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Laser desorption ionization mass spectrometry of peptides on hybrid CHCA organic-inorganic matrix

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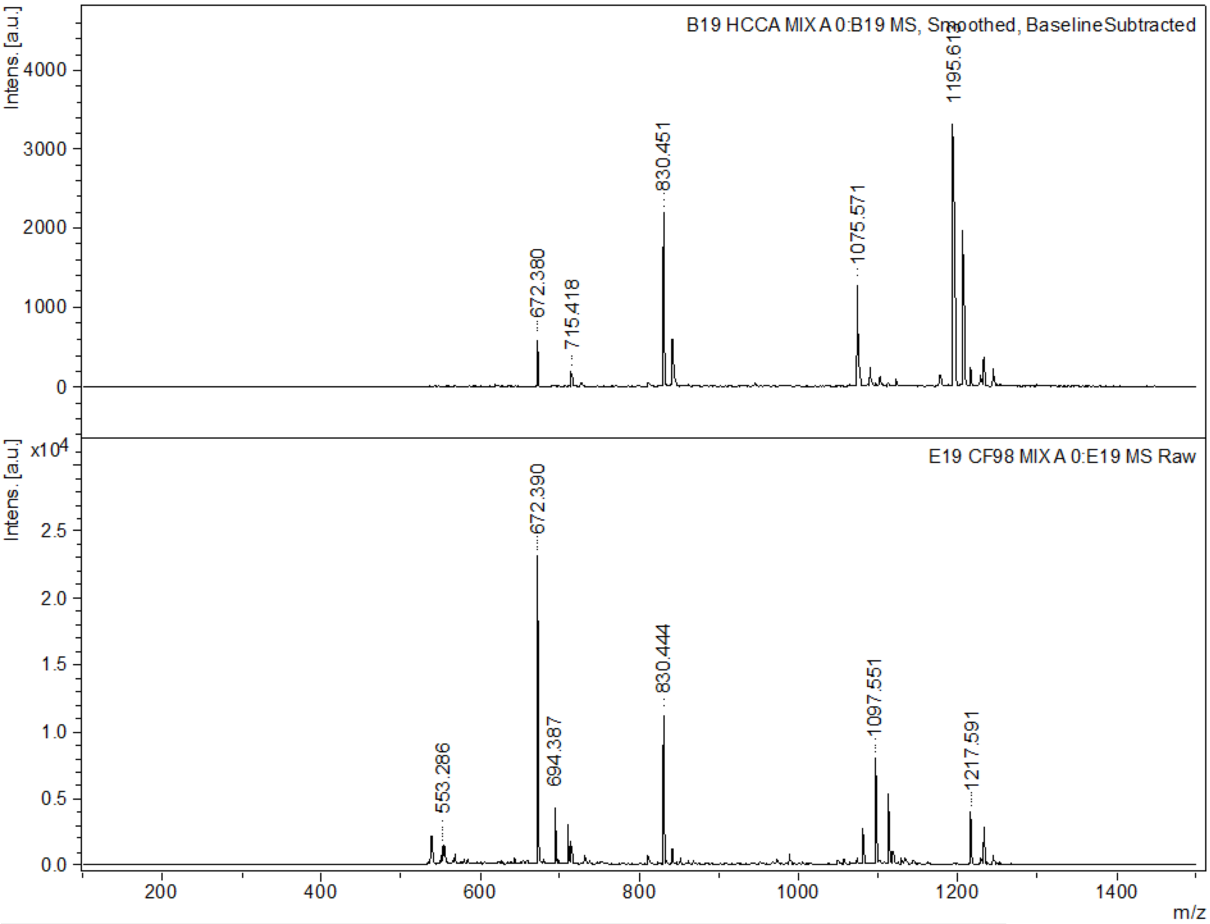
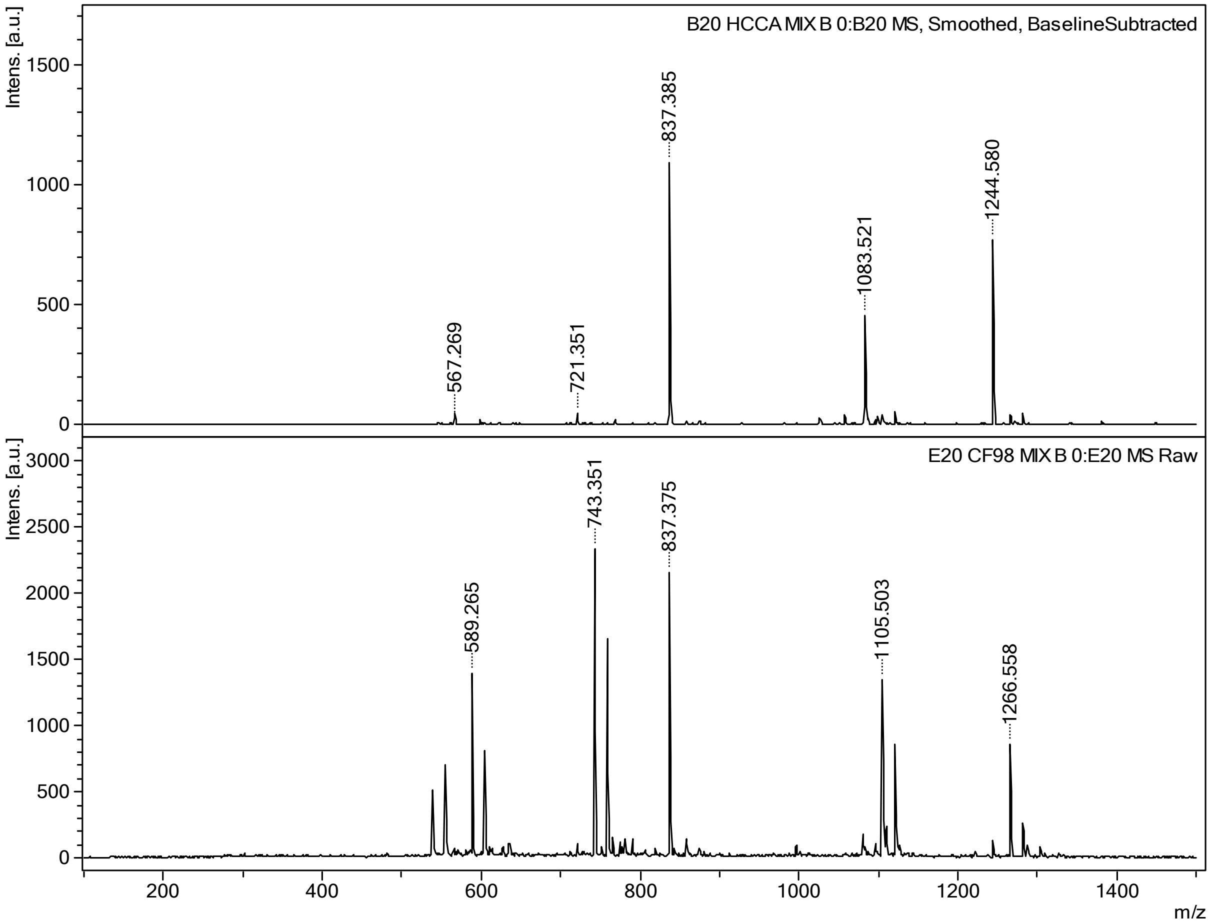
† Electronic Supplementary Information (ESI) available:

