Supporting Information for

Secondary Metabolites of the Genus *Didemnum*: A Comprehensive Review of Chemical Diversity and Pharmacological Properties

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NOTE: In all below tables, yellow highlight indicates that the method used bioassay-guided fractionation.

Table S1. Compounds with antitumor/anticancer and antiproliferative activities**.**

Compound Name	Chemical Class	Source organism/Location	Solvent of Extraction	Purification of the compounds	Structural Determination	Ref.
Lamellarin-ζ (69)	Alkaloid	*Didemnum obscurum* / Tiruchandur coast in the Gulf of Mannar, Tamilnadu, India	MeOH	-TLC, CC (silica gel), GFC-Sephadex LH-20, C18 HPLC	-UV, IR, MS, and 1D NMR (^{1}H, ^{13}C) 2D NMR (HMQC, HMBC, NOESY)	33
Lamellarin-η (70)	Alkaloid	*Didemnum obscurum* / Tiruchandur coast in the Gulf of Mannar, Tamilnadu, India	MeOH	-TLC, CC (silica gel), GFC-Sephadex LH-20, C18 HPLC	-UV and IR, MS, 1D NMR (^{1}H, ^{13}C) and 2D NMR (HMQC, HMBC, NOESY)	33
Lamellarin-φ (71)	Alkaloid	*Didemnum obscurum* / Tiruchandur coast in the Gulf of Mannar, Tamilnadu, India	MeOH	-TLC, CC (silica gel), GFC-Sephadex LH-20, C18 HPLC	-UV and IR, MS, 1D (^{1}H, ^{13}C) and 2D NMR (HMQC, HMBC, NOESY)	33
Lamellarin-χ (72)	Alkaloid	*Didemnum obscurum* / Tiruchandur coast in the Gulf of Mannar, Tamilnadu, India	MeOH	-TLC, CC (silica gel), GFC-Sephadex LH-20, C18 HPLC	-UV and IR spectra, MS, 1D NMR (^{1}H and ^{13}C) and 2D NMR (HMQC, HMBC, NOESY)	33
		Didemnum sp. / Wasp Island, New South Wales	Aqueous EtOH	-LLPC and HPLC-UV-DAD	-UV, HRMS, 1D (^{1}H, ^{13}C) and 2D NMR (HMQC, HMBC, NOESY)	34
Lamellarin K (74)	Alkaloid	*Didemnum* sp. / Wasp Island, New South Wales	Aqueous EtOH	-LLPC, HPLC-UV-DAD	-UV, HRMS, 1D (^{1}H and ^{13}C) and 2D NMR (HMQC, HMBC, NOESY)	34
		Dark purple encrusting colonies of *Didemnum* sp. / South West Cay, Lihou Reef, off the North Queensland coast	MeOH/CH_2Cl_2	-VLC (silica gel) and RP HPLC	-HREIMS, 1D (1H, ^{13}C, INEPT and NOE) and 2D NMR (XHCORRD, HMQC, COLOC)	35
		Didemnum obscurum / Tiruchandur coast in the Gulf of Mannar, Tamilnadu, India	MeOH	-TLC, CC (silica gel), GFC-Sephadex LH-20, C18 HPLC	-UV, IR, MS, 1D (^{1}H, ^{13}C) and 2D NMR (HMQC, HMBC, NOESY)	33
		Didemnum sp. / Australia	EtOH	-LLP, GPC-Sephadex LH-20, C18-Sep Pak, RP HPLC	-UV, HRMS, 1D (^{1}H, ^{13}C) and 2NMR (HETCOR, COLOC, COSY)	36
Lamellarin J (76)	Alkaloid	*Didemnum obscurum* / Tiruchandur coast in the Gulf of Mannar, Tamilnadu, India	MeOH	-TLC, CC (silica gel) (GFC-Sephadex LH-20), C18 HPLC	UV, IR, MS, 1D (^{1}H, ^{13}C) and 2D NMR (HMQC, HMBC, NOESY)	33
		Didemnum sp. / West Cay, Lihou Reef, off the North Queensland coast	MeOH/CH_2Cl_2	-VLC (silica gel) and RP HPLC	-HREIMS, 1D (^{1}H, ^{13}C, INEPT and NOE) and 2D NMR (XHCORRD, HMQC and COLOC)	35

Lamellarin K triacetate (77)	Alkaloid	*Didemnum obscurum* / Tiruchandur coast in the Gulf of Mannar, Tamilnadu, India	MeOH	-TLC, CC (silica gel), GFC-Sephadex LH-20, C18 HPLC	-UV, IR, MS, 1D (^{1}H, ^{13}C) and 2D NMR (HMQC, HMBC, NOESY)	[33]
Lamellarin L triacetate (78)	Alkaloid	*Didemnum obscurum* / Tiruchandur coast in the Gulf of Mannar, Tamilnadu, India	MeOH	-TLC, CC (silica gel), GFC-Sephadex LH-20, C18 HPLC	-UV, IR, MS, 1D (^{1}H, ^{13}C) and 2D NMR (HMQC, HMBC, NOESY)	[33]
Lamellarin F (73)	Alkaloid	*Didemnum obscurum* / Tiruchandur coast in the Gulf of Mannar, Tamilnadu, India	MeOH	-TLC, CC (silica gel), GFC-Sephadex LH-20, C18 HPLC	-UV, IR, MS, 1D (^{1}H, ^{13}C) and 2D NMR (HMQC, HMBC, NOESY)	[33]
Lamellarin T diacetate (79)	Alkaloid	*Didemnum obscurum* / Tiruchandur coast in the Gulf of Mannar, Tamilnadu, India	MeOH	-TLC, CC (silica gel, GFC-Sephadex LH-20, C18 HPLC	-UV, IR, MS, 1D (^{1}H, ^{13}C) and 2D NMR (HMQC, HMBC, NOESY)	[33]
Lamellarin S (87)	Alkaloid	*Didemnum* sp. / Wasp Island, New South Wales	Aqueous EtOH	-LLPC, and HPLC-UV-DAD	-UV, HRMS, 1D (^{1}H, ^{13}C) and 2D NMR (HMQC, HMBC, NOESY)	[34]
		Didemnum sp. / Australia	EtOH	LLPC, GPC-Sephadex LH-20, C18-Sep Pak, RP HPLC	-UV, HRMS, 1D (^{1}H, ^{13}C) and 2NMR (HETCOR, COLOC, COSY)	[36]
Lamellarins A1-A3 (80-82)	Alkaloid	*Didemnum* sp. / Wasp Island, New South Wales	Aqueous EtOH	-LLPC, and HPLC-UV-DAD	-UV, HRMS, 1D (^{1}H, ^{13}C) and 2D NMR (HMQC, HMBC and NOESY)	[34]
Lamellarin E (59)	Alkaloid	*Didemnum* sp. / Wasp Island, New South Wales	Aqueous EtOH	-LLPC, and HPLC-UV-DAD	-UV, HRMS, 1D (^{1}H, ^{13}C) and 2D NMR (HMQC, HMBC, NOESY)	[34]
		Didemnum chartaceum / Australia	MeOH	-LLPC, Sephadex LH-20, NP HPLC, RP HPLC, C18 SPE cartridge	-UV, IR, HRESMS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HSQC, HMBC, ROESY)	[32]
Lamellarin M (86)	Alkaloid	*Didemnum* sp. / Wasp Island, New South Wales	Aqueous EtOH	-LLPC, and HPLC-UV-DAD	-UV, HRMS, 1D (^{1}H, ^{13}C) and 2D NMR (HMQC, HMBC, NOESY)	[34]
		Dark purple colonies of *Didemnum* sp. / South West Cay, Lihou Reef, off the North Queensland coast	MeOH/CH_2Cl_2	-VLC (silica gel) and RP HPLC	HREIMS, 1D (^{1}H, ^{13}C, INEPT, NOE) and 2D NMR (XHCORRD, HMQC, COLOC)	[35]
Lamellarin A6 (85)	Alkaloid	*Didemnum* sp. / Northern Rottnest Shelf, Western Australia	Aqueous EtOH	-LLPC, HPLC-UV-DAD	-UV, HRMS, 1D (^{1}H, ^{13}C) and 2D NMR (HMQC, HMBC, NOESY)	[34]
		Didemnum sp. / Northern Rottnest Shelf, Western Australia	EtOH	-LLP, RP HPLC	-UV, HRMS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, ROESY, HMBC).	[82]
Lamellarin L (61)	Alkaloid	Dark purple colonies of *Didemnum* sp. / South West Cay, Lihou Reef, off the North Queensland coast	MeOH/CH_2Cl_2	-VLC (silica gel), RP HPLC	-HREIMS, 1D (^{1}H, ^{13}C, INEPT and NOE) and 2D NMR (XHCORRD, HMQC, COLOC)	[35]
		Didemnum chartaceum / Australia	MeOH	-LLPC, Sephadex LH20, RP HPLC, NP HPLC, C18 SPE cartridge	-UV, IR, HRESMS,1D (^{1}H, ^{13}C) and 2D NMR, (COSY, HSQC, HMBC, ROESY)	[32]
		Purple encrusting *Didemnum* sp. / Indian Ocean	70% MeOH/$CHCl_3$	-LLPC, GFC (Sephadex LH-20, Spectra Gel HW-40), RP HPLC	-IR, UV, LRMS and HRMS of DEI and FAB 1D (^{1}H, ^{13}C) and 2D NMR (DQFCOSY, HMQC, HMBC, NOESY)	[37]

