

Supporting Information

Characterization of simplified nonapeptides with broad-spectrum antimicrobial activities as potential food preservatives, and their antibacterial mechanism

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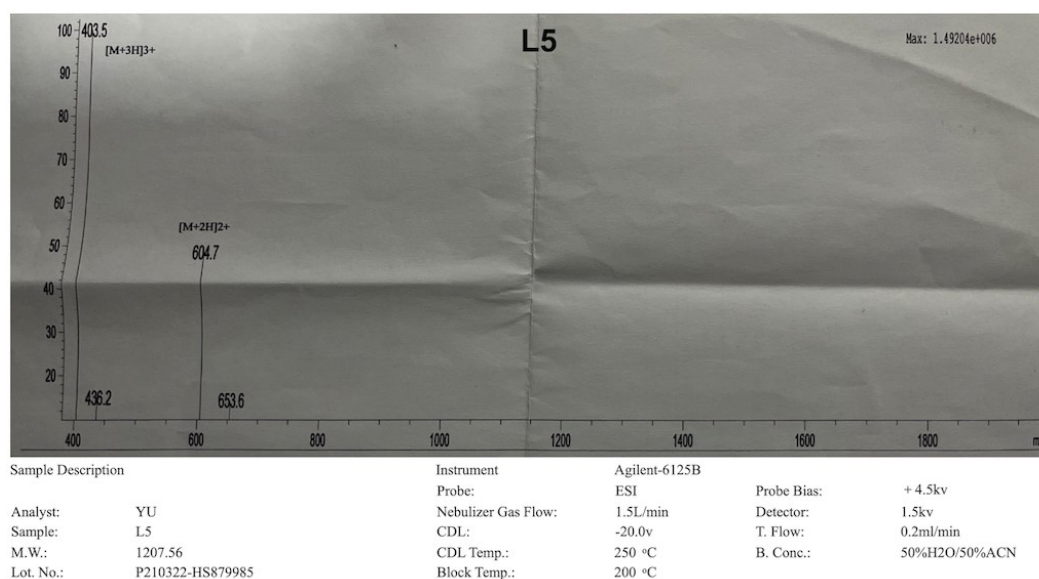
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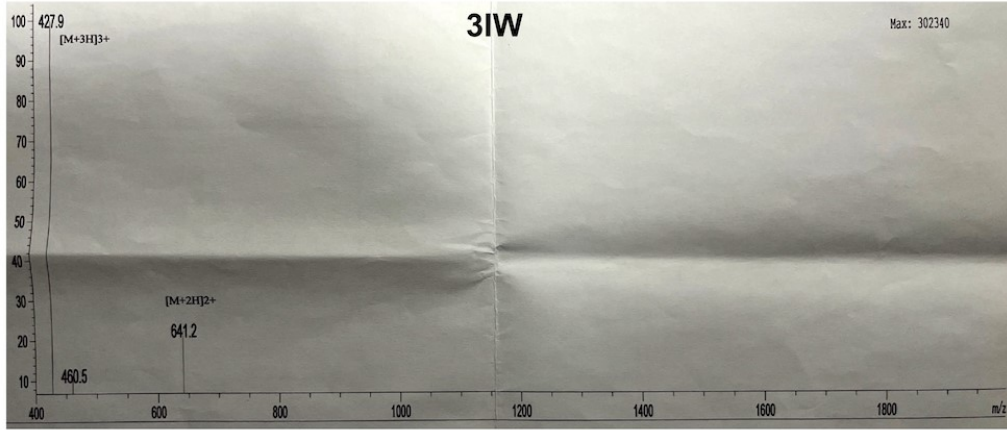
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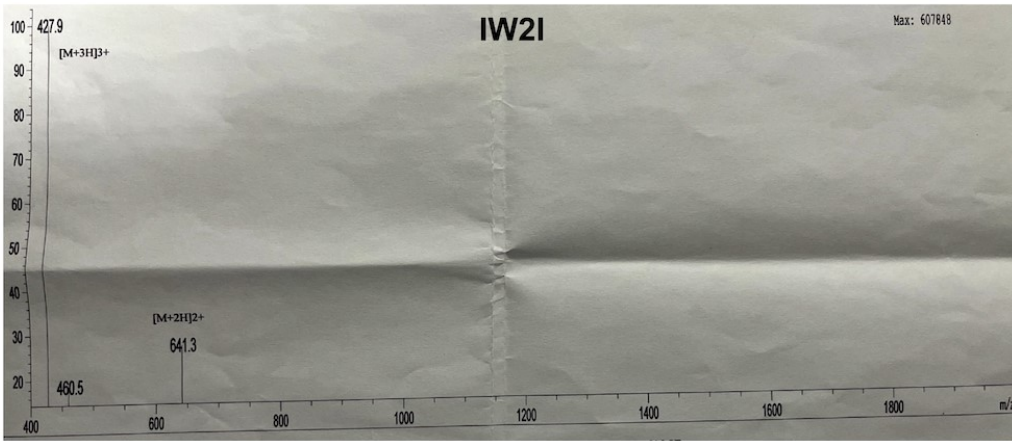
Figure S1. Matrix-assisted laser desorption/ionization time-of-flight mass spectrometry (MALDI-TOF MS) spectra of the nonapeptides.