Figures S1. LDI-MS spectra of the studied peptide mixture A at 10^{-5} M recorded from CHCA matrix (top) and from CHCA-SiO_2 matrix (bottom)



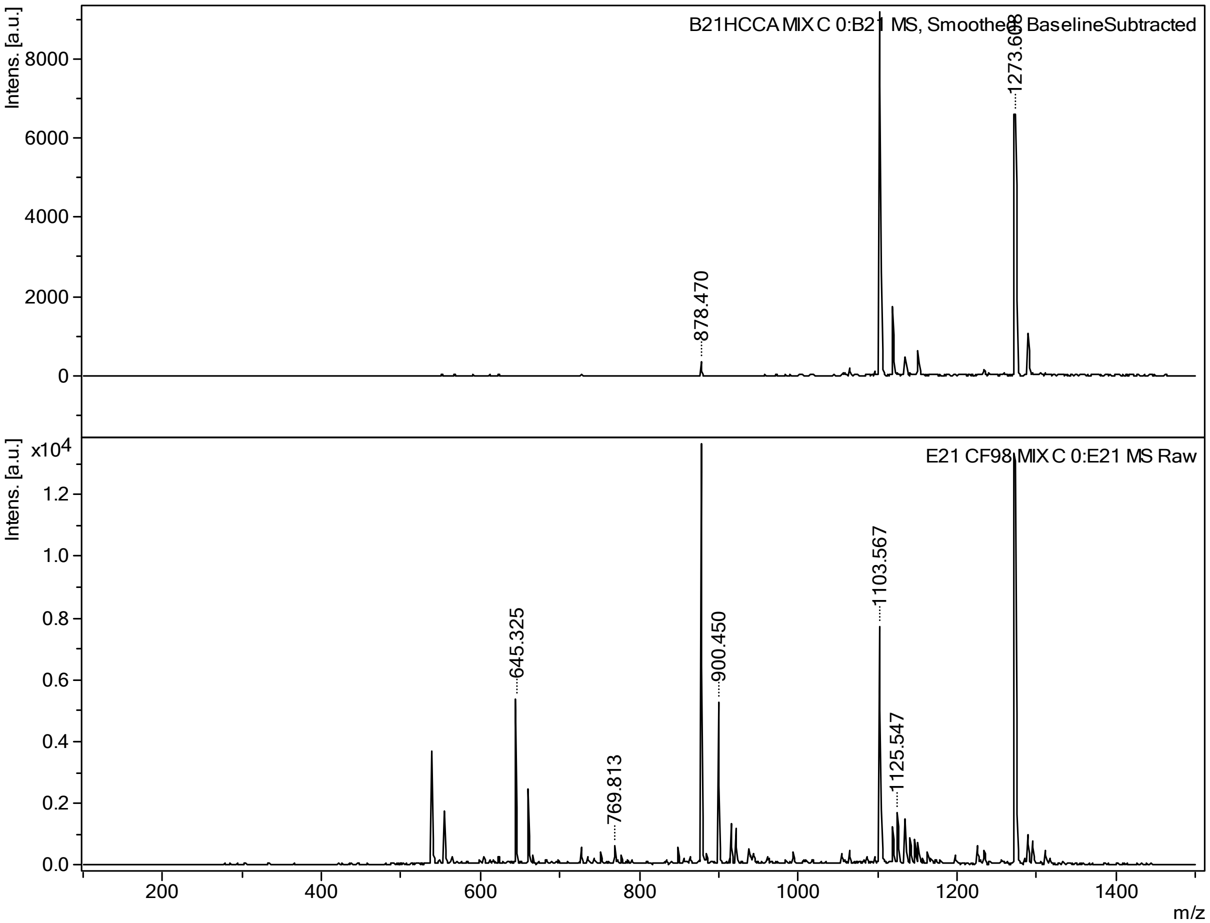
Mixture at 10^{-5} M	Peptide	M (g/mol)	$(M+H)^+$	$(M+Na)^+$	$(M+K)^+$
A	P1	530,29	531,30	553,28	569,25
	P2	671,40	672,40	694,39	710,36
	P3	829,44	830,45	852,43	868,41
	P4	1074,57	1075,58	1097,56	1113,53
	P5	1194,61	1195,62	1217,60	1233,57

