Table S1. Sequence alignment results of twenty-eight strains. Closest relative identification showing high sequence similarity according to NCBI GenBank by BLAST are displayed.
Table S2. Mass spectral information of differential compounds in secondary metabolites of marine fungi analysed based on UPLC-QTOF-MS technique.
Figure S1. Possible fragmentation pathway of the structure of **compounds 1-8.**

Figure S2. Possible fragmentation pathway of the structure of **compounds 9-16.**

Figure S3. Possible fragmentation pathway of the structure of **compounds 17-23.**

Table S1. Sequence alignment results of twenty-eight strains. Closest relative identification showing high sequence similarity according to NCBI GenBank by BLAST are displayed.

Strain number	Sequence length	Accession number	Closest relative in NCBI GenBank	Sequence similarity %	Order
P-WZ1	581	OK315644	*Curvularia* sp. 3 YHY-2018	100	*Curvularia* sp.
P-WZ2	562	OK315664	*Alternaria alternata* KU20017.1	100	*Alternaria* sp.
P-WZ3-1	535	OK316146	*Fusarium oxysporum* N-61-2	100	*Fusarium* sp.
P-WZ3-2	564	OK316148	*Fusarium oxysporum* R97208	100	*Fusarium* sp.
P-WZ4	545	OK316147	*Neopestalotiopsis rosae* KoRLI046308	100	*Neopestalotiopsis* sp.
P-WZ5	598	OK316891	*Pestalotiopsis* sp. Y. H. Yeh I1005	100	*Pestalotiopsis* sp.
P-WZ6	539	OK316900	*Fusarium oxysporum* N-19-2	100	*Fusarium* sp.
P-WZ10	537	OK316920	*Lasiodiplodia Pseudotheobromae* KoRLI047143	100	*Lasiodiplodia* sp.
P-WZ11	613	OK316970	*Trichoderma harzianum* ASF-T10	100	*Trichoderma* sp.
P-WZ13	540	OK317238	*Fusarium oxysporum* SF-942	100	*Fusarium* sp.
P-WS18-1	583	OK317395	*Arthrinium intestini* CBS 135835	99.13	*Arthrinium* sp.
P-WS18-2	586	OK317689	*Arthrinium* sp. GU071007	99.13	*Arthrinium* sp.
M-WS19	550	OK317702	*Aspergillus chevalieri* DTO 401-E8	100	*Aspergillus* sp.
M-WS24	624	OK318456	*Rhodotorula mucilaginosa* CBS:316	100	*Rhodotorula* sp.
M-WS25-1	602	OK319053	*Trichoderma sulphureum* SF-974	100	*Trichoderma* sp.
M-WS25-2	605	OK323230	*Trichoderma* sp. ZMQRS9	100	*Trichoderma* sp.
M-WS26	574	OK321188	*Penicillium senticosum* F1	99.83	*Penicillium* sp.
Y-WS27	605	OK323141	*Aspergillus terreus* SF-917	100	*Aspergillus* sp.
Y-WS28	548	OK323136	*Nigrospora sphaerica* 06	100	*Nigrospora* sp.
P4	545	OK323137	*Nigrospora aurantiaca* KoRLI047350	100	*Nigrospora* sp.
P3	599	OK323144	*Pestalotiopsis* sp. SC5A8	100	*Pestalotiopsis* sp.
P56	613	OK323139	*Rhodotorula mucilaginosa* CD18Y	100	*Rhodotorula* sp.
P341	602	OK323146	*Aspergillus terreus* CY229	99.83	*Aspergillus* sp.
P342	589	OK323143	*Curvularia clavata* M5	100	*Curvularia* sp.
P-L1	578	OK323138	*Talaromyces* sp. ERR11-7	100	*Talaromyces* sp.
P-L2	559	OK323242	*Fusarium* sp. YZ7-10	99.09	*Fusarium* sp.
M-L3	592	OK323142	*Diaporthe discoidispora* NKDL-2-3	99.65	*Diaporthe* sp.
M-L4	572	OK323145	*Talaromyces oumae-annae* SF-976	100	*Talaromyces* sp.