Lamellarin β (90)	Alkaloid	Purple encrusting *Didemnum* sp. / Indian Ocean	70% MeOH/$CHCl_3$	-LLPC, GFC (Sephadex LH20, Spectra Gel HW-40), RP HPLC	-IR, UV, LRMS, HRMS of DEI, FABMS, 1D (^1H, ^{13}C) and 2D NMR (DQFCOSY, HMQC, HMBC, NOESY)	[37]
Lamellarin K-20-sulfate (91)	Alkaloid	*Didemnum ternerratum* / Kingdom of Tonga	MeOH	-CC (RP, HP20 and HP20ss) and C18 HPLC	- UV, HRESIMS, 1D (1H and 13C) and 2D NMR (COSY, HMBC and ROESY).	[38]
Lamellarin E-20-sulfate (92)	Alkaloid	*Didemnum ternerratum* / Kingdom of Tonga	MeOH	-CC (RP, HP20 and HP20ss) and C18 HPLC	- UV, HRESIMS, 1D (1H and 13C) and 2D NMR (COSY, HMBC and ROESY).	[38]
Lamellarin A3-20-sulfate (93)	Alkaloid	*Didemnum ternerratum* / Kingdom of Tonga	MeOH	-CC (RP, HP20 and HP20ss) and C18 HPLC	- UV, HRESIMS, 1D (1H and 13C) and 2D NMR (COSY, HMBC and ROESY).	[38]
Lamellarin B1-20-sulfate (94)	Alkaloid	*Didemnum ternerratum* / Kingdom of Tonga	MeOH	-CC (RP, HP20 and HP20ss) and C18 HPLC	- UV, HRESIMS, 1D (1H and 13C) and 2D NMR (COSY, HMBC and ROESY).	[38]
Lamellarin D-8-sulfate (95)	Alkaloid	*Didemnum ternerratum* / Kingdom of Tonga	MeOH	-CC (RP, HP20 and HP20ss) and C18 HPLC	- UV, HRESIMS, 1D (1H and 13C) and 2D NMR (COSY, HMBC and ROESY).	[38]
Lamellarin B2-20-sulfate (96)	Alkaloid	*Didemnum ternerratum* / Kingdom of Tonga	MeOH	-CC (RP, HP20 and HP20ss) and C18 HPLC	- UV, HRESIMS, 1D (1H and 13C) and 2D NMR (COSY, HMBC and ROESY).	[38]
Granulatimide (101)	Alkaloid	*Didemnum granulatum*/ Brazil	MeOH	-CC Sephadex LH20, RP HPLC	- UV, IR, HRFABMS, 1D (^1H, ^{13}C, NOE) and 2D NMR (COSY, HMQC, HMBC)	[40, 41]
Isogranulatimide (102)	Alkaloid	*Didemnum granulatum* / Brazil	MeOH	-CC Sephadex LH20, RP HPLC	-UV, IR, HRFABMS, 1D (^1H, ^{13}C, NOE) and 2D NMR (COSY, HMQC, HMBC)	[40]
6-Bromogranulatimide (104)	Alkaloid	*Didemnum granulatum* / Brazil	MeOH followed by DMF	-FLC (Silica gel), NP HPLC	-HRFABMS, UV, IR, 1D (^1H, ^{13}C) and 2D NMR (HMQC, HMBC)	[41]
Didemnolines A-C (105-107)	Alkaloid	*Didemnum* sp. / Island of Rota, Northern Mariana Islands	MeOH	-FLC (Silica gel), NP HPLC	-IR, UV, HREIMS, 1D (^1H ,^{13}C, NOE) and 2D NMR (HMBC)	[42]
Bengacarboline (113)	Alkaloid	*Didemnum* sp. / Fiji	MeOH	-LLP, CC (Sephadex LH-20, C18 RP)	-IR, UV, FABHRMS, 1D (^1H, ^{13}C) and 2D NMR (COSY, TOCSY, HMQC, HMBC)	[44]
Fascaplysin (114)	Alkaloid	*Didemnum* sp. / Micronesia	MeOH/CH_2Cl_2 (1:1)	-LLP, CC (Silica gel), RP HPLC	-FABHRMS, 1D (^1H and ^{13}C), 2D NMR (COSY, HMQC, HMBC, NOESY)	[45]
		Didemnum sp. / Fiji	MeOH	-LLP, CC (Sephadex LH-20, C-18)	-IR, UV, FABHRMS, 1D (^1H and ^{13}C) and 2D NMR (COSY, TOCSY, HMQC HMBC)	[44, 78]
3-Bromofascaplysin (115)	Alkaloid	*Didemnum* sp. / Micronesia	MeOH/CH_2Cl_2 (1:1)	-LLP, CC (Silica gel), RP HPLC	-FABHRMS, 1D (^1H and ^{13}C), 2D NMR (COSY, HMQC, HMBC, NOESY)	[45]
Mollamide (122)	Cyclic peptide / cyanobactin	*Didemnum molle* / Net Reef, in the central section of the Great Barrier Reef, Australia	MeOH/CH_2Cl_2	-CC (silica gel), RP HPLC	-IR, HRESIMS, 1D (^1H, ^{13}C, and DEPT) and 2D NMR (COSY, HMBC NOESY), X-ray crystallographic study	[46]
Mollamide C (124)	Cyclic peptide / cyanobactin	*Didemnum molle* / Indonesia	H_2O	-VLC (Silica gel), NP and RP HPLC	-UV, IR, HRESIMS, 1D (^1H and ^{13}C) 2 D NMR (COSY, HMQC, ROESY, HMBC)	[47]