Figures S2. LDI-MS spectra of the studied peptide mixture B at 10^{-5} M recorded from CHCA matrix (top) and from CHCA-SiO_2 matrix (bottom)



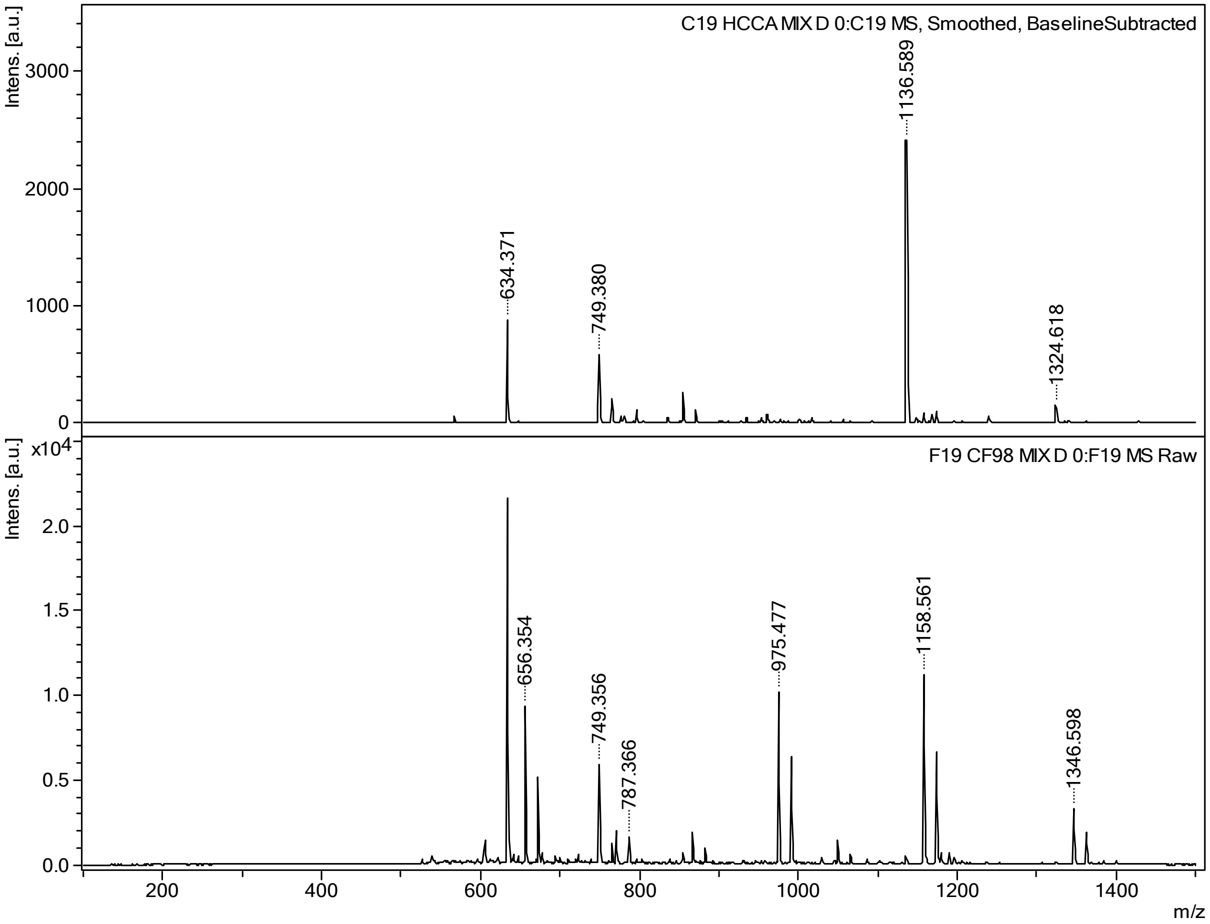
Mixture at 10^{-5} M	Peptide	M (g/mol)	$(M+H)^+$	$(M+Na)^+$	$(M+K)^+$
B	P6	566,27	567,28	589,26	605,23
	P7	720,36	721,37	743,35	759,33
	P8	836,39	837,39	859,37	875,35
	P9	1082,29	1083,30	1105,28	1121,25
	P10	1243,58	1244,59	1266,57	1282,55