Figure S2. High-performance liquid chromatography (HPLC) spectra of the nonapeptides.

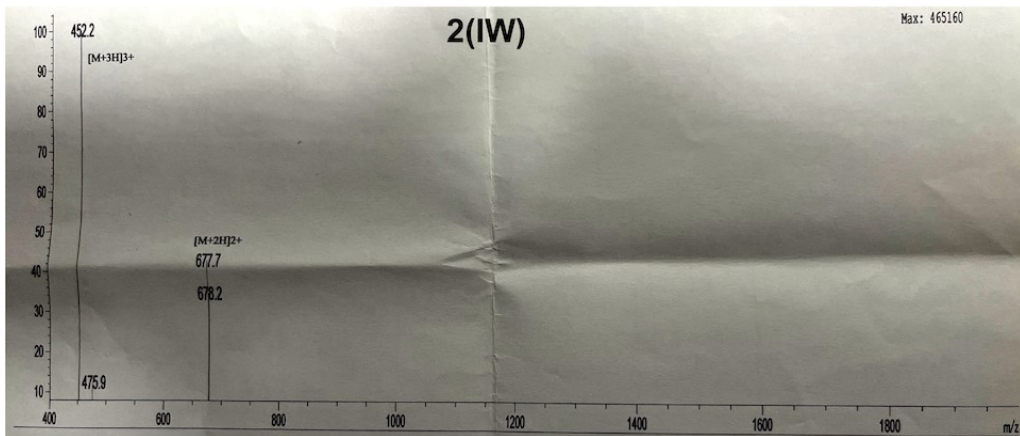




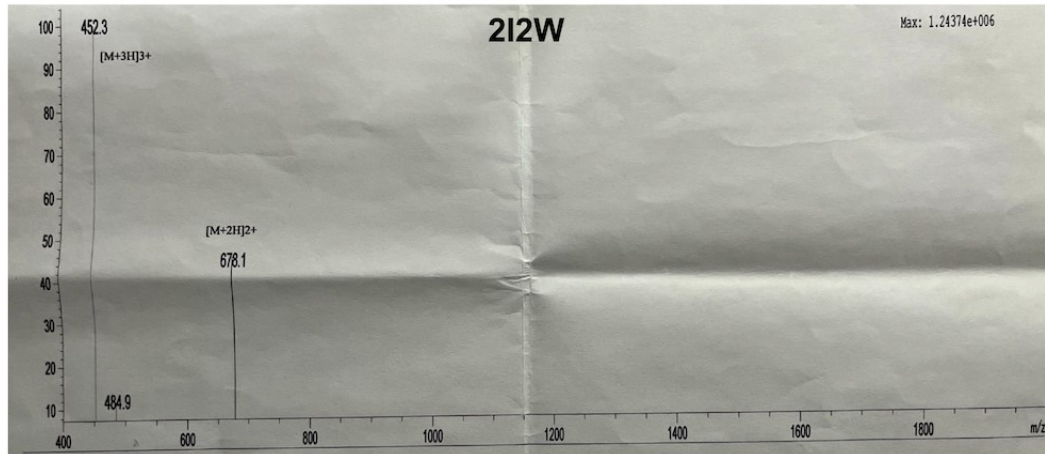
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Analyst:	YU	Probe:	ESI	Probe Bias:	+ 4.5kv
Sample:	3IW	Nebulizer Gas Flow:	1.5L/min	Detector:	1.5kv
M.W.:	1280.61	CDL:	-20.0v	T. Flow:	0.2ml/min
Lot. No.:	P210322-HS879977	CDL Temp.:	250 °C	B. Conc.:	50%H2O/50%ACN
		Block Temp.:	200 °C		



