FIGURE 1

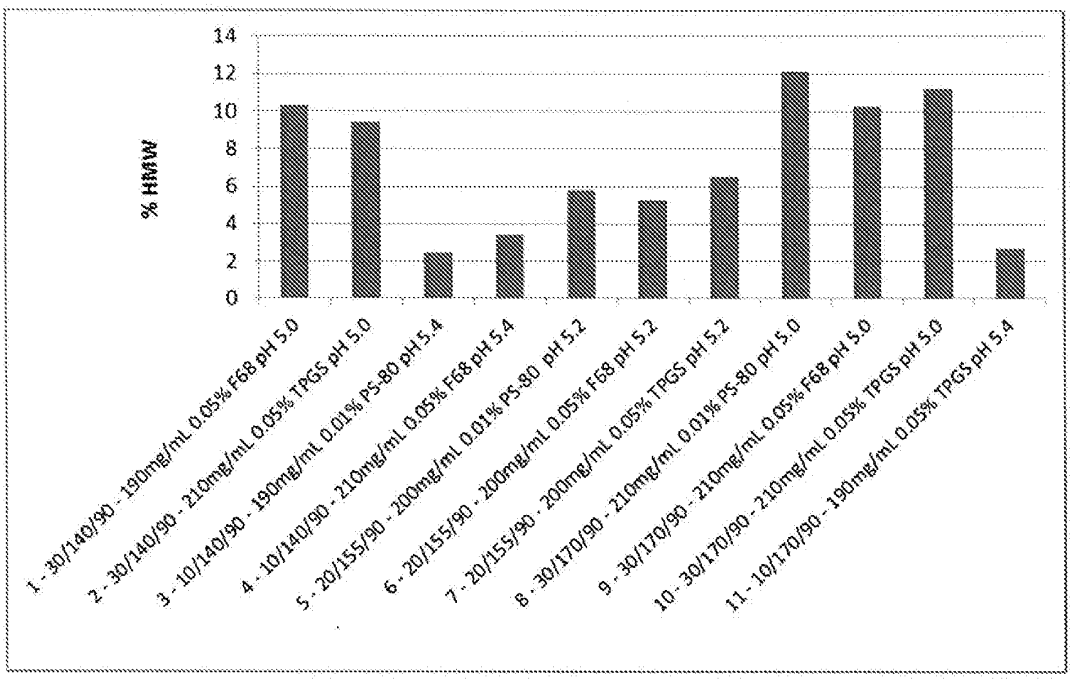

FIGURE 2

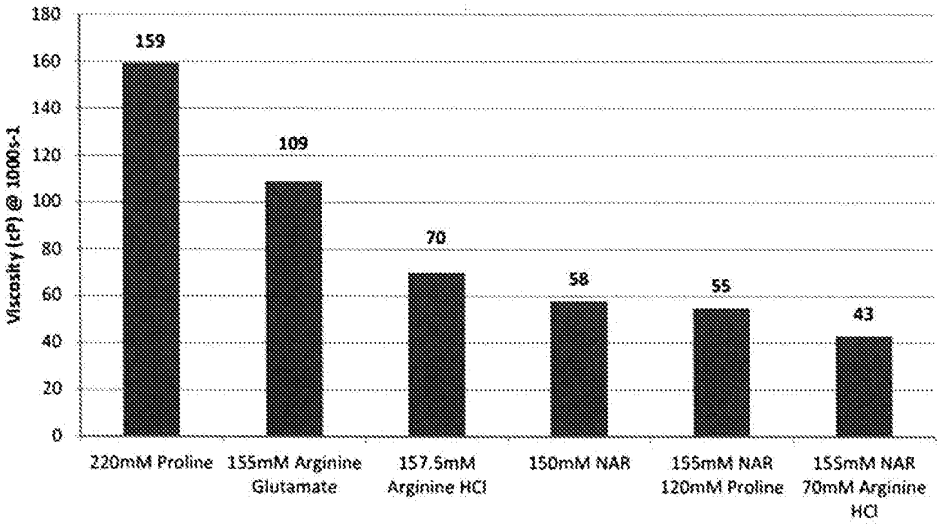

FIGURE 3A

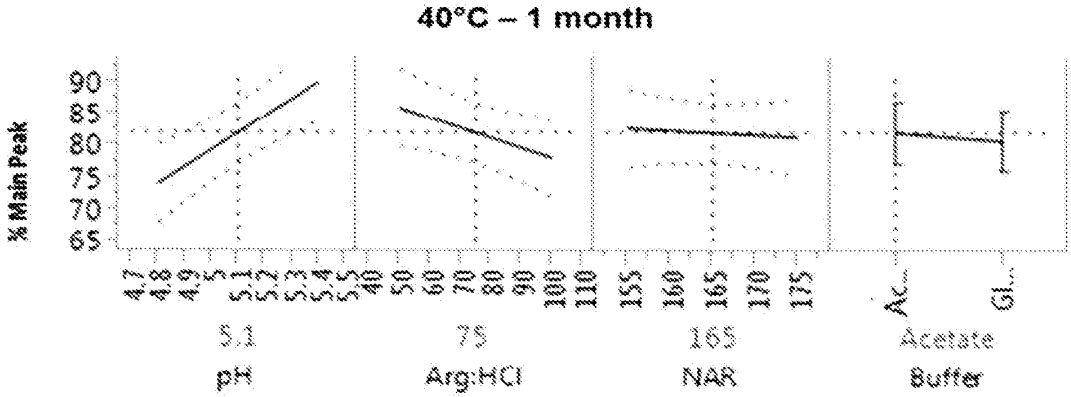

FIGURE 3B

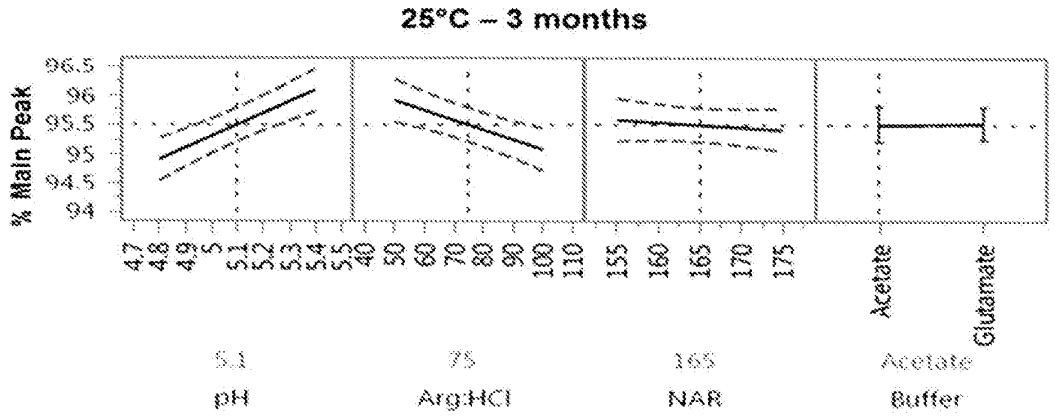

FIGURE 4

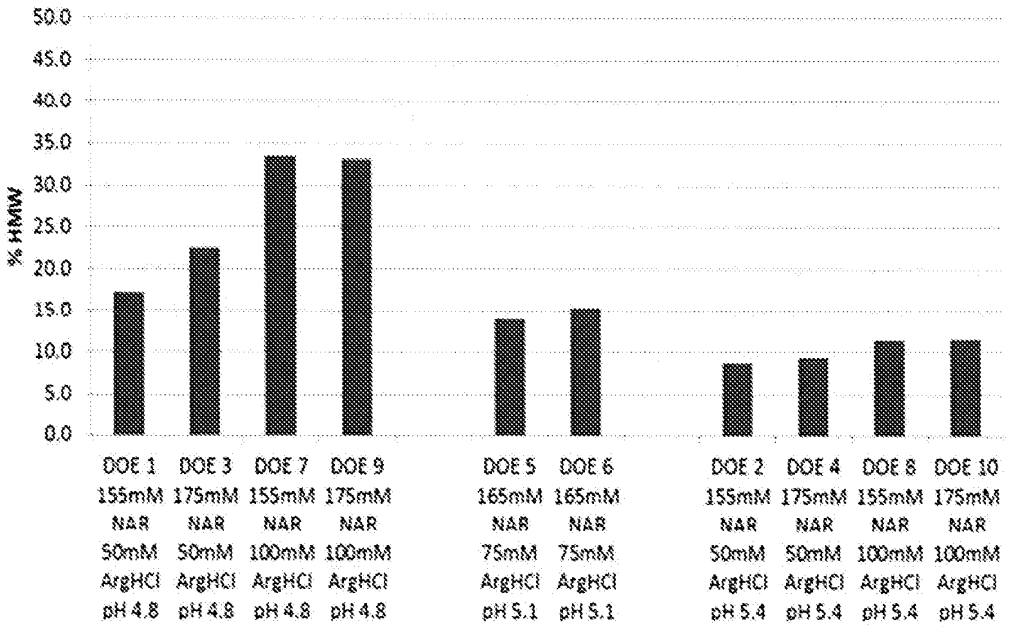
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
% HMW
DOE 1 155mM NAR 50mM ArgHCl pH 4.8
DOE 3 175mM NAR 50mM ArgHCl pH 4.8
DOE 7 155mM NAR 100mM ArgHCl pH 4.8
DOE 9 175mM NAR 100mM ArgHCl pH 4.8
DOE 5 165mM NAR 75mM ArgHCl pH 5.1
DOE 6 165mM NAR 75mM ArgHCl pH 5.1
DOE 2 155mM NAR 50mM ArgHCl pH 5.4
DOE 4 175mM NAR 50mM ArgHCl pH 5.4
DOE 8 155mM NAR 100mM ArgHCl pH 5.4
DOE 10 175mM NAR 100mM ArgHCl pH 5.4