Figures S3. LDI-MS spectra of the studied peptide mixture C at 10^{-5} M recorded from CHCA matrix (top) and from CHCA-SiO_2 matrix (bottom)



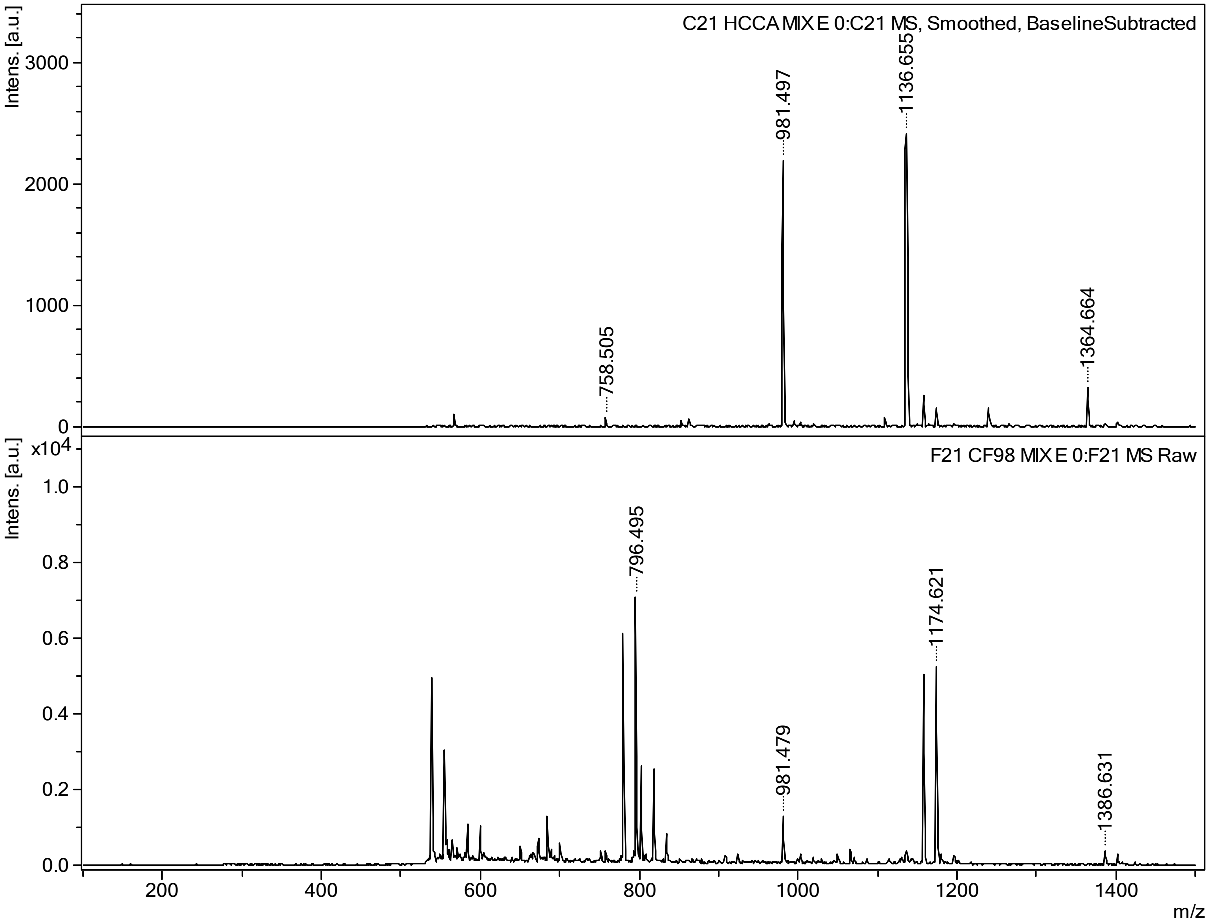
Mixture at 10^{-5} M	Peptide	M (g/mol)	$(M+H)^+$	$(M+Na)^+$	$(M+K)^+$
C	P11	622,23	623,24	645,22	661,19
	P12	730,42	731,43	753,41	769,38
	P13	877,48	878,49	900,47	916,44
	P14	1102,58	1103,59	1125,57	1141,54
	P15	1243,58	1244,59	1266,57	1282,54