Table S2. Mass spectral information of differential compounds in secondary metabolites of marine fungi analysed based on UPLC-QTOF-MS technique.

Crude extract	NO.	Rt (min)	Mass (m/z)	ppm error	Molecular Formula	Fragment Ions (MS_2)	MS_2 molecular formula	Name of compound	Activity	Reference
P-WZ-2-1	**1**	9.169	706.3923	0.013	$C_{37}H_{51}N_7O_7$	237.212 348.179 371.181	$C_{14}H_{23}NO_2^+$ $C_{19}H_{30}N_3O_3^+$ $C_{19}H_{23}N_4O_4^+$	enamidonin	antibacterial	[1]
	2	14.061	462.2387	0.002	$C_{27}H_{31}N_3O_4$	252.029 387.214 444.240	$C_{17}H_{18}NO^+$ $C_{25}H_{27}N_2O_2^+$ $C_{26}H_{26}N_3O_4^+$	notoamide F	-	[2,3]
	3	18.047	507.3680	0.002	$C_{30}H_{50}O_6$	211.095 279.232 319.224 321.241	$C_{13}H_{23}O_2^+$ $C_{17}H_{27}O_3^+$ $C_{21}H_{35}O_2^+$ $C_{19}H_{29}O_4^+$	penicisteroid G	anticancer	[4]
	4	24.343	633.3997	0.068	$C_{36}H_{56}O_9$	135.115 163.037 493.402	$C_5H_{11}O_4^+$ $C_6H_{11}O_5^+$ $C_{28}H_{45}O_7^+$	oligoporin B	anticancer	[5]
	5	25.601	635.4001	0.017	$C_{32}H_{58}O_{12}$	151.035 363.249 495.416 563.403	$C_5H_{11}O_5^+$ $C_{16}H_{27}O_9^+$ $C_{28}H_{47}O_7^+$ $C_{27}H_{47}O_{12}^+$	β-D-Mannopyranoside	-	[6]
P-WZ-3-2-2	**6**	9.297	852.4893	0.022	$C_{48}H_{69}NO_{12}$	89.056 176.097 646.310	$C_4H_9O_2^+$ $C_8H_{16}O_4^+$ $C_{39}H_{52}NO_7^+$	chivosazole B	cytotoxic	[7]
	7	17.187	301.1434	0.002	$C_{18}H_{20}O_4$	121.101 149.093 180.107	$C_8H_9O^+$ $C_9H_9O_2^+$ $C_{10}H_{12}O_3^+$	trichoderolide B	cytotoxic	[8]
	8	19.704	427.2479	0.002	$C_{26}H_{34}O_5$	109.100 190.019 302.145 318.140	$C_7H_9O^+$ $C_{12}H_{14}O_2^+$ $C_{19}H_{26}O_3^+$ $C_{19}H_{26}O_4^+$	cladobotric acid D	cytotoxic	[9]
P-WZ-4-4	**9**	13.358	274.2125	0.062	$C_{13}H_{27}N_3O_3$	88.075 102.091 106.086	$C_2H_6N_3O^+$ $C_5H_{12}NO^+$ $C_{10}H_{18}N_3O_2^+$	fragin	anticancer	[10-12]
	10	13.514	318.3003	0.001	$C_{18}H_{39}NO_3$	102.090 132.101 256.263 257.265	$C_4H_8NO_2^+$ $C_6H_{14}NO_2^+$ $C_{15}H_{28}O_3^+$ $C_{14}H_{27}NO_3^+$	phytosphingosine	anticancer	[13,14]
	11	15.243	453.1544	0.013	$C_{25}H_{24}O_8$	119.085 135.080 147.065	$C_8H_7O^+$ $C_8H_7O_2^+$ $C_9H_7O_2^+$	thielavin S	antibacterial	[15]
	12	18.53	312.2169	0.146	$C_{17}H_{29}NO_4$	58.064 60.081 71.085	$C_2H_4NO^+$ $C_3H_8O^+$ $C_5H_{11}^+$	penicillenol D	antibacterial	[16]