Keenamide A (125)	Cyclic peptide / cyanobactin	*Didemnum molle* / Indonesia	H_2O	-VLC (Silica gel), NP and RP HPLC	-UV, IR, HRESIMS, 1D (^{1}H and ^{13}C) and 2 D NMR (COSY, HMQC, ROESY, HMBC)	[47]
Shishijimicins A-C (126-128)	Polyketides / enediynes	*Didemnum proliferum* / Southern Japan	MeOH and EtOH	-LLPC, and RP HPLC	-HRFABMS, 1D (^{1}H and ^{13}C) and 2D NMR (COSY, HOHAHA, HMBC, HMQC and NOESY)	[48]
Namenamicin (129)	Polyketide / enediynes	*Didemnum proliferum* / Southern Japan	MeOH and EtOH	-LLPC, RP HPLC	-HRFABMS, 1D (^{1}H and ^{13}C) and 2D NMR (COSY, HOHAHA, HMBC, HMQC, NOESY)	[48]
Plakinidine D (130)	Alkaloid / pyrroloacridine	*Didemnum rubeum* / Island of Rota, Northern Mariana Islands	EtOH MeOH	-TLC, LLP, FLC (Silica gel)	-UV, IR, HREIMS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, INADEQUATE, HMBC)	[49, 50]
Ascididemin (131)	Alkaloid / Pyridoacridine	*Didemnum* sp. / Okinawa, Japan	MeOH	-LLP, CC (silica gel)	-UV, IR, HRFABM, EIMS,1D (^{1}H, ^{13}C, NOE) and 2D NMR (COLOC)	[51]
		Didemnum rubeum / The Republic of Palau	MeOH	-CC (silica gel, Sephadex LH-20)	-UV, IR, HREIMS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HMBC)	[50]
		Red *Didemnum* sp. / Indonesia	MeOH	-CC (silica gel and LH-20)	-UV, IR, HREIMS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HMBC)	[50]
Methyl myristate (139)	Fatty acid methyl ester	*Didemnum psammatodes* / Intertidal zone of the beach rocks at Flexeiras Beach, Brazil	MeOH	-CC (silica gel and LH-20), RP HPLC (C18) and GC	-IR-FT, 1D (^{1}H, ^{13}C) and 2D NMR	[53]
Methyl palmitate (140)	Fatty acid methyl ester	*Didemnum psammatodes* / Intertidal zone of the beach rocks at Flexeiras Beach, Brazil	MeOH	-CC (silica gel, LH-20), C18 HPLC, GC	-IR-FT, 1D NMR (^{1}H, ^{13}C) and 2D NMR	[53]
Methyl stearate (141)	Fatty acid methyl ester	*Didemnum psammatodes* / Intertidal zone of the beach rocks at Flexeiras Beach, Brazil	MeOH	-CC (silica gel, LH-20), RP HPLC (C18) and GC	-IR-FT, 1D NMR (^{1}H, ^{13}C) and 2D NMR	[53]
Eusynstyelamide B (142)	Bis-indole alkaloid	*Didemnum candidum* / Great Barrier Reef, Australia	CH_2Cl_2/MeOH	-Semi-preparative C18 RP HPLC	-CD, MS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HSQC, HMBC)	[54]
Vitilevuamide (143)	Bicyclic depsipeptide	*Didemnum cuculliferum* / Namenalala Island, Fiji	MeOH	-FLC (silica gel), RP FLC, and RP HPLC	-UV, IR, HRMS, 1D (^{1}H ,^{13} C, DEPT) and 2D NMR (DQF COSY, COSY, TOCSY, HMQC, HMBC)	[55]
Didemnenones C and D (144 and 145)	Fatty acid or polyketide / yclopentenones	*Didemnum voeltzkowi* / Fringing reef, Suva Harbor, Fiji	MeOH	-LLP and CC (Sephadex LH-20)	-UV, IR, HRMS, 1D NMR (^{1}H, ^{13}C)	[56]
Didemnilactones A and B (146 and 147)	Fatty acid / 10-membered ring lactone	*Didemnum moseleyi* / Ago Bay, Mie Prefecture, Japan	MeOH	-CC (silica gel and alumina), RP HPLC	-UV, IR, HRESIMS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HMQC)	[57]
Neodidemnilactone (148)	Fatty acid	*Didemnum moseleyi* / Ago Bay, Mie Prefecture, Japan	MeOH	-CC (silica gel and alumina), RP HPLC	-UV, IR, HRESIMS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HMQC)	[57]
Cyclodidemnamide (149)	Cyclic peptide / cyanobactin	*Didemnum molle* / Philippines	30% CH_2Cl_2 in MeOH	-LLP, CC (silica gel, LH-20), RP HPLC	-UV, IR, GC-MS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HMBC, HMQC, ROSY)	[58]

Comoramides A and B (152 and 153)	Cyclic peptide / cyanobactin	*Didemnum molle* / Mayotte	$CHC1_3$/MeOH (1:2)	-VLC (silica gel)	-FT-IR, HRMS, 1D (^1H, ^{13}C) and 2D NMR (COSY, TCOSY, HMBC, NOESY)	[59]
Mayotamides A and B (150 and 151)	Cyclic peptide / cyanobactin	*Didemnum molle* / Mayotte	$CHC1_3$/MeOH (1:2)	-VLC (silica gel)	-FT-IR, HRMS, 1D (^1H, ^{13}C) and 2D NMR (COSY, TCOSY, HMBC, NOESY)	[59]
Caledonin (154)	Peptide	*Didemnum rodriguesi* / Baie des Citrons, New Caledonia	MeOH	-LLP, CC (Silica gel, Sephadex LH-20), RP HPLC	-UV, IR, HRMS, FABMS, 1D (^1H, ^{13}C, DEPT) and 2D NMR (DQF-COSY, TOCSY, HMQC, ROSY	[60]
Hexamollamide (161)	Cyclic peptide / cyanobactin	*Didemnum molle* / Okinawa, Japan	MeOH	-LLP, RP CC (ODS), RF HPLC and Chiral HPLC	-ESIMS, 1D (^1H, ^{13}C) and 2D NMR (COSY, HSQC, HMBC)	[62]

Table S2. Compounds with antimicrobial activities.

Compound Name	Chemical Class	Source organism / Location	Solvent of Extraction	Purification of the Compounds	Structural Determination	Ref.
Rodriguesines A and B (162 and 163)	Peptide / diketopiperazine	*Didemnum* sp. / Salvador, Brazil	MeOH	-CC (C18, Sephadex LH-20), RP HPLC	-UV, IR, HRESIMS, 1D NMR (^{1}H, ^{13}C) and 2D NMR (COSY, HMQC, HMBC)	63
Didemnaketals A and B (179 and 180)	Polyketide / spiroketal	*Didemnum* sp. / Auluptagel Island, Palau	CH_2Cl_2/MeOH (1:1)	-Sephadex LH-20, RP HPLC	-IR, HRFABMS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HMQC, HMBC)	69
Didemnaketals D and E (166 and 167)	Polyketide / spiroketal	*Didemnum* sp. / Sharm El-Sheikh, Red Sea, Egypt	CH_2Cl_2/MeOH (1:1)	-LLP, VLC (Silica gel), Sephadex LH20, RP HPLC	-UV, IR, HRESIMS, 1D (^{1}H, ^{13}C, DEPT) and 2D NMR (COSY, ROESY, NOESY, TOCSY, HSQC, HMBC)	64
Didemnaketals F and G (173 and 174)	Polyketide / spiroketal	*Didemnum* sp. / Red Sea, Egypt	CH_2Cl_2/MeOH (1:1)	-VLC, Sephadex LH-20, C18 HPLC	-IR, UV, HRESIMS, 1D (^{1}H, ^{13}C, DEPT) and 2D (COSY, ROESY, NOESY, TOCSY, HSQC, HMBC)	66
Mollamides E and F (186-187)	Cyclic peptide / cyanobactin	*Didemnum molle* / New Britain, Papua New Guinea	MeOH	-CC (HP20SS resin), FLC (C18), RP HPLC	-UV, IR, HRESIMS, 1D (^{1}H, ^{13}C) and 2D NMR (gCOSY, HMBC, ROESY)	72
Molleurea A (5)	Alkaloid / phenylethylamine	*Didemnum molle* / New Britain, Papua New Guinea	MeOH	-CC (HP20SS resin), FLC (C18) and RP HPLC	-IR, UV, HRESIMS, 1D NMR (^{1}H, ^{13}C) 2DNMR (gCOSY, HMBC, ROESY)	72
		Didemnum molle / Mayotte	MeOH/CH_2Cl_2 (1:1)	-Kupchan solvent partition procedure, CC (Sephadex LH-20), RP HPLC	-UV, IR HRMS, LCMS, 1D (^{1}H, ^{13}C, DEPT) and 2D (COSY, TOCSY, HSQC, HMQC, HMBC, ROESY)	17
3,5-Diiodo-4-methoxyphenethylamine (27)	Alkaloid / phenylethylamine	*Didemnum* sp. / Northwest end of Cocos Lagoon, Guam, United States	Organic solvents	-Crystallization from a $CHC1_3$ extract	-HRMS, 1D NMR (^{1}H, ^{13}C)	52
		Didemnum rubeum / Republic of Palau	EtOH MeOH	-LLP, and FLC (Silica gel)	-UV, IR, HREIMS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, INADEQUATE, HMBC)	49, 50
Kakelokelose homopolysaccharide (188)	Carboyhydrate / sulfated mannose	*Didemnum molle* / Pohnpei, Micronesia	95% EtOH	-Ultrafiltration membranes are expressed as Molecular Weight Cutoff (MWCO)	-FT-IR, 1D (^{1}H, ^{13}C, DEPT) and 2D NMR (COSY, HMQC)	73
Cyclodidemniserinol trisulfate (182)	Fatty acid / serinolipid	*Didemnum guttatum* / Ngerchaol Island, Palau	MeOH	-Purified by repeated reversed phase chromatography	-UV, IR, HRMS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HSQC-TOCSY, HMBC)	71
(*R*)-(*E*)-1-Aminotridec-5-en-2-ol (191)	Alkaloid	*Didemnum* sp. / Great Barrier Reef, Australia	MeOH	-Kupchan solvent partition procedure, CC (Sephadex LH-20), FLC (C18) RP HPLC	-UV, IR, MS, and 1D NMR (^{1}H, ^{13}C, DEPT) 2D NMR (COSY,HMQC)	**75**
Divamides A and B (189 and 190)	Cyclic peptide / lanthipeptide	*Didemnum molle* / Eastern Fields, Papua New Guinea	MeOH / metagenomics method	-HP20, HPLC (C18)	-UV, MS, 1D NMR (1H, 13C) 2D NMR (COSY, TOCSY, HMQC, HMBC, ROESY, NOESY), metagenome sequencing	74