Figures S4. LDI-MS spectra of the studied peptide mixture D at 10^{-5} M recorded from CHCA matrix (top) and from CHCA-SiO_2 matrix (bottom)



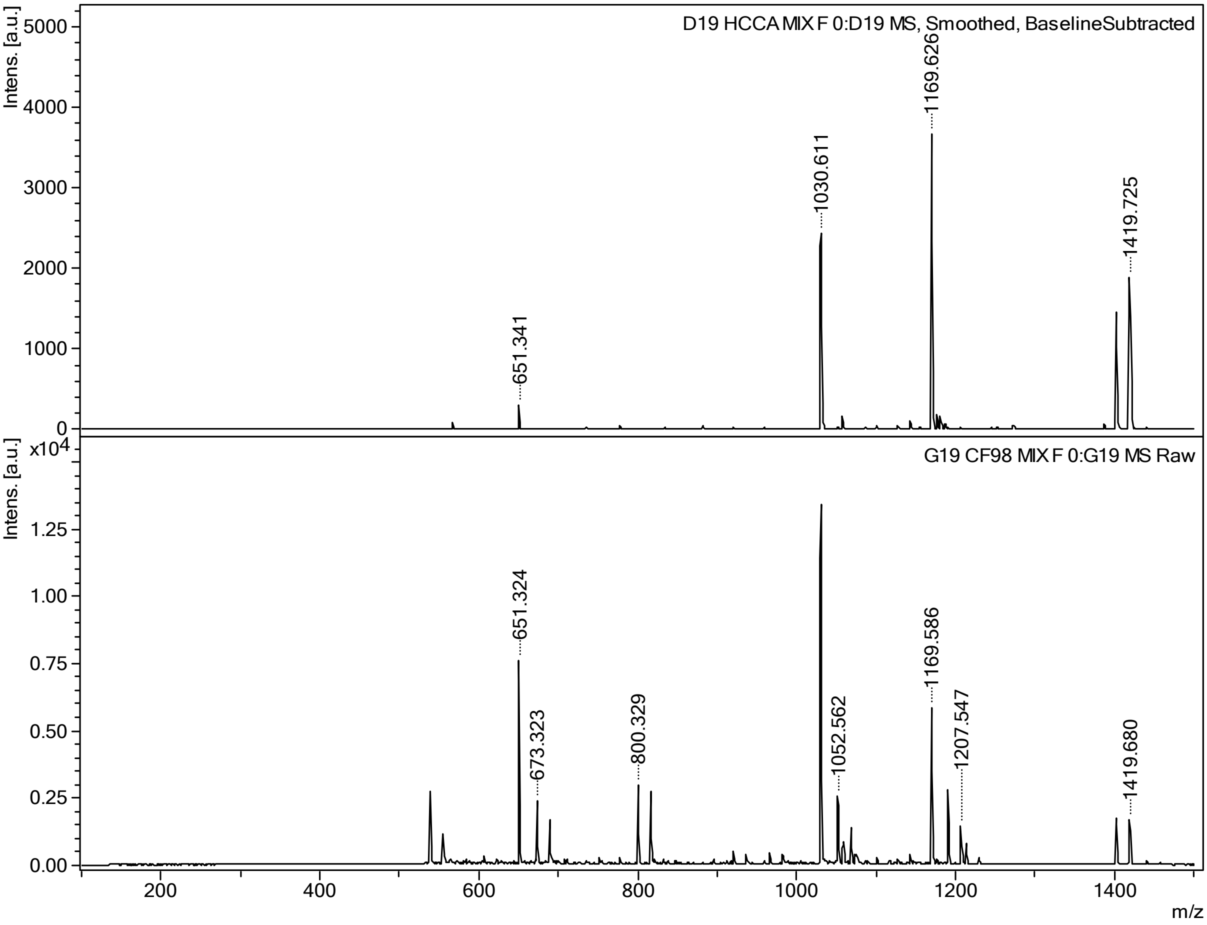
Mixture at 10^{-5} M	Peptide	M (g/mol)	$(M+H)^+$	$(M+Na)^+$	$(M+K)^+$
D	P16	633,36	634,37	656,35	672,32
	P17	748,37	749,38	771,36	787,33
	P18	952,49	953,50	975,48	991,45
	P19	1135,58	1136,59	1158,57	1174,54
	P20	1323,61	1324,62	1346,60	1362,57