	13	20.834	512.4256	0.08	$C_{22}H_{49}N_{13}O$	102.091 256.200 257.154 283.263	$C_4H_{12}N_3^+$ $C_{11}H_{26}N_7^+$ $C_{11}H_{25}N_6O^+$ $C_{13}H_{29}N_7^+$	cabanillasin	antibacterial	[17]
	14	21.354	540.4986	0.037	$C_{33}H_{65}NO$	102.091 256.263 257.266 311.295 312.235	$C_4H_8NO_2^+$ $C_{16}H_{32}O_2^+$ $C_{16}H_{33}O_2^+$ $C_{19}H_{37}NO_2^+$ $C_{18}H_{34}NO_3^+$	suillumide	cytotoxic	[18]
P-WZ-5-3	**15**	9.768	563.2764	0.007	$C_{21}H_{38}N_8O_{10}$	147.117 216.109 435.252 445.233	$C_5H_{11}N_2O_3^+$ $C_7H_{12}N_4O_4^+$ $C_{15}H_{27}N_6O_9^+$ $C_{17}H_{31}N_7O_7^+$	(+) -(2S,3S,4R)-10-De-O-carbamoyl-12-O-carbamoyl-Nβ-acetylstreptothricin F acid	-	[19]
	16	13.526	373.1646	0.002	$C_{21}H_{24}O_6$	109.065 123.043 147.075 315.156	$C_7H_9O^+$ $C_7H_7O_2^+$ $C_9H_7O_2^+$ $C_{17}H_{15}O_6^+$	penikellides A	-	[20,21]
	17	17.27	579.2912	0.002	$C_{29}H_{42}N_2O_{10}$	74.097 117.054 499.195 577.284	$C_3H_6O_2^+$ $C_4H_7NO_3^+$ $C_{27}H_{35}N_2O_7^+$ $C_{29}H_{41}N_2O_{10}^+$	(4R)-4,5-Dihydro-4-hydroxygeldanamycin	cytotoxic	[22]
	18	17.714	743.4338	0.015	$C_{38}H_{58}N_6O_9$	382.241 389.156 360.136	$C_{19}H_{33}N_3O_5^+$ $C_{20}H_{27}N_3O5^+$ $C_{19}H_{26}N_3O_4^+$	brintonamide B	-	[23]
P-56-2	**19**	10.915	334.2741	0.000	$C_{21}H_{35}NO_2$	91.054 228.231 242.212 272.258	$C_7H_7^+$ $C_{13}H_{26}NO_2^+$ $C_{14}H_{28}NO_2^+$ $C_{19}H_{30}N^+$	preussin I	-	[24]
	20	17.175	279.1590	0.002	$C_{16}H_{22}O_4$	57.070 149.023 150.027	$C_3H_5O^+$ $C_8H_5O_3^+$ $C_8H_6O_3^+$	cytosporone C	cytotoxic	[25,26]
P-341-2	**21**	10.578	246.1700	0.073	$C_{12}H_{23}NO_4$	88.075 102.091 202.215 229.235	$C_4H_8O_2^+$ $C_5H_{10}O_2^+$ $C_9H_{16}NO_4^+$ $C_{11}H_{19}NO_4^+$	3-hydroxy-*N*-(1-hydroxy-3-methylpentan-2-yl)-5-oxohexanamide	-	[27]
	22	16.821	335.2217	0.002	$C_{20}H_{30}O_4$	113.093 195.10 251.094 308.200	$C_7H_{13}O^+$ C11H15O3$^+$ $C_{15}H_{23}O_3^+$ $C_{18}H_{28}O_4^+$	eutypellone A	-	[28]
	23	17.27	361.2221	0.001	$C_{18}H_{32}O_7$	129.018 207.062 211.061 268.123	$C_5H_5O_4^+$ $C_7H_{11}O_7^+$ $C_{13}H_{23}O_2^+$ $C_{14}H_{20}O_5^+$	CJ-13，982	-	[29]