Table S3. Compounds with antiprotozoal activities.

Compound Name	Chemical Class	Source organism / Location	Solvent of Extraction	Purification of the compounds	Structural Determination	Ref.
Lepadins D-F (194-196)	Alkaloid / decahydroquinoline	*Didemnum* sp. / Stanley Reef, the Great Barrier Reef, Australia	Acetone	-TLC, NP VLC, NP HPLC	-HREIMS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HMQC, HMBC, ROESY, NOE)	[76]
Albopunctatone (197)	Polyketide / anthrone-anthraquinone	*Didemnum albopunctatum* / Swain Reefs in the Southern Great Barrier Reef, Australia	MeOH	-NP HPLC, RP HPLC	-UV, IR, MS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HSQC, HMBC)	[77]
Homofascaplysin A (199)	Alkaloid	*Didemnum* sp. / Fiji	MeOH	-LLP, CC (Sephadex LH-20, C-18 RP)	-UV, IR, FABHRMS, ECD, 1D (^{1}H and ^{13}C) and 2D NMR (COSY, TOCSY, HMQC, HMBC)	[78]
Mollamide B (123)	Cyclic peptide / cyanobactin	*Didemnum molle* / Indonesia	H_2O	-VLC (Silica gel), NP and RP HPLC	-UV, IR, HRESIMS, 1D (^{1}H and ^{13}C) 2 D NMR (COSY, HMQC, HMBC, ROESY)	[47]
Didemnidine B (202)	Alkaloid / indole spermidine	*Didemnum* sp. / New Zealand	MeOH	-FLC (C8 and C18 RP), Sephadex LH-20, RP HPLC	-UV, IR, HRMS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HSQC, HMBC)	[79]

Table S4. Compounds with antidiabetic activities.

Compound Name	Chemical Class	Source organism / Location	Solvent of Extraction	Purification of the compounds	Structural Determination	Ref.
***N,N'*-Diphenethyl-urea (11)**	Alkaloid / phenylethlyamine	*Didemnum mole* / Okinawa, Japan	MeOH	-LLP, fractionation using ODS RP	-UV, IR, MS, 1D (^{1}H, ^{13}C)	[80]
		Didemnum ternatanum / Urukthapal, Palau	MeOH	-CC (Silica gel, Sephadex LH-20)	-IR, HRMS, EIMS, 1D NMR (^{1}H, ^{13}C)	[16]
		Didemnum molle / Mayotte	MeOH/CH_2Cl_2 (1:1)	-Kupchan solvent partition procedure, CC (Sephadex LH-20), RP HPLC	-UV, IR, HRMS, LCMS, 1D (^{1}H, ^{13}C, DEPT) and 2D NMR (COSY, TOCSY, HSQC, HMQC, HMBC, ROESY)	[17]

Table S5. Compounds that affect the central nervous system.

Compound Name	Chemical Class	Source organism / Location	Solvent of Extraction	Purification of the compounds	Structural Determination	Ref.
Ningalin B-D (204-2067)	Alkaloid	*Didemnum sp.* / Northern Rottnest Shelf, Western Australia	EtOH	-LLP, RP HPLC	-UV, HRMS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, ROESY, HMBC)	82
		Didemnum sp. / near Ningaloo Reef, Western Australia	70% MeOH in CH_2Cl_2	-LLP, GFC (Sephadex LH-20), C18 HPLC, GPC (Spectra Gel HW-40)	-UV, IR, HRFABMS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HMQC, HMBC, NOESY)	81
Ningalin E-G (207-209)	Alkaloid	*Didemnum sp.* / Northern Rottnest Shelf, Western Australia	EtOH	-LLP, RP HPLC	-UV, HRMS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, ROESY, HMBC)	82
Lamellarin G (60)	Alkaloid	*Didemnum* sp. / Northern Rottnest Shelf, Western Australia	EtOH	-LLP, RP HPLC	-UV, HRMS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, ROESY, HMBC)	82
		Didemnum sp. / Northern Rottnest Shelf, Western Australia	Aqueous EtOH	-LLPC, HPLC-UV-DAD	-HRMS, UV, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HMBC, ROESY).	34
		Didemnum chartaceum / Australia	MeOH	-LLPC, Sephadex LH-20, NP HPLC, RP HPLC, C18 SPE cartridge	-HRESMS, UV, IR, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HSQC, HMBC, ROESY)	32
		Purple encrusting *Didemnum* sp. / the Indian Ocean	70% MeOH/$CHCl_3$	-LLPC, GFC (Sephadex LH-20 and Spectra Gel HW-40), RP HPLC	-IR, UV, LRMS, HRMS of DEI, FABMS, 1D (^{1}H, ^{13}C) and 2D NMR. (DQFCOSY, HMQC HMBC, NOESY)	37
Lamellarin Z (62)	Alkaloid	*Didemnum sp.* / Northern Rottnest Shelf, Western Australia	EtOH	-LLP, RP HPLC	-UV, HRMS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, ROESY, HMBC)	82
		Didemnum sp. / Northern Rottnest Shelf, Western Australia	Aqueous EtOH	-LLPC, and HPLC-UV-DAD	-HRMS, UV, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HMBC, ROESY)	34
		Didemnum chartaceum / Australia	MeOH	-LLPC, Sephadex LH-20, NP HPLC, RP HPLC, C-18 SPE cartridge	-HRESMS, UV, IR, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HSQC, HMBC, ROESY)	32
Lepadin I (210)	Alkaloid	*Didemnum* sp. / Bahamas	70% MeOH in CH_2Cl_2	-LLP, CC (Silica), RP HPLC, C-18 SPE cartridge	-HRMS, ESIMS IR, UV, ECCD, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HMBC, HSQC, NOESY)	83

Table S6. Compounds without any reported biological activities.