FIGURE 5A

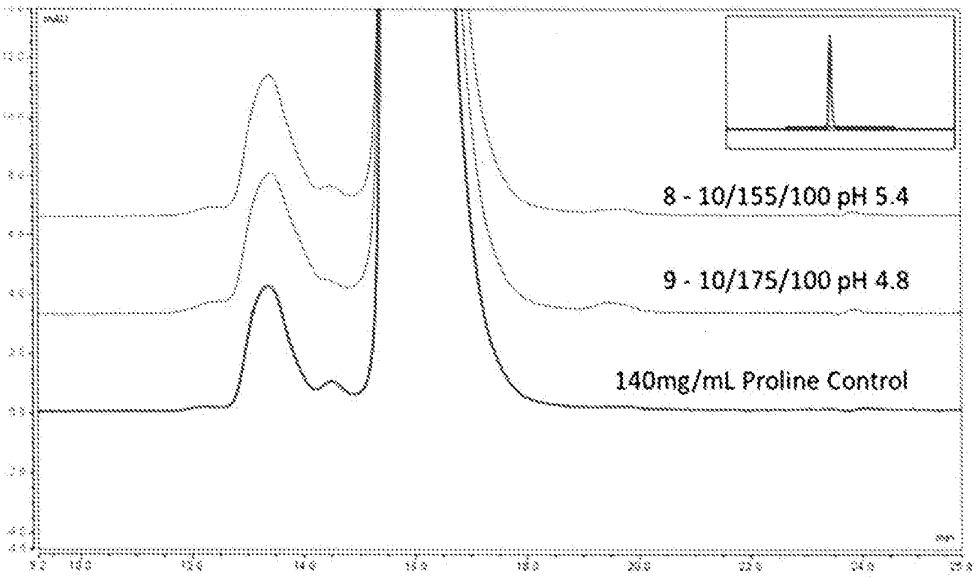

FIGURE 5B

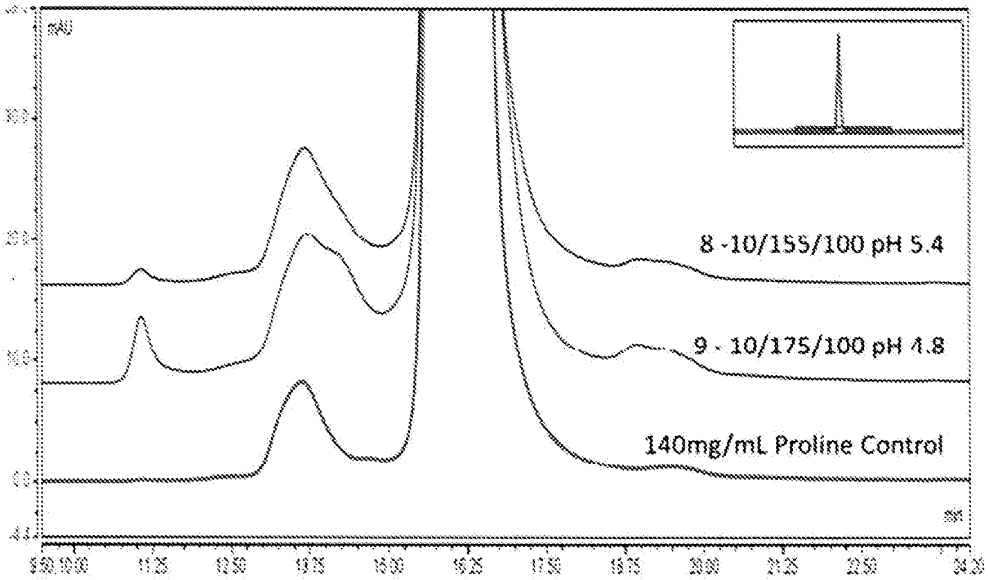

FIGURE 5C

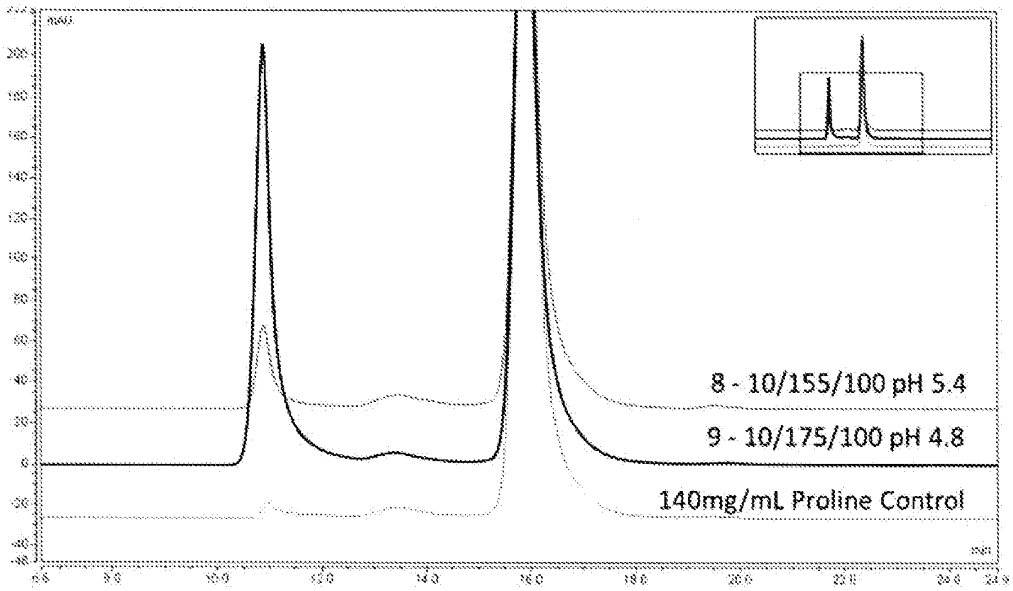

FIGURE 6A

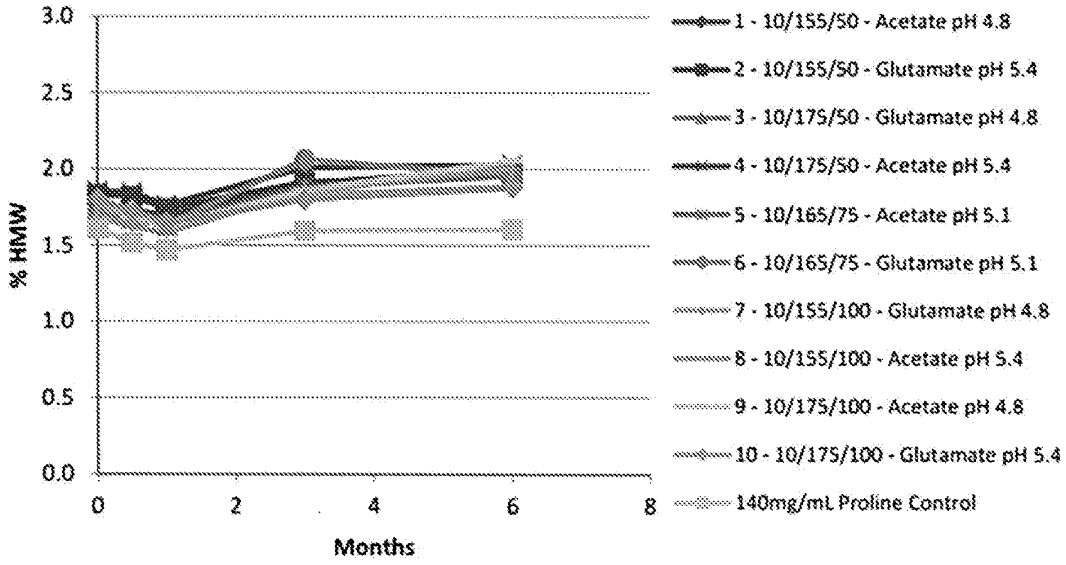

FIGURE 6B