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Supplementary Figures. Possible fragmentation pathways of **compounds 1-23.**

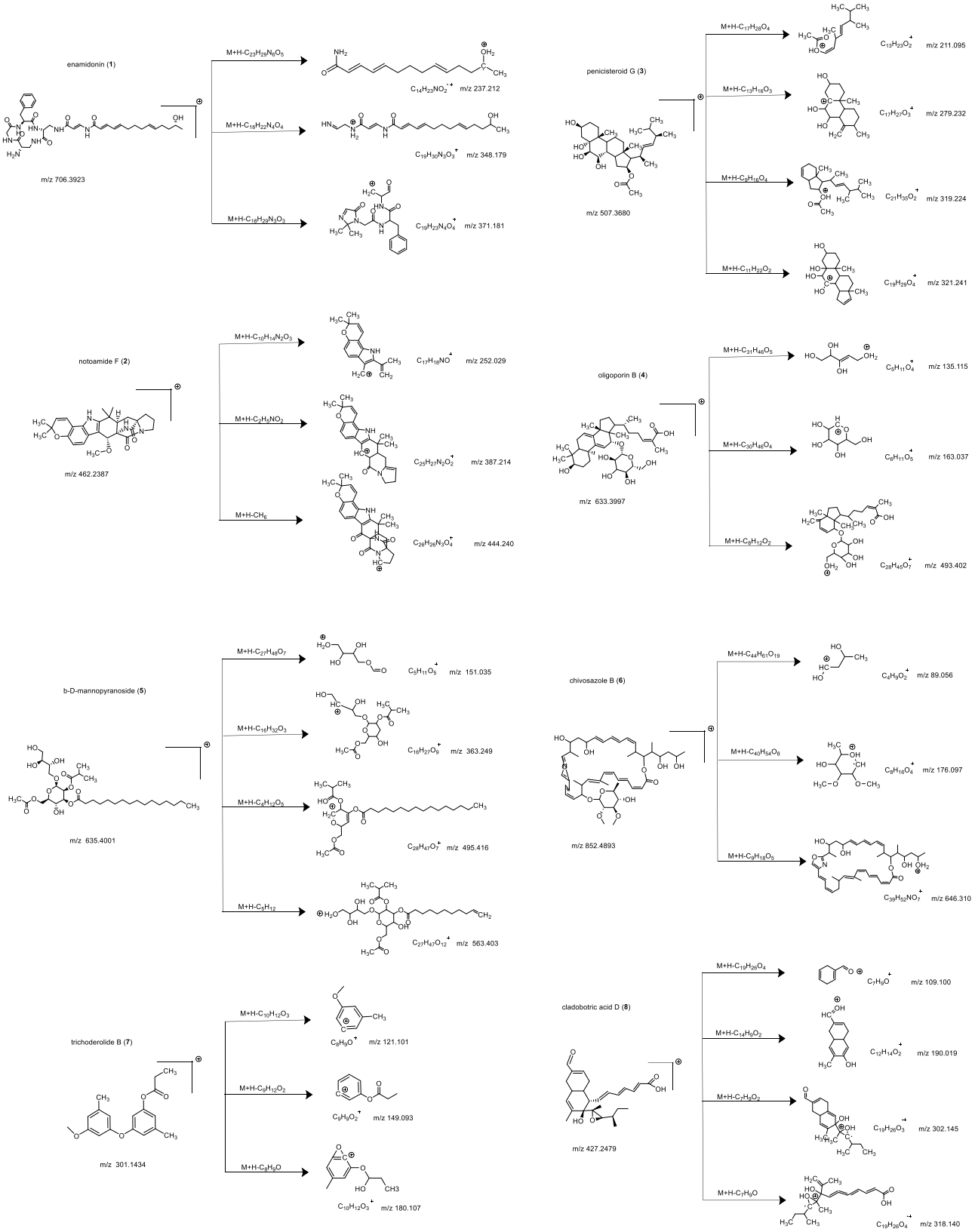

Figure S1. Possible fragmentation pathways of the structure of compounds **1-8.**