Figures S5. LDI-MS spectra of the studied peptide mixture E at 10^{-5} M recorded from CHCA matrix (top) and from CHCA-SiO_2 matrix (bottom)



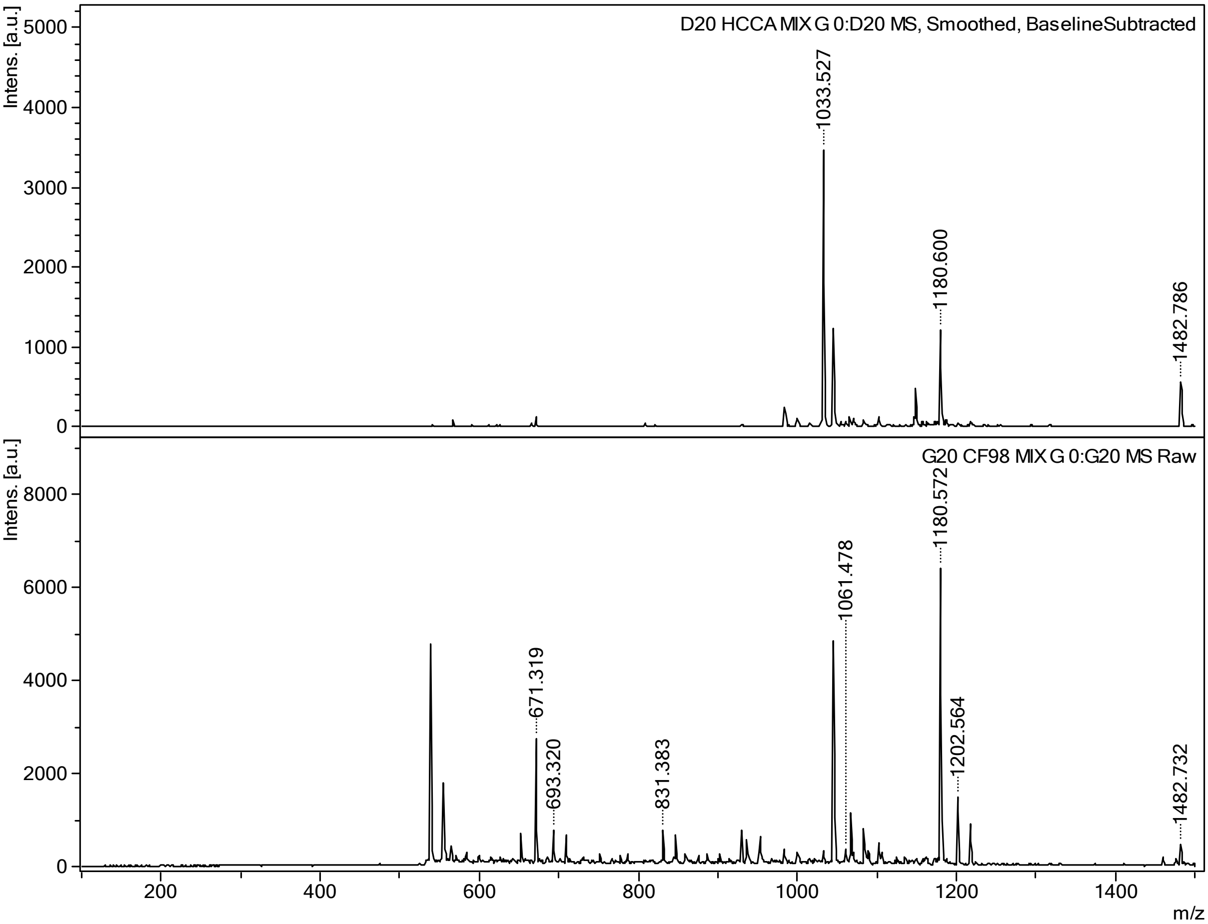
Mixture at 10^{-5} M	Peptide	M (g/mol)	$(M+H)^+$	$(M+Na)^+$	$(M+K)^+$
E	P21	642,33	643,34	665,32	681,29
	P22	757,52	758,53	780,51	796,48
	P23	980,49	981,50	1003,48	1019,45
	P24	1135,65	1136,66	1158,64	1174,61
	P25	1363,66	1364,67	1386,65	1402,62

Figures S6. LDI-MS spectra of the studied peptide mixture F at 10^{-5} M recorded from CHCA matrix (top) and from CHCA-SiO_2 matrix (bottom)