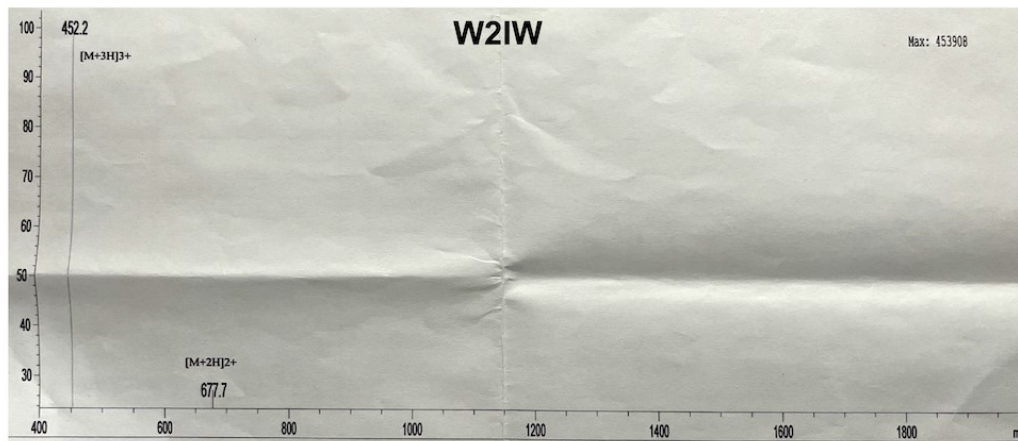
Sample Description		Instrument		Agilent-6125B	
Analyst:	YU	Probe:	ESI	Probe Bias:	+ 4.5kv
Sample:	IW21 RL-9	Nebulizer Gas Flow:	1.5L/min	Detector:	1.5kv
M.W.:	1280.61	CDL:	-20.0v	T. Flow:	0.2ml/min
Lot. No.:	P210322-HS879978	CDL Temp.:	250 °C	B. Conc.:	50%H2O/50%ACN
		Block Temp.:	200 °C		



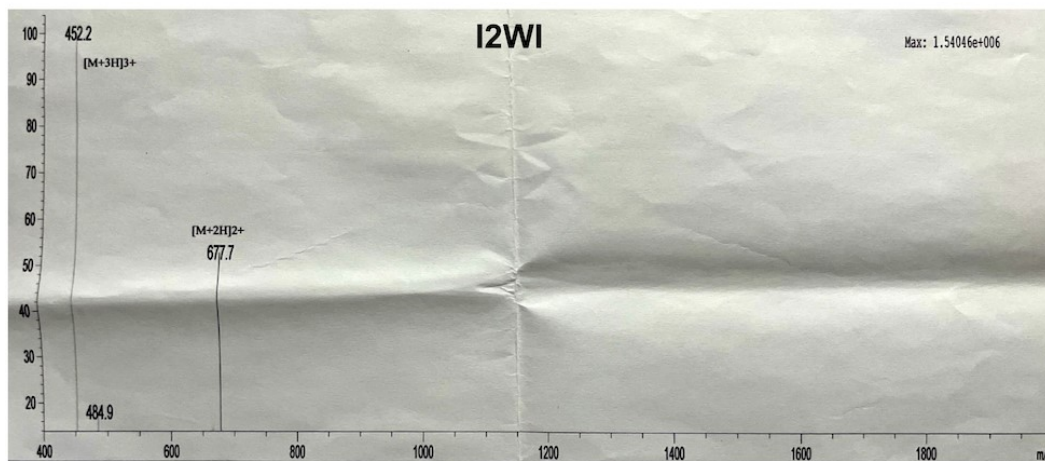
Sample Description		Instrument		Agilent-6125B	
Analyst:	YU	Probe:	ESI	Probe Bias:	+ 4.5kv
Sample:	2(IW)	Nebulizer Gas Flow:	1.5L/min	Detector:	1.5kv
M.W.:	1353.66	CDL:	-20.0v	T. Flow:	0.2ml/min
Lot. No.:	P210322-HS879983	CDL Temp.:	250 °C	B. Conc.:	50%H2O/50%ACN
		Block Temp.:	200 °C		