Compound Name	Chemical Class	Source organism / Location	Solvent of Extraction	Purification of the compounds	Structural Determination	Ref.
Lepadin J and K (211 and 212)	Alkaloid	*Didemnum* sp. / Bahamas	MeOH/CH_2Cl_2 (1:1)	-LLP, CC (Silica), RP HPLC, C18 SPE cartridges	-UV, ESIMS IR, HRMS, ECCD, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HSQC, HMBC)	83
1,8-Dihydroxy-9,10 anthraquinone (199)	Polyketide / anthraquinone	*Didemnum albopunctatum* / Australia	MeOH	-NP HPLC, RP HPLC	-UV, IR, MS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HSQC, HMBC)	77
Salvadenosine (43)	Nucleoside	*Didemnum* sp. / Bahamas	MeOH	-LLP, RP HPLC	-HRMS and 1D (^{1}H, ^{13}C), 2D NMR (COSY, HSQC, HMBC)	26
Lamellarin A4 and A5 (83 and 84)	Alkaloid	*Didemnum* sp. / Wasp Island, New South Wales, Australia	MeOH	-LLPC, HPLC-UV-DAD	-UV, HRMS, 1D (^{1}H, ^{13}C) and 2D NMR (HMQC, HMBC, NOESY)	34
Lamellarin C (58)	Alkaloid	*Didemnum* sp. / Wasp Island, New South Wales, Australia	Aqueous EtOH	-LLPC, HPLC-UV DAD	-UV, HRMS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HMBC, ROESY)	34
		Didemnum chartaceum / Australia	MeOH	-LLPC, Sephadex LH-20, NP and RP HPLC, C18-SPE cartridge	-HRESMS, UV, IR, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HSQC, HMBC, ROESY)	32
		Didemnum sp. / South West Cay, Lihou Reef, off the North Queensland coast, Australia	MeOH/CH_2Cl_2	-VLC (silica gel), RP HPLC	-HREIMS, 1D (^{1}H, ^{13}C, INEPT and NOE) and 2D NMR (XHCORRD, HMQC, COLOC)	35
Lamellarin T (88)	Alkaloid	*Didemnum* sp. / Wasp Island, New South Wales, Australia	Aqueous EtOH	-LLPC, HPLC-UV DAD	-UV, HRMS, 1D NMR (^{1}H, ^{13}C) and 2D NMR, (COSY, HMBC, ROESY)	34
Lamellarin X (89)	Alkaloid	*Didemnum* sp. / Wasp Island, New South Wales, Australia	Aqueous EtOH	-LLPC, HPLC-UV-DAD	-HRMS, UV, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HMBC, ROESY)	34
Lamellarin B 20-sulfate (63)	Alkaloid	*Didemnum chartaceum* / Australia	MeOH	-LLPC, Sephadex LH-20, NP HPLC, RP HPLC, C18 SPE cartridge	-UV, IR, HRESMS, 1D NMR (^{1}H, ^{13}C) and 2D NMR (COSY, HSQC, HMBC, ROESY)	32
Lamellarin C 20-sulfate (64)	Alkaloid	*Didemnum chartaceum* / Australia	MeOH	-LLPC, Sephadex LH-20, NP HPLC, RP HPLC, C18 SPE cartridge	-UV, IR, HRESMS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HSQC, HMBC, ROESY)	32
Lamellarin L 20-sulfate (65)	Alkaloid	*Didemnum chartaceum* / Australia	MeOH	-LLPC, Sephadex LH-20, NP HPLC, RP HPLC, C18 SPE cartridge	-UV, IR, HRESMS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HSQC, HMBC, ROESY)	32

Lamellarin A (56)	Alkaloid	*Didemnum chartaceum* / Australia	MeOH	-LLPC, Sephadex LH-20, NP HPLC, RP HPLC, C18 SPE cartridge	-UV, IR, HRESMS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HSQC, HMBC, ROESY)	32
		Didemnum sp. / South West Cay, Lihou Reef, off the North Queensland coast	$MeOH/CH_2Cl_2$	-VLC (silica gel), RP HPLC	-HREIMS, 1D (^{1}H, ^{13}C, INEPT, NOE) and 2D NMR (XHCORRD, HMQC, COLOC)	35
Lamellarin B (57)	Alkaloid	*Didemnum chartaceum* / Australia	MeOH	-LLPC, Sephadex LH-20, NP and RP HPLC, C-18 SPE cartridge	-UV, IR, HRESMS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HSQC, HMBC, ROESY)	32
		Dark purple encrusting colonies of *Didemnum* sp. / South West Cay, Lihou Reef, off the North Queensland coast	$MeOH/CH_2Cl_2$	-VLC (silica gel), RP HPLC	-HREIMS, 1D (^{1}H, ^{13}C, INEPT, NOE) and 2D NMR (XHCORRD, HMQC, COLOC)	35
Lamellarin D triacetate (67)	Alkaloid	*Didemnum chartaceum* / Australia	MeOH	-LLPC, Sephadex LH-20, NP HPLC, RP HPLC, C18 SPE cartridge	-UV, IR, HRESMS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HSQC, HMBC, ROESY).	32
		Dark purple encrusting colonies of *Didemnum* sp. / South West Cay, Lihou Reef, off the North Queensland coast	$MeOH/CH_2Cl_2$	-VLC (silica gel), RP HPLC	-HREIMS, 1D (^{1}H ,^{13}C, INEPT, NOE) and 2D NMR (XHCORRD, HMQC, COLOC)	35
Lamellarin N triacetate (68)	Alkaloid	*Didemnum chartaceum* / Australia	MeOH	-LLPC, Sephadex LH-20, NP HPLC, RP HPLC and SPE cartridge packed with C18	-UV, IR, HRESMS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HSQC, HMBC, ROESY)	32
Ningalin A (203)	Alkaloid	*Didemnum* sp. / near Ningaloo Reef, Western Australia	70% MeOH in CH_2Cl_2	-LLP, GFC (Sephadex LH-20), C18 HPLC, GPC (Spectra Gel HW-40)	-UV, IR, HRFABMS 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HMQC, HMBC, NOESY)	81
Didemnimide A (97)	Alkaloid	*Didemnum conchyliatum* / Sweetings Cay, Bahamas	$MeOH/CH_2Cl_2$ (1:1)	-VLC, NP CC, C18 RP CC, RP HPLC	-UV, IR, HREIMS, 1D (^{1}H, ^{13}C) and 2D NMR (HMQC, HMBC), X-ray analysis	39
		Didemnum granulatum / Brazil	MeOH	-CC, Sephadex LH20, RP HPLC	-UV, IR, HRFABMS, 1D (^{1}H ,^{13}C, NOE) and 2D NMR (COSY, HMQC, HMBC)	40
Didemnimide B (98)	Alkaloid	*Didemnum conchyliatum* / Sweetings Cay, Bahamas	$MeOH/CH_2Cl_2$ (1:1)	-VLC, NP CC, C18 RP, CC, RP HPLC	-HREIMS, UV, IR, 1D (^{1}H, ^{13}C) and 2D NMR (HMQC, HMBC), X-ray analysis	39
Didemnimide C (99)	Alkaloid	*Didemnum conchyliatum* / Sweetings Cay, Bahamas	$MeOH/CH_2Cl_2$ (1:1)	-VLC, NP CC, C18 RP, RP HPLC	-HREIMS, UV, IR, 1D (^{1}H, ^{13}C) and 2D NMR (HMQC, HMBC), X-ray analysis	39
Didemnimide D (100)	Alkaloid	*Didemnum conchyliatum* / Sweetings Cay, Bahamas	$MeOH/CH_2Cl_2$ (1:1)	-VLC, NP CC, C18 RP, RP HPLC	-UV, IR, HREIMS, 1D (^{1}H, ^{13}C) and 2D NMR (HMQC, HMBC), X-ray analysis	39