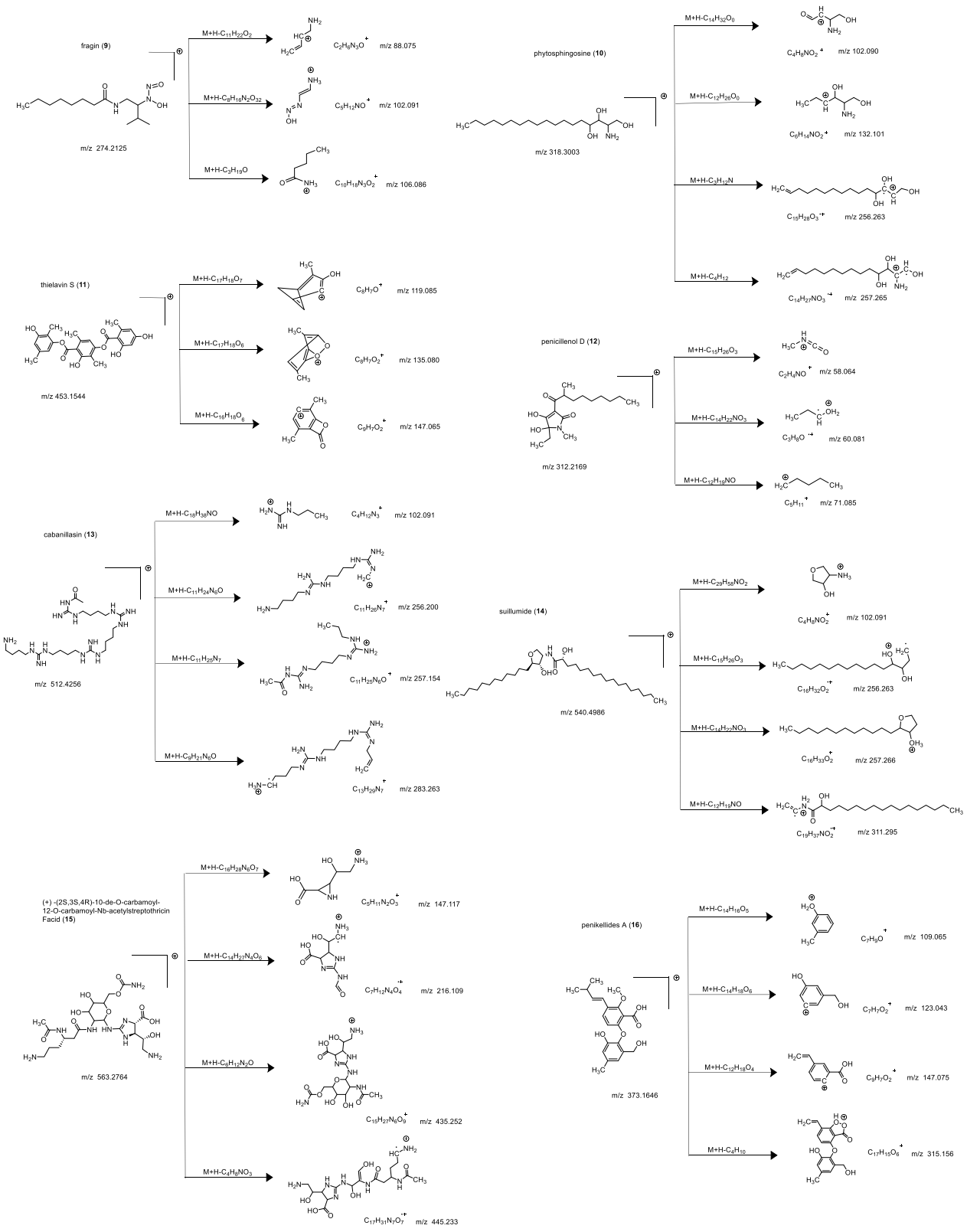

Figure S2. Possible fragmentation pathways of the structure of compounds **9-16.**