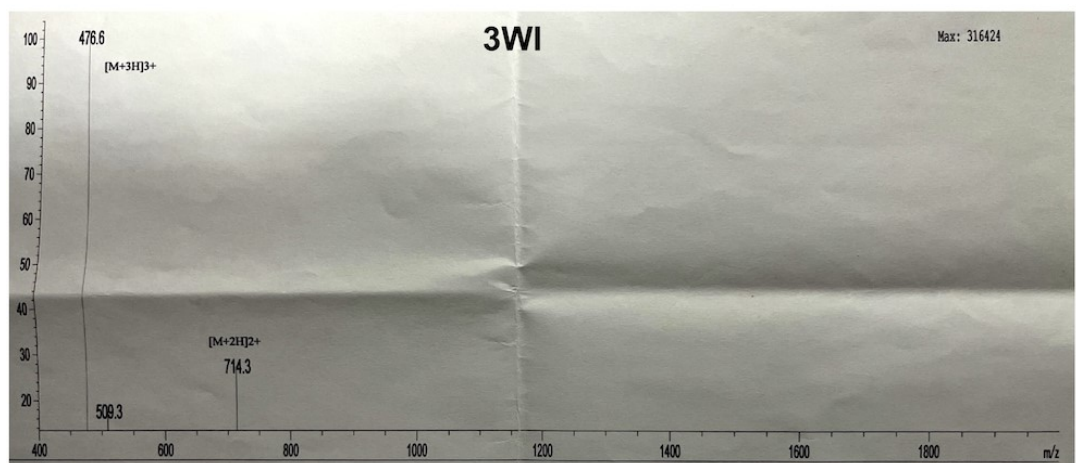
Sample Description	Instrument	Agilent-6125B	Probe Bias:	+ 4.5kv
Analyst: YU	Probe:	ESI	Detector:	1.5kv
Sample: 212W	Nebulizer Gas Flow:	1.5L/min	T. Flow:	0.2ml/min
M.W.: 1353.66	CDL:	-20.0v	B. Conc.:	50%H2O/50%ACN
Lot No.: P210322-HS879984	CDL Temp.:	250 °C		
	Block Temp.:	200 °C		



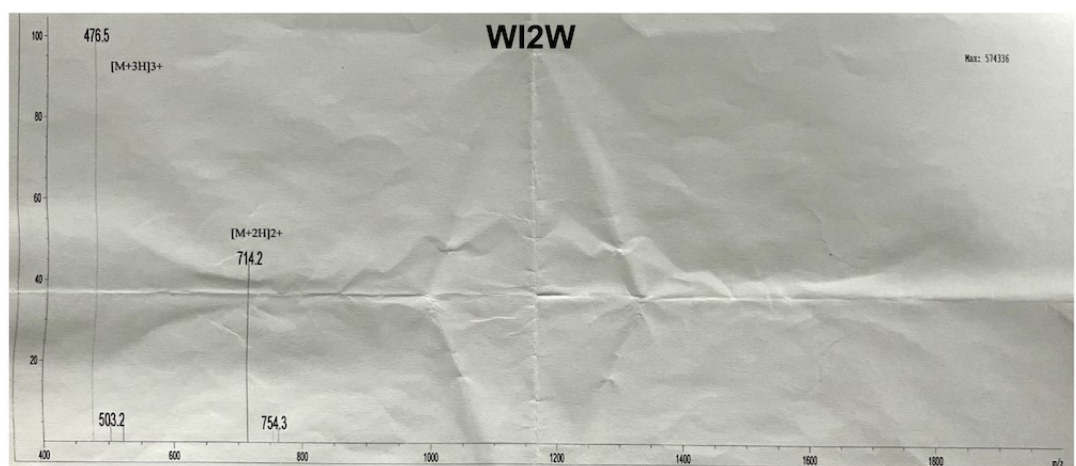
Sample Description	Instrument	Agilent-6125B	Probe Bias:	+ 4.5kv
Analyst: YU	Probe:	ESI	Detector:	1.5kv
Sample: W2IW	Nebulizer Gas Flow:	1.5L/min	T. Flow:	0.2ml/min
M.W.: 1353.66	CDL:	-20.0v	B. Conc.:	50%H2O/50%ACN
Lot No.: P210322-HS879982	CDL Temp.:	250 °C		
	Block Temp.:	200 °C		