		Didemnum conchyliatum / Sweetings Cay, Bahamas	MeOH	-CC Sephadex LH20, RP HPLC	-UV, IR, HRFABMS, 1D (^{1}H, ^{13}C, NOE) and 2D NMR (COSY, HMQC, HMBC)	[40]
Didemnimide E (103)	Alkaloid	*Didemnum granulatum* / Brazil	MeOH	-CC Sephadex LH20, RP HPLC	-UV, IR, HRFABMS, 1D (^{1}H,^{13}C NOE) and 2D NMR (COSY, HMQC, HMBC)	[40]
***N*-Acetyl-rodriguesines A and B (164 and 165)**	Peptide / diketopiperazine	*Didemnum* sp. / Salvador, Brazil	MeOH	-LLP, CC (Sephadex LH-20, C18), RP HPLC	-IR, UV, HRESIMS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HMQC, HMBC)	[63]
Didemniserinolipids A-C (183 and 185)	Fatty acid / serinolipid	*Didemnum* sp. / Sulawesi Island, Indonesia	MeOH	-LLPC, VLC (silica gel), RP HPLC	-UV, IR, HRESIMS, 1D (^{1}H, ^{13}C and DEPT) and 2D NMR (1H-1H COSY, TOCSY, HMQC and ROESY)	[70]
Didemnoline D (108)	Alkaloid	*Didemnum* sp. / Near Rota, Northern Mariana Islands	MeOH	-FLC (Silica gel), NP HPLC	-UV, IR, HREIMS, 1D (^{1}H ,^{13}C and NOE) and 2D NMR (HMBC)	[42]
Eudistomin O (109)	Alkaloid	*Didemnum* sp. / Near Rota, Northern Mariana Islands	MeOH	-FLC (Silica gel), NP HPLC	-UV, IR, HREIMS, 1D (^{1}H ,^{13}C, NOE) and 2D NMR (HMBC)	[42]
β-Carboline (110)	Alkaloid	*Didemnum* sp. / Near Rota, Northern Mariana Islands	MeOH	-FLC (Silica gel), NP HPLC	-UV, IR, HREIMS, 1D (^{1}H ,^{13}C, NOE) and 2D NMR (HMBC)	[42]
2-(2′,4′-Dibromophenoxy)-3,5-dibromophenol (111)	Phenolic ether	*Didemnum* sp. / Near Rota, Northern Mariana Islands	MeOH	-FLC (Silica gel), NP HPLC	-UV, IR, HREIMS, 1D (^{1}H ,^{13}C, NOE) and 2D NMR (HMBC)	[42]
β-Carboline dimers (112)	Alkaloid	*Didemnum* sp. / Sykes Reef in the Capricorn Bunker Group of the southern Great Barrier Reef, Australia	Hexane followed by EtOAc	-CC (Silica gel)	-UV, IR, MS, 1D NMR (^{1}H, ^{13}C)	[43]
3-Bromohomofascaplysin A (200)	Alkaloid	*Didemnum* sp. / Fiji	MeOH	-LLP, CC (Sephadex LH-20, C18 RP)	-UV, IR, FABHRMS, ECD, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, TOCSY, HMQC, HMBC)	[78]
Homofascaplysin B-1 (116)	Alkaloid	*Didemnum* sp. / Indonesia	MeOH/CH_2Cl_2 (1:1)	-LLP, FLC (Silica gel), RP HPLC	-FABHRMS, 1D (^{1}H, ^{13}C), 2D NMR (COSY, HMQC, HMBC, NOESY)	[45]
3-Bromohomofascaplysin B (117)	Alkaloid	*Didemnum* sp. / Indonesia	MeOH/CH_2Cl_2 (1:1)	-LLP, FLC (Silica gel), RP HPLC	-FABHRMS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HMQC, HMBC, NOESY)	[45]
Homofascaplysin C (118)	Alkaloid	*Didemnum* sp. / Indonesia	MeOH/CH_2Cl_2 (1:1)	-LLP, FLC (Silica gel), RP HPLC	-FABHRMS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HMQC, HMBC, NOESY)	[45]
3-Bromohomofascaplysin B-1 (119)	Alkaloid	*Didemnum* sp. / Indonesia	MeOH/CH_2Cl_2 (1:1)	-LLP, FLC (Silica gel), RP HPLC	-FABHRMS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HMQC, HMBC, NOESY)	[45]
3-Bromohomofascaplysin C (120)	Alkaloid	*Didemnum* sp. / Indonesia	MeOH/CH_2Cl_2 (1:1)	-LLP, FLC (Silica gel), RP HPLC	-FABHRMS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HMQC, HMBC and NOESY)	[45]
Homofascaplysate A (121)	Alkaloid	*Didemnum* sp. / Indonesia	MeOH/CH_2Cl_2 (1:1)	-LLP, FLC (Silica gel), RP HPLC	-FABHRMS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HMQC, HMBC, NOESY)	[45]

Didemnaketal C (181)	Polyketide / spiroketals	*Didemnum* sp. / Auluptagel Island, Palau	MeOH/CH_2Cl_2 (1:1)	-Sephadex LH-20, RP HPLC	-UV, IR, HRFABMS, 1D NMR (^1H, ^{13}C)	68
Mollecarbamates A-D (1−4)	Phenylethylamine	*Didemnum molle* / Mayotte	MeOH/CH_2Cl_2 (1:1)	-Kupchan solvent partition procedure, CC (Sephadex LH-20), RP HPLC	-UV, IR, HRMS, LCMS, 1D (^1H, ^{13}C, DEPT) 2D (COSY, TOCSY, NOESY, HSQC, HMBC)	17
Molleurea B-E (5−8)	Phenylethylamine	*Didemnum molle* / Mayotte	MeOH/CH_2Cl_2 (1:1)	-Kupchan solvent partition procedure, CC (Sephadex LH-20), RP HPLC	-UV, IR, HRMS, LCMS, 1D (^1H, ^{13}C, DEPT) and 2D NMR (COSY, NOESY, HMBC)	17
Molledihydroisoquinolone (10)	Phenylethylamine	*Didemnum molle* / Baie des Assassins, Madagascar	MeOH/CH_2Cl_2 (1:1)	-Kupchan solvent partition procedure, CC (Sephadex LH-20), RP HPLC	-UV, IR, HRMS, LCMS, 1D (^1H, ^{13}C, DEPT) and 2D NMR (COSY, TOCSY, HSQC, HMQC, HMBC, ROESY)	17
Molleurea E (9)	Phenylethylamine	*Didemnum molle* / New Britain, Papua New Guinea	MeOH	-CC (HP20SS resin), C18 FLC, RP HPLC	-UV, IR, HRESIMS, 1D NMR (^1H ,^{13}C) and 2D NMR (gCOSY, HMBC and ROESY)	72
Antatollamides A and B (14 and 15)	Cyclic peptide / cyanobactin	*Didemnum molle* / Pohnpei	MeOH/CH_2Cl_2 (1:1)	-LLP, FLC (Silica gel), RP HPLC	-UV, FTIR, HRMS, 1D (^1H ,^{13}C, NOE) and 2D NMR (COSY, TOCSY, HSQC, HMBC, NOESY)	19
Didemnidine A (201)	Alkaloid	*Didemnum* sp. / New Zealand	MeOH	-FLC (C8, C18), Sephadex LH-20, RP HPLC	-UV, IR, HRMS, 1D (^1H, ^{13}C) and 2D NMR (COSY, HSQC, HMBC)	79
Didemnaceride A and B (168 and 169)	Fatty acid / glyceride	*Didemnum* sp. / Red Sea, Egypt	CH_2Cl_2/MeOH (1:1)	-LLP, VLC, CC (Silica gel), CC (RP-C18)	-UV, IR, HR-ESI-MS, GC-MS, 1D (^1H, ^{13}C) and 2D NMR (COSY, HSQC, HMBC)	65
24-Ethyl-25-hydroxycholesterol (170)	Steroid	*Didemnum* sp. / Red Sea, Egypt	CH_2Cl_2/MeOH (1:1)	-LLP, VLC, CC (Silica gel), CC (RP-C18)	-UV, IR, HR-ESI-MS, GC-MS, 1D (^1H, ^{13}C) and 2D NMR (COSY, HSQC, HMBC)	65
Cholest-6-en-3,5,8-triol (171)	Steroid	*Didemnum* sp. / Red Sea, Egypt	CH_2Cl_2/MeOH (1:1)	-LLP, VLC, CC (Silica gel), CC (RP-C18)	-UV, IR, HR-ESI-MS, GC-MS, 1D (^1H, ^{13}C) and 2D NMR (COSY, HSQC, HMBC)	65
Cholestane-3β,5α,6β-26-tetrol (172)	Steroid	*Didemnum* sp. / Red Sea, Egypt	CH_2Cl_2/MeOH (1:1)	-LLP, VLC, CC (Silica gel), CC (RP-C18)	-UV, IR, HR-ESI-MS, GC-MS, 1D (^1H, ^{13}C) and 2D NMR (COSY, HSQC, HMBC)	65
Minalemines A-F (155-160)	Peptide / guanidine	*Didemnum rodriguesi* / Baie des Citrons, Noumea, New Caledonia	MeOH	-LLP, CC (Sephadex LH-20), RP HPLC	-UV, IR, HRFABMS, 1D (^1H, ^{13}C, DEPT) and 2D NMR (COSY, TOCSY, HMQC, HMBC)	61
Cholesterol (132)	Steroid	*Didemnum psammatodes* / Intertidal zone of the beach rocks at Flexeiras Beach, Brazil	MeOH	-CC (silica gel, Sephadex LH-20), C18 HPLC, GC	-IR-FT, 1D (^1H and ^{13}C) and 2D NMR	53
Campesterol (133)	Steroid	*Didemnum psammatodes* / Intertidal zone of the beach rocks at Flexeiras Beach, Brazil	MeOH	-CC (silica gel, Sephadex LH-20), C18 HPLC, GC	-IR-FT, 1D (^1H and ^{13}C) and 2D NMR	53