Mixture at 10^{-5} M	Peptide	M (g/mol)	$(M+H)^+$	$(M+Na)^+$	$(M+K)^+$
F	P26	650,34	651,35	673,33	689,30
	P27	777,35	778,36	800,34	816,31
	P28	1029,60	1030,61	1052,59	1068,56
	P29	1168,61	1169,62	1191,60	1207,57
	P30	1418,72	1419,73	1441,71	1457,68

Figures S7. LDI-MS spectra of the studied peptide mixture G at 10^{-5} M recorded from CHCA matrix (top) and from CHCA-SiO$_2$ matrix (bottom)



Mixture at 10^{-5} M	Peptide	M (g/mol)	$(M+H)^+$	$(M+Na)^+$	$(M+K)^+$
G	P31	670,34	671,35	693,33	709,30
	P32	808,38	809,39	831,37	847,34
	P33	1032,52	1033,53	1055,51	1071,48
	P34	1179,60	1180,61	1202,59	1218,56
	P35	1481,79	1482,80	1504,78	1520,75

Table S1. Triplicate analyses of peptide mixtures A to G deposited at 10^{-5} M with CHCA and CHCA-SiO_2 as matrix

Mixture deposited at 10^{-5} M	M (g/mol)	Mean of molecular ions ($MH^+/MNa^+/MK^+$) relative abundances (%) from analyses carried out in triplicate with the matrix		Variation of molecular ions (MH+/MNa+/MK+) relative abundances from analyses carried out in triplicate with the matrix		Standard deviation	
		CHCA	CHCA-SiO_2	CHCA	CHCA-SiO_2	CHCA	CHCA-SiO_2
A	530,29	Not detected	4,4	Not detected	1,3	12 %	13 %
	671,40	19,4	38,8	5,8	5,5		
	829,44	32,0	15,1	0,8	2,1		
	1074,57	20,9	23,6	7,7	2,3		
	1194,61	27,7	18,1	1,7	4,0		
B	566,27	1,2	17,0	2,5	0,5	19 %	5 %
	720,36	2,5	26,9	1,0	4,0		
	836,39	43,5	16,9	5,8	2,1		
	1082,53	19,5	15,0	5,1	4,0		
	1243,58	33,4	24,2	5,9	9,9		
C	622,33	Not detected	22,7	Not detected	7,3	24 %	12 %
	730,42	Not detected	1,3	Not detected	0,3		
	877,48	7,3	31,6	10,5	1,3		
	1102,58	50,7	14,9	6,4	2,6		
	1272,60	42,0	29,5	4,1	4,6		
D	633,36	23,8	28,2	3,8	6,0	23 %	10 %
	748,37	13,0	7,3	5,4	1,3		
	952,49	1,1	20,0	0,8	1,3		
	1135,58	58,1	31,2	14,3	3,2		
	1323,61	3,9	13,4	4,8	3,7		
E	642,33	Not detected	2,6	0,0	0,6	24 %	13 %
	757,52	2,0	34,1	3,4	6,2		
	980,49	35,2	13,5	1,2	2,1		
	1135,65	54,1	32,7	11,6	1,0		
	1363,66	8,6	17,1	7,0	5,0		
F	650,34	3,8	24,6	15,2	4,5	17 %	11 %
	777,35	1,3	12,0	3,4	2,5		
	1029,60	28,5	30,5	7,4	4,5		
	1168,61	40,5	28,0	6,1	3,7		
	1418,72	25,9	4,9	6,0	1,9		
G	670,34	3,2	18,9	7,3	1,0	25 %	18 %
	808,38	1,3	5,6	2,3	5,2		
	1032,52	62,5	1,5	14,7	0,1		
	1179,60	21,3	46,6	4,2	8,1		
	1481,79	11,8	27,3	8,7	3,3		

Figure S8. MS/MS spectrum of peptide P8 (Mixture B) deposited with CHCA-SiO$_2$ matrix.

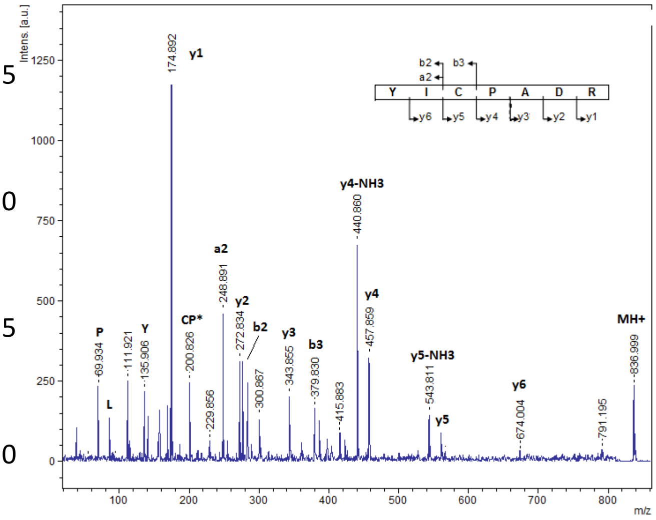


Figure S9. Peptide mixture B deposited with different matrix: CHCA, CHCA-SiO$_2$, SiO$_2$ and CHCA-SiO$_2$ supplemented with diammonium citrate and diammonium sulphate.