Sample Description	Instrument	Agilent-6125B	Probe Bias:	+ 4.5kv
Analyst: YU	Probe:	ESI	Detector:	1.5kv
Sample: I2WI	Nebulizer Gas Flow:	1.5L/min	T. Flow:	0.2ml/min
M.W.: 1353.66	CDL:	-20.0v	B. Conc.:	50%H2O/50%ACN
Lot No.: P210322-HS879981	CDL Temp.:	250 °C		
	Block Temp.:	200 °C		



Sample Description	Instrument	Agilent-6125B	Probe Bias:	+ 4.5kv
Analyst: YU	Probe:	ESI	Detector:	1.5kv
Sample: 3WI	Nebulizer Gas Flow:	1.5L/min	T. Flow:	0.2ml/min
M.W.: 1426.71	CDL:	-20.0v	B. Conc.:	50%H2O/50%ACN
Lot. No.: P210322-HS879979	CDL Temp.:	250 °C	Block Temp.:	200 °C



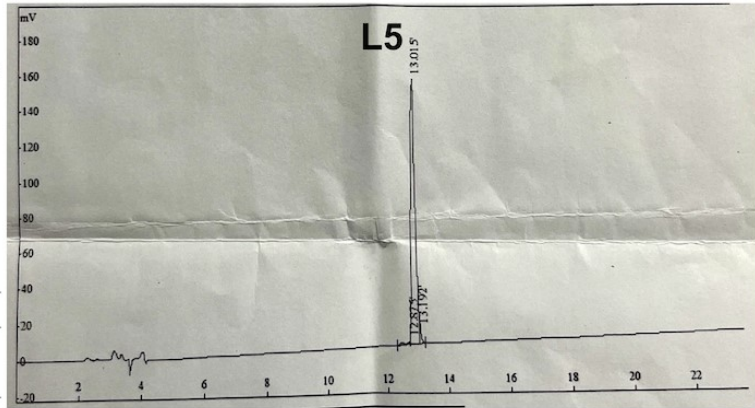
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Analyzed date:	Probe:	ESI	Detector:	1.5kv
Analyst: YU	Nebulizer Gas Flow:	1.5L/min	T. Flow:	0.2ml/min
Sample: W12W	CDL:	-20.0v	B. Conc.:	50%H2O/50%ACN
M.W.: 1426.71	CDL Temp.:	250 °C	Block Temp.:	200 °C
Lot. No.: P210322-HS879980	Block Temp.:	200 °C		

Figure S1. Matrix-assisted laser desorption/ionization time-of-flight mass spectrometry (MALDI-TOF MS) spectra of the nonapeptides.

HPLC REPORT

Product Name :L5
 Lot No :P210322-HS879985
 Column :SinoChrom ODS-DP 5µm, 4.6*250mm
 Solvent A :0.1%Trifluoroacetic in 100%
 Acetonitrile
 Solvent B :0.1%Trifluoroacetic in 100% Water
 Gradient : A B
 0.01min 20% 80%
 25min 50% 50%
 25.01min 100% 0%
 30min Stop
 Flow rate :1.0ml/min
 Wavelength :220nm
 Volume :20ul

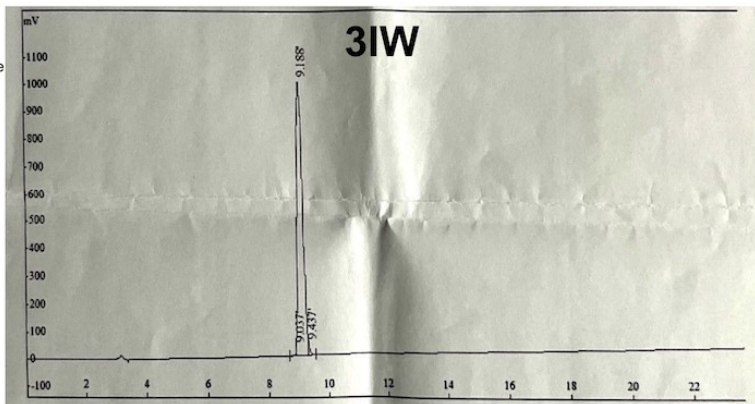
Rank	Time	Conc.	Area	Height
1	12.875	1.4829	19566	2342
2	13.015	96.9057	1278658	151688
3	13.192	1.6114	21262	8007
Total	100		1319486	162037