Stigmasterol (18)	Steroid	*Didemnum psammatodes* / Intertidal zone of the beach rocks at Flexeiras Beach, Brazil	MeOH	-CC (silica gel, Sephadex LH-20), C18 HPLC, GC	-IR-FT, 1D (^{1}H and ^{13}C) and 2D NMR	[53]
β-Sitosterol (134)	Steroid	*Didemnum psammatodes* / Intertidal zone of the beach rocks at Flexeiras Beach, Brazil	MeOH	-CC (silica gel, Sephadex LH-20), C18 HPLC, GC	-IR-FT, 1D (^{1}H and ^{13}C) 2D NMR	[53]
Palmitic acid (135)	Fatty acid	*Didemnum psammatodes* / Intertidal zone of the beach rocks at Flexeiras Beach, Brazil	MeOH	-CC (silica gel, Sephadex LH-20), C18 HPLC, GC	-IR-FT, 1D (^{1}H and ^{13}C) and 2D NMR	[53]
Stearic acid (136)	Fatty acid	*Didemnum psammatodes* / Intertidal zone of the beach rocks at Flexeiras Beach, Brazil	MeOH	-CC (silica gel, Sephadex LH-20), C18 HPLC, GC	-IR-FT, 1D (^{1}H, ^{13}C) and 2D NMR	[53]
1,2-Propanediol, 3-(heptadecyloxy) (137)	Fatty acid / glyceryl ether	*Didemnum psammatodes* / Intertidal zone of the beach rocks at Flexeiras Beach, Brazil	MeOH	-CC (silica gel, Sephadex LH-20), C18 HPLC, GC	-IR-FT, 1D (^{1}H, ^{13}C) and 2D NMR	[53]
Batyl alcohol (19)	Fatty acid / glyceryl ether	*Didemnum psammatodes* / Intertidal zone of the beach rocks at Flexeiras Beach, Brazil	MeOH	-CC (silica gel, Sephadex LH-20), C18 HPLC, GC	-IR-FT, 1D (^{1}H, ^{13}C) and 2D NMR	[53]
1,2-Propanediol,3[(methyloctadecyl)oxy] (138)	Fatty acid / glyceryl ether	*Didemnum psammatodes* / Intertidal zone of the beach rocks at Flexeiras Beach, Brazil	MeOH	-CC (silica gel, Sephadex LH-20), C18 HPLC, GC	-IR-FT, 1D (^{1}H and ^{13}C) and 2D NMR	[53]
Thymidine (21)	Nucleoside	*Didemnum psammatodes* / Intertidal zone of the beach rocks at Flexeiras Beach, Brazil	MeOH	-CC (silica gel, Sephadex LH-20), C18 HPLC, GC	-IR-FT, 1D (^{1}H and ^{13}C) and 2D NMR	[53]
		Didemnum psammatodes / Shores of Ceará State, Brazil	MeOH	-CC (silica gel, Sephadex LH-20)	-UV, MS, GC-MS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HSQC, HMBC)	[20]

2′-Deoxyguanosine (23)	Nucleoside	*Didemnum psammatodes* / Intertidal zone of the beach rocks at Flexeiras Beach, Brazil	MeOH	-CC (silica gel, Sephadex LH-20), C18 HPLC, GC	-IR-FT, 1D (^{1}H, ^{13}C) and 2D NMR	53
		Didemnum psammatodes / Shores of Ceará state.	MeOH	-CC (silica gel and Sephadex LH-20)	-UV, MS, GC-MS, 1D NMR (^{1}H, ^{13}C) and 2D NMR (COSY, HSQC, HMBC)	20
2'-Deoxyuridine (20)	Nucleoside	*Didemnum psammatodes* / Shores of Ceará State, Brazil	MeOH	-CC (silica gel, Sephadex LH-20)	-UV, MS, GC-MS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HSQC, HMBC)	20
2'-Deoxyinosine (22)	Nucleoside	*Didemnum psammatodes* / Shores of Ceará State, Brazil	MeOH	-CC (silica gel and Sephadex LH-20)	-UV, MS, GC-MS, 1D (^{1}H, ^{13}C) and 2D (COSY, HSQC, HMBC)	20
Cholestanol (16)	Steroid	*Didemnum psammatodes* / Shores of Ceará State, Brazil	MeOH	-CC (silica gel, Sephadex LH-20)	-UV, MS, GC-MS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HSQC, HMBC)	20
Cholestanone (17)	Steroid	*Didemnum psammatodes* / Shores of Ceará State, Brazil	MeOH	-CC (silica gel, Sephadex LH-20)	-UV, MS, GC-MS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HSQC, HMBC)	20
16-Epi-18-acetyl herdmanine D (24)	Alkaloid	*Didemnum* sp. / Near Haegeumgang, Geoje in the South Sea of Korea	MeOH/CH_2Cl_2 (1:1)	-LLP, CC (Sephadex LH-20), RP FLC, RP HPLC	-HRESIMS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HMBC)	21
***N*-(6-Bromo-1H-indole-3-carbonyl)-L-arginine (25)**	Alkaloid	*Didemnum* sp. / Near Haegeumgang, Geoje, Korea	MeOH/CH_2Cl_2 (1:1)	-LLP, CC (LH-20), RP FLC, RP HPLC	-HRESIMS, 1D (^{1}H, ^{13}C) and 2D NMR, (COSY, HMBC)	21
(6-Bromo-1H-indol-3-yl)oxoacetamide (26)	Alkaloid	*Didemnum* sp. / Near Haegeumgang, Geoje, Korea	MeOH/CH_2Cl_2 (1:1)	-LLP, CC (LH-20), RP FLC, RP HPLC	-HRESIMS, 1D (^{1}H, ^{13}C) and 2D NMR, (COSY, HMBC)	21
2-(3,5-Diiodo-4-methoxyphenyl)ethanamine (27)	Phenylethylamine	*Didemnum rubeum* / Chuuk Atoll	Aqueous crude extract	-CC (Sephadex LH20), RP HPLC	-LRMS, HRESIMS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HSQC, HMBC).	22
2-(3,5-Diiodo-4-methoxyphenyl)ethanaminium (28)	Phenylethylamine	*Didemnum rubeum* / Chuuk Atoll	Aqueous crude extract	-CC (Sephadex LH20), RP HPLC	-LRMS, HRESIMS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HSQC, HMBC).	22
2-(3,5-Diiodo-4-methoxyphenyl)ethanaminium benzoate (29)	Phenylethylamine	*Didemnum rubeum* / Chuuk Atoll	Aqueous crude extract	-CC (Sephadex LH20), RP HPLC	-LRMS, HRESIMS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HSQC, HMBC)	22