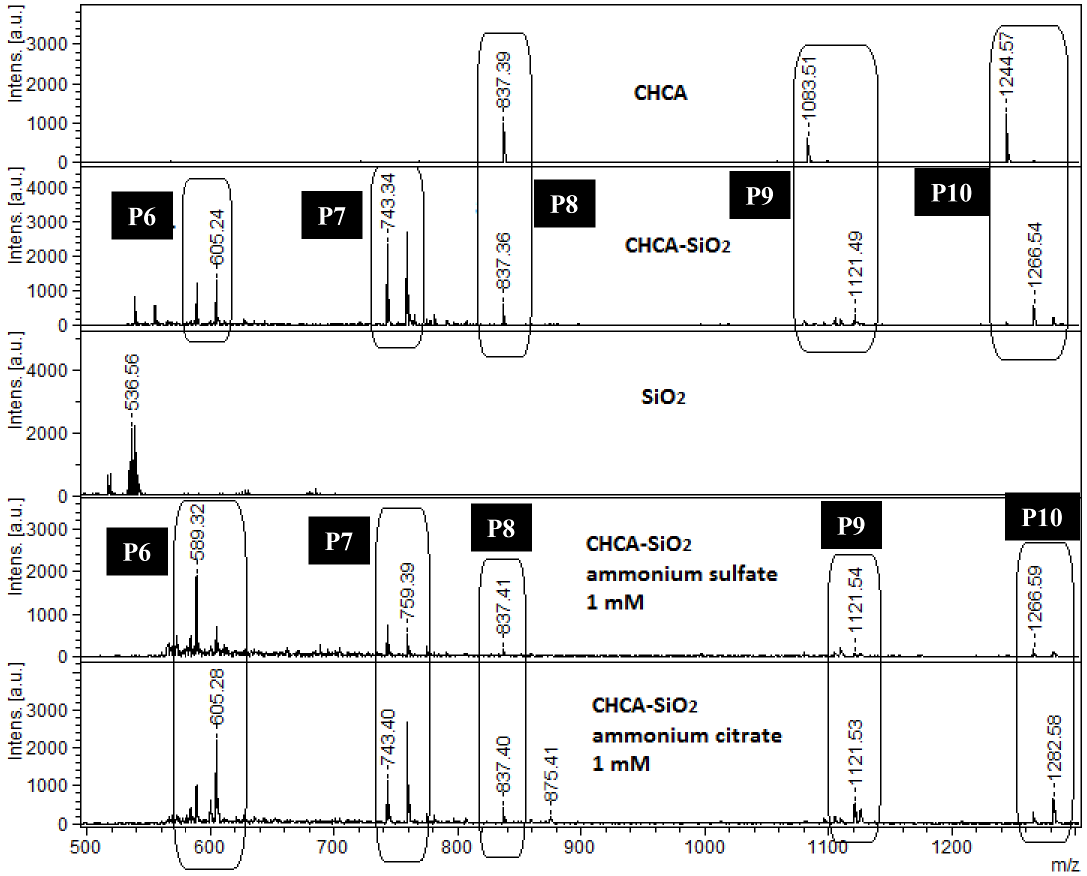


Table S2. Relative ion abundances for peptide mixture B deposited on CHCA-SiO_2 with different additives.

Concentration of Mixture B	Peptide	M (g/mol)	Relative ion abundance				
			CHCA-SiO_2 + diammonium sulfate	CHCA-SiO_2 + diammonium citrate	CHCA-SiO_2 + TFA	CHCA-SiO_2	CHCA
10^{-5} M	P6	566,27	32,1%	25,8%	9,1%	17,0%	1,2%
	P7	720,36	31,3%	27,9%	45,2%	26,9%	2,5%
	P8	836,39	6,2%	13,4%	13,9%	16,9%	43,5%
	P9	1082,53	18,8%	19,8%	26,2%	15,0%	19,5%
	P10	1243,58	11,6%	13,1%	5,6%	24,2%	33,4%
10^{-6} M	P6	566,27	55,2%	30,1%	0%	33,1%	1,2%
	P7	720,36	28,8%	31,3%	0%	34,9%	23,9%
	P8	836,39	4,2%	7,9%	0%	7,0%	18,5%
	P9	1082,53	3,1%	13,8%	0%	7,9%	17,5%
	P10	1243,58	8,8%	16,9%	0%	17,1%	24,2%