HPLC REPORT

Product Name :3IW
 Lot No :P220504-HS879977
 Column :Gemini-NX 5µ C18 110A, 4.6*250mm
 Solvent A :0.1%Trifluoroacetic in 100% Acetonitrile
 Solvent B :0.1%Trifluoroacetic in 100% Water
 Gradient : A B
 0.01min 20% 80%
 25min 45% 55%
 25.01min 100% 0%
 30min Stop
 Flow rate :1.0ml/min
 Wavelength :220nm
 Volume :20ul

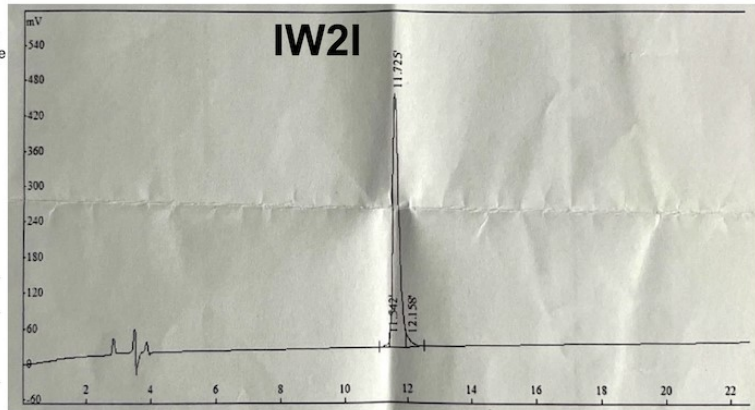
Rank	Time	Conc.	Area	Height
1	11.204	96.2384	9373946	1117850
2	11.410	1.1472	111741	30980
3	12.193	2.6144	254649	30694
Total	100		9740336	1179524



HPLC REPORT

Product Name :IW21
 Lot No :P210322-HS879978
 Column :SinoChrom ODS-DP 5µm, 4.6*250mm
 Solvent A :0.1%Trifluoroacetic in 100% Acetonitrile
 Solvent B :0.1%Trifluoroacetic in 100% Water
 Gradient : A B
 0.01min 20% 80%
 25min 50% 50%
 25.01min 100% 0%
 30min Stop
 Flow rate :1.0ml/min
 Wavelength :220nm
 Volume :20ul

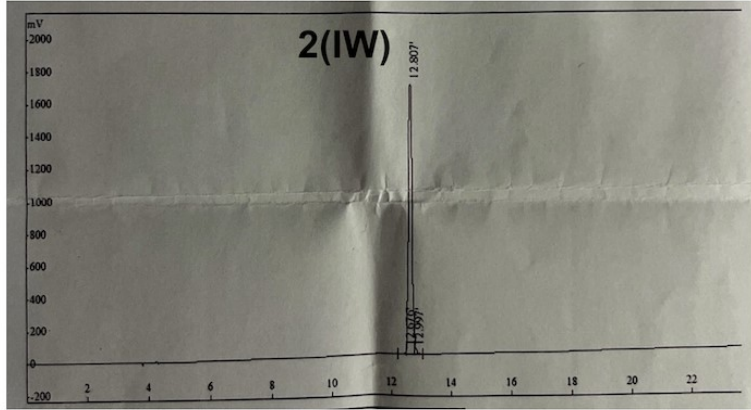
Rank	Time	Conc.	Area	Height
1	11.542	0.7519	42938	13004
2	11.725	96.2060	5494112	428163
3	12.158	3.0421	173726	11774
Total	100		5710776	452941



HPLC REPORT

Product Name :2(IW)
Lot No :P210322-HS879983
Column :SinoChrom ODS-DP 5µm, 4.6*250mm
Solvent A :0.1%Trifluoroacetic in 100% Acetonitrile
Solvent B :0.1%Trifluoroacetic in 100% Water
Gradient : A B
0.01min 25% 75%
25min 60% 40%
25.01min 100% 0%
30min Stop
Flow rate :1.0ml/min
Wavelength :220nm
Volume :20ul