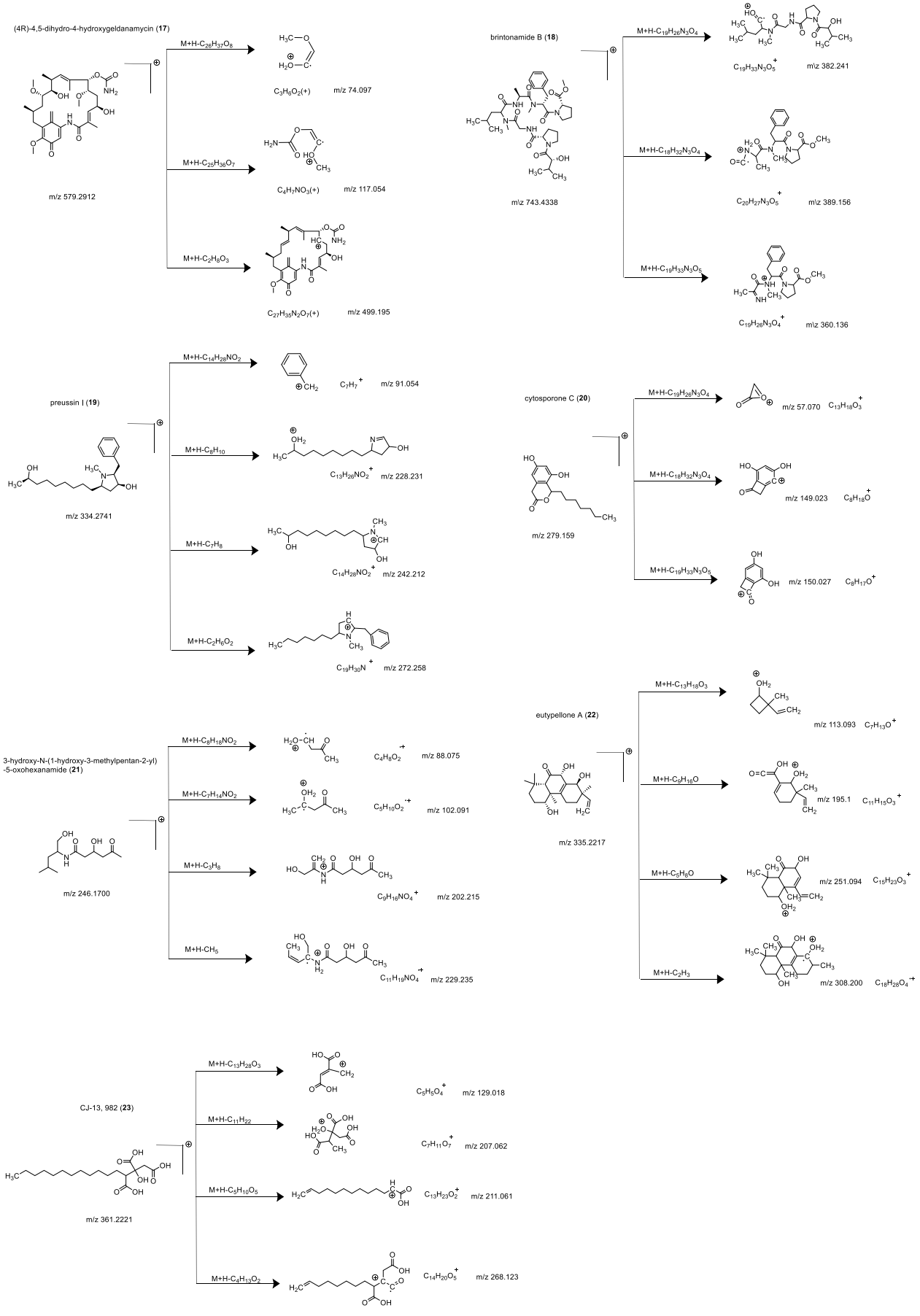

Figure S3. Possible fragmentation pathways of the structure of compounds **17-23.**