
ilicicolin E R=Cl, $\Delta^{12, 16}$
ilicicolin C R=Cl
LL-Z1272 ε R=H

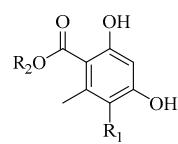


10'-deoxy-10'a-hydroxyascochlorin

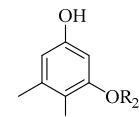


fusidic acid, $\text{R} = \text{Ac}$
16-desacetyl fusidic acid, $\text{R} = \text{H}$

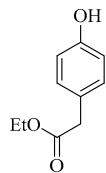




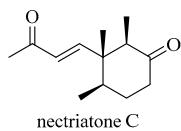
ethyl orsellinate, R₁ = H, R₂ = Et
5-chloroorsellinic acid, R₁ = Cl, R₂ = H



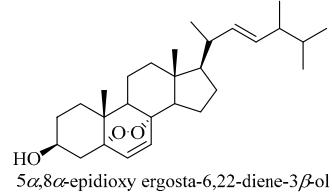
Orcinol R₁ = H, R₂ = H
O-methylorcinol, R₁ = H, R₂ = Me
2-chloro-3,5-dihydroxytoluene, R₁ = Cl, R₂ = H



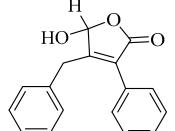
(3*S*)-3,5-dimethyl-8-methoxy-3,4-dihydro-1*H*isochromen-6-ol
ethyl 4-hydroxyphenylacetate



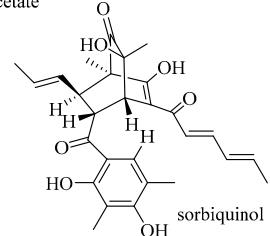
nectriatone C



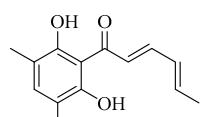
5α,8α-epidioxy ergosta-6,22-diene-3β-ol



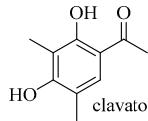
micropurfanone



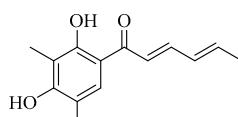
sorbiquinol



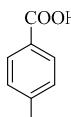
(2*E*,4*E*)-1-(2,6dihydroxy-3,5-dimethyl-phenyl)hexa-2,4-dien-1-one



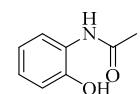
clavatol



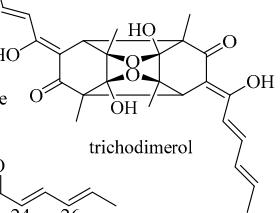
sorbicillin



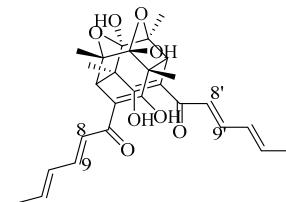
4-hydroxybenzoic acid



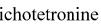
N-(2-hydroxyphenyl)-acetamide



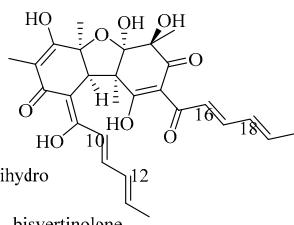
trichodimerol



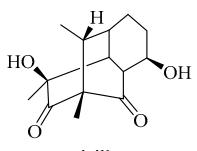
dihydrotrichodimerol: 8,9-dihydro
tetrahydrotrichodimerol: 8,9-dihydro 8',9'-dihydro



trichotetronine
dihydrotrichotetronine : 24, 25-dihydro
10,11-dihydrobislongiquinolide : 18, 19-dihydro
10,11,16,17tetrahydrobislongiquinolide : 18, 19-dihydro, 24, 25-dihydro



bisvertolinone
dihydrobisvertolinone : 16, 17-dihydro
tetrahydrobisvertolinone : 10, 11-dihydro, 16, 17-dihydro



penicillione B