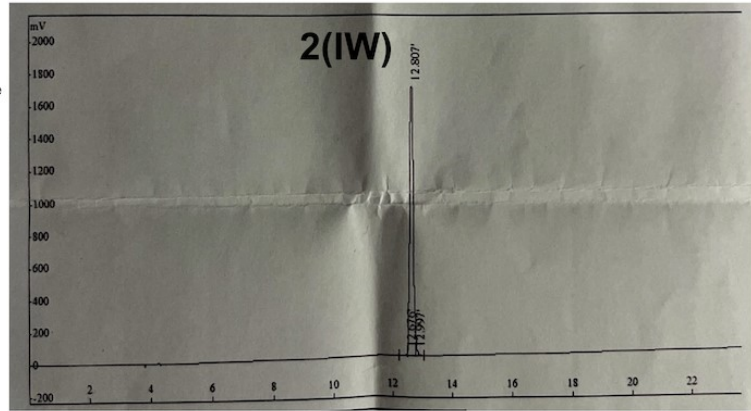
Rank	Time	Conc.	Area	Height
1	12.676	0.2333	30591	20585
2	12.807	98.6909	12940111	1691813
3	12.997	1.0758	141050	20922
Total	100		13111752	1733320



HPLC REPORT

Product Name :2I2W
Lot No :P210322-HS879984
Column :SinoChrom ODS-DP 5µm, 4.6*250mm
Solvent A :0.1%Trifluoroacetic in 100% Acetonitrile
Solvent B :0.1%Trifluoroacetic in 100% Water
Gradient : A B
0.01min 22% 78%
25min 47% 53%
25.01min 100% 0%
30min Stop
Flow rate :1.0ml/min
Wavelength :220nm
Volume :20ul

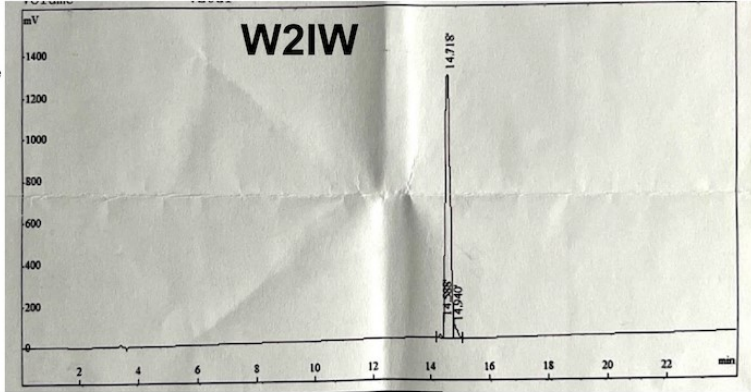
Rank	Time	Conc.	Area	Height
1	13.091	98.9426	19638886	1400571
2	13.353	1.0574	209888	76917
Total	100		19848774	1477488



HPLC REPORT

Product Name :W2IW
Lot No :P210322-HS879982
Column :SinoChrom ODS-DP 5µm, 4.6*250mm
Solvent A :0.1%Trifluoroacetic in 100% Acetonitrile
Solvent B :0.1%Trifluoroacetic in 100% Water
Gradient : A B
0.01min 20% 80%
25min 50% 50%
25.01min 100% 0%
30min Stop
Flow rate :1.0ml/min
Wavelength :220nm
Volume :20ul

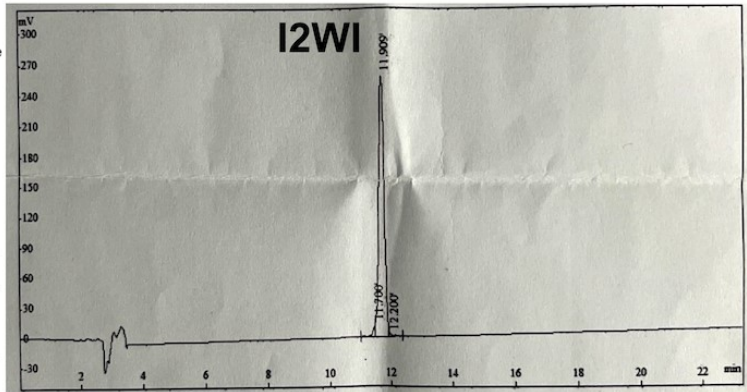
Rank	Time	Conc.	Area	Height
1	14.588	0.9211	127108	77854
2	14.718	96.5967	13329525	1270376
3	14.940	2.4822	342523	56079
Total	100		13799156	1404309