2-(3,5-Diiodo-4-methoxyphenyl)acetamide (30)	Phenylethylamine	*Didemnum rubeum* / Chuuk Atoll	Aqueous crude extract	-CC (Sephadex LH20), RP HPLC	-LRMS, HRESIMS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HSQC, HMBC)	[22]
***N*-[2-(3,5-Diiodo-4-methoxyphenyl)ethyl]formamide (31)**	Phenylethylamine	*Didemnum rubeum* / Chuuk Atoll	Aqueous crude extract	-CC (Sephadex LH20), RP HPLC	-LRMS, HRESIMS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HSQC, HMBC)	[22]
***N*-[2-(3,5-Diiodo-4-methoxyphenyl)ethyl]benzamide (32)**	Phenylethylamine	*Didemnum rubeum* / Chuuk Atoll	Aqueous crude extract	-CC (Sephadex LH20), RP HPLC	-LRMS, HRESIMS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HSQC, HMBC)	[22]
***N,N'*-Bis[2-(3,5-diiodo-4-methoxyphenyl)ethyl] ethanediamide (33)**	Phenylethylamine	*Didemnum rubeum* / Chuuk Atoll	Aqueous crude extract	-CC (Sephadex LH20), RP HPLC	-LRMS, HRESIMS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HSQC, HMBC)	[22]
4-(2-Aminoethyl)-2-iodophenol (34)	Phenylethylamine	*Didemnum rubeum* / Chuuk Atoll	Aqueous crude extract	-CC (Sephadex LH20), RP HPLC	-LRMS, HRESIMS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HSQC, HMBC)	[22]
Minimide (35)	Cyclic peptide / cyanobactin	*Didemnum molle* / Solomon Islands	MeOH / metagenomics	-LCMS	-LCMS, metagenomics, synthetic biology	[23]
5α,8α-Epidioxycholest-6-en-3β-ol (36)	Steroid	*Didemnum salary* / Andavadoaka, Madagaskar	$CHCl_3$/MeOH (1:1)	-CC (Silica gel, Sephadex LH20)	-1D NMR (^{1}H NMR)	[24]
5α,8α-Epidioxy-24(*S*)-methylcholest-6-en-3β-ol (37)	Steroid	*Didemnum salary* / Andavadoaka, Madagaskar	$CHCl_3$/MeOH (1:1)	-CC (Silica gel, Sephadex LH20)	-1D NMR (^{1}H NMR)	[24]
5α,8α-Epidioxy-24(*R*)-methylcholest-6-en-3β-ol (38)	Steroid	*Didemnum salary* / Andavadoaka, Madagaskar	$CHCl_3$/MeOH (1:1)	-CC (Silica gel, Sephadex LH20)	-1D NMR (^{1}H NMR)	[24]
5α,8α-Epidioxy-24(*S*)-ethylcholest-6-en-3β-ol (39)	Steroids	*Didemnum salary* / Andavadoaka, Madagaskar	$CHCl_3$/MeOH (1:1)	-CC (Silica gel, Sephadex LH20)	-1D NMR (^{1}H NMR)	[24]
5α,8α-Epidioxy-24(*R*)-ethylcholest-6-en-3β-ol (40)	Steroids	*Didemnum salary* / Andavadoaka, Madagaskar	$CHCl_3$/MeOH (1:1)	-CC (Silica gel, Sephadex LH20)	-1D NMR (^{1}H NMR)	[24]
3,5-Dibromotetramethyltyrosine (41)	Phenylethylamine	*Didemnum* sp. / White Sands Reef, Algoa Bay, South Africa	MeOH/CH_2Cl_2	-LC-ICP-MS/ESI-MS	-1D NMR (^{1}H NMR)	[25]
3-Iodotetramethyltyrosine (42)	Phenylethylamine	*Didemnum* sp. / White Sands Reef, Algoa Bay, South Africa	MeOH/CH_2Cl_2	-LC-ICP-MS/ESI-MS	-1D NMR (^{1}H NMR)	[25]

6-Bromotryptamine (44)	Alkaloid / brominated indole derivative	*Didemnum candidum* / Southern Gulf of California, Mexico	MeOH	-CC (Sephadex LH-20), FLC (silica gel)	-UV, IR, MS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY)	[27]
2,2-Bis(6'-bromo-3'-indoly1)ethylamine (45)	Alkaloid / brominated indole derivative	*Didemnum candidum* / Southern Gulf of California, Mexico	MeOH	-CC (Sephadex LH-20), FLC (silica gel)	-UV, IR, MS, 1D (^{1}H, ^{13}C) 2D NMR (COSY)	[27]
2,5-Bis(6'-bromo-3'-indoly1)piperazine (46)	Alkaloid / brominated indole derivative	*Didemnum candidum* / Southern Gulf of California Mexico	MeOH	-CC (Sephadex LH-20) and FLC (silica gel)	-UV, IR, MS, 1D (^{1}H, ^{13}C) 2D NMR (COSY)	[27]
Didmolamides A and B (12 and 13)	Cyclic peptide / cyanobactin	*Didemnum molle* / Madagascar	$CHCl_3$/MeOH (2:1)	-LLP, CC (Sephadex LH-20), HPLC	-FTIR, HR-EIMS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HMQC, HMBC)	[18]
Ascidiatrienolides A-C (47-49)	Eicosanoids	*Didemnum candidum*/ Philippines	Acetone	-VLC (silica gel), NP HPLC	-UV, IR, HRBIMS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY)	[28]
5′-Deoxy-3-iodotubercidin (50)	Nucleoside	*Didemnum voeltzkowi*/ Philippines	MeOH	-LLP, C18 VLC, RP HPLC	-FABMS, 1D NMR (^{1}H, ^{13}C NMR)	[29]
5′-Deoxy-3-bromotubercidin (51)	Nucleoside	*Didemnum voeltzkowi*/ Philippines	MeOH	-LLP, C18 VLC, RP HPLC	-FABMS and 1D NMR (^{1}H, ^{13}C NMR)	[29]
5′-Deoxytubercidin (52)	Nucleoside	*Didemnum voeltzkowi* / Philippines	MeOH	-LLP, C18 VLC, RP HPLC	-FABMS and 1D NMR (^{1}H, ^{13}C NMR)	[29]
Hydroxy phenyldienoic acid (53)	Polyketide / phenylpolyene	*Didemnum granulatum* / Red Sea	EtOAc	-CC (Sephadex LH-20)	-UV, MS, 1D (^{1}H, ^{13}C) and 2D NMR(COSY)	[30]
Enterocin (175)	Polyketide / type II PKS	*Didemnum* sp. / Australia	70% MeOH in CH_2Cl_2	-LLPC and VLC, RP HPLC	-HRMS, IR, UV, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HMBC, NOSY)	[67]
5-Deoxyenterocin (176)	Polyketide / type II PKS	*Didemnum* sp. / Australia	70% MeOH in CH_2Cl_2	-LLPC, VLC, RP HPLC	-HRMS, IR, UV, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HMBC, NOSY)	[67]
Enterocin-5-behenate (177)	Polyketide / type II PKS	*Didemnum* sp. / Australia	70% MeOH in CH_2Cl_2	-LLPC, VLC, RP HPLC	-HRMS, IR, UV, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HMBC, NOSY)	[67]
Asterubin (54)	Guanidine derivative	*Didemnum ligulum*/ São Sebastião, Brazil	MeOH	-CC (Sephadex LH-20), RP HPLC	-HRMS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HMQC, HMBC)	[31]
***N,N*-Dimethyl-*O*-methylethanolamine (55)**	Ethylamine derivative	*Didemnum ligulum* / São Sebastião, Brazil	MeOH	-CC (Sephadex LH-20), RP HPLC	-HRMS, 1D (^{1}H, ^{13}C) and 2D NMR (COSY, HMQC, HMBC)	[31]