HPLC REPORT

Product Name : I2WI
 Lot No : P210322-HS879981
 Column : Gemini-NX 5 μ C18 110A, 4.6*250mm
 Solvent A : 0.1%Trifluoroacetic in 100% Acetonitrile
 Solvent B : 0.1%Trifluoroacetic in 100% Water
 Gradient : A B
 0.01min 22% 78%
 25min 47% 53%
 25.01min 100% 0%
 30min Stop
 Flow rate : 1.0ml/min
 Wavelength : 220nm
 Volume : 20ul

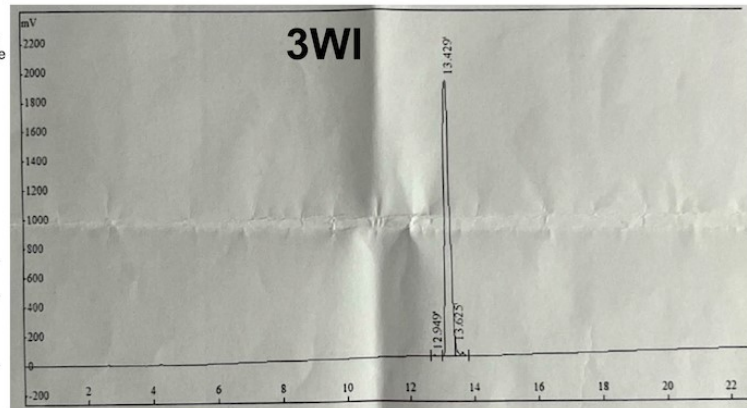
Rank	Time	Conc.	Area	Height
1	11.700	1.8228	56902	11282
2	11.909	97.1164	3031600	259765
3	12.200	1.0608	33113	2108
Total	100	3121615	273155	



HPLC REPORT

Product Name : 3WI
 Lot No : P210322-HS879979
 Column : SinoChrom ODS-DP 5 μ m, 4.6*250mm
 Solvent A : 0.1%Trifluoroacetic in 100% Acetonitrile
 Solvent B : 0.1%Trifluoroacetic in 100% Water
 Gradient : A B
 0.01min 25% 75%
 25min 60% 40%
 25.01min 100% 0%
 30min Stop
 Flow rate : 1.0ml/min
 Wavelength : 220nm
 Volume : 20ul

Rank	Time	Conc.	Area	Height
1	12.949	0.2266	47708	9091
2	13.429	98.0961	20650059	1900738
3	13.625	1.6773	353088	60251
Total	100	21050855	1970080	



HPLC REPORT

Product Name : WI2W
 Lot No : P210322-HS879980
 Column : Gemini-NX 5 μ C18 110A, 4.6*250mm
 Solvent A : 0.1%Trifluoroacetic in 100% Acetonitrile
 Solvent B : 0.1%Trifluoroacetic in 100% Water
 Gradient : A B
 0.01min 25% 75%
 25min 50% 50%
 25.01min3 100% 0%
 30min Stop
 Flow rate : 1.0ml/min
 Wavelength : 220nm
 Volume : 20ul

Rank	Time	Conc.	Area	Height
1	12.884	0.9006	149291	8202
2	13.493	2.0853	345674	70146
3	13.698	95.5857	15844930	917914
4	14.481	1.4284	236781	18479
Total	100	16576676	1014741	

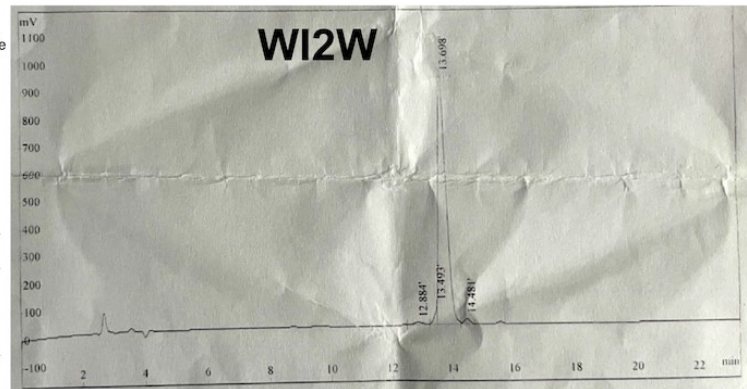


Figure S2. High-performance liquid chromatography (HPLC) spectra of the nonapeptides.