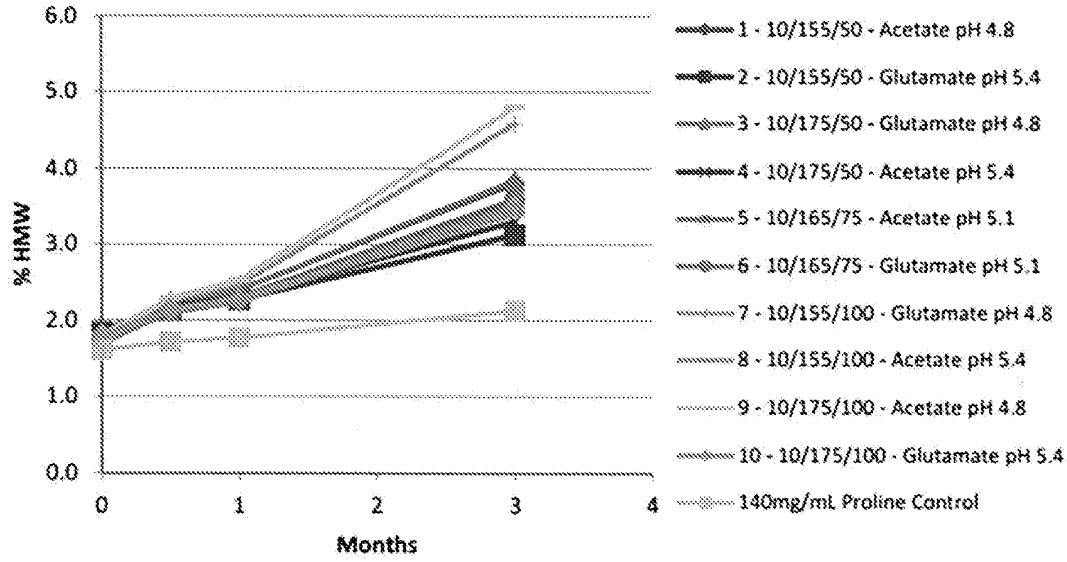

FIGURE 7A

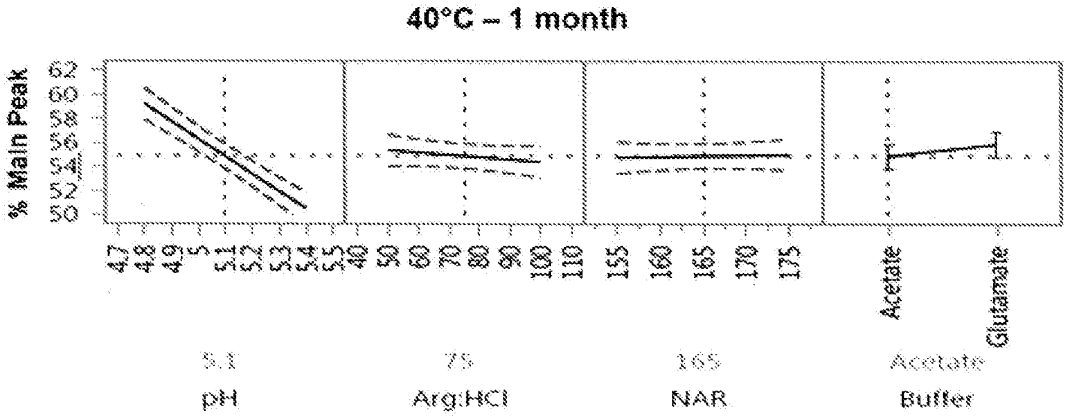

FIGURE 7B

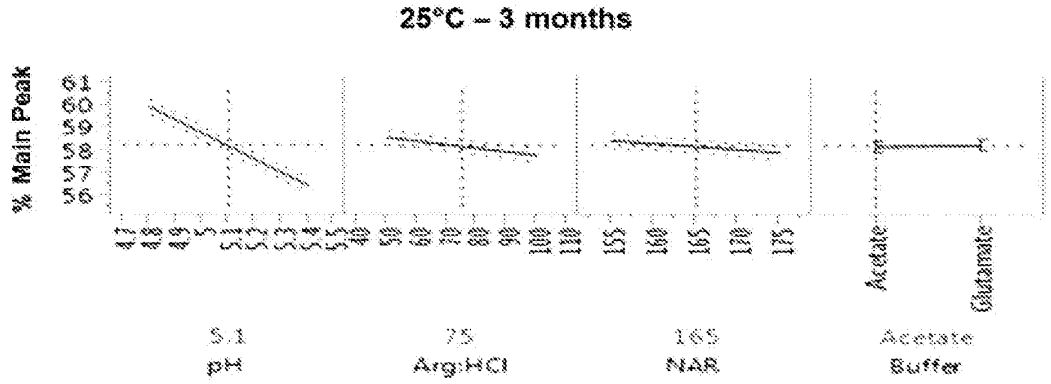

FIGURE 8

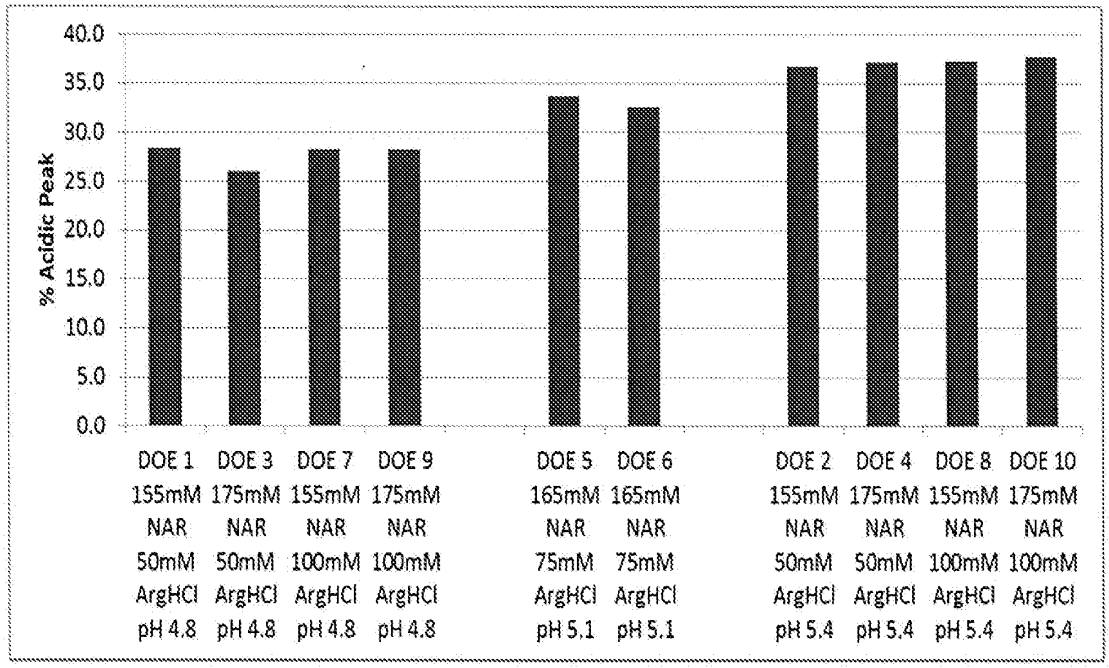
% Acidic Peak
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
DOE 1 155mM NAR 50mM ArgHCl pH 4.8
DOE 3 175mM NAR 50mM ArgHCl pH 4.8
DOE 7 155mM NAR 100mM ArgHCl pH 4.8
DOE 9 175mM NAR 100mM ArgHCl pH 4.8
DOE 5 165mM NAR 75mM ArgHCl pH 5.1
DOE 6 165mM NAR 75mM ArgHCl pH 5.1
DOE 2 155mM NAR 50mM ArgHCl pH 5.4
DOE 4 175mM NAR 50mM ArgHCl pH 5.4
DOE 8 155mM NAR 100mM ArgHCl pH 5.4
DOE 10 175mM NAR 100mM ArgHCl pH 5.4

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FIGURE 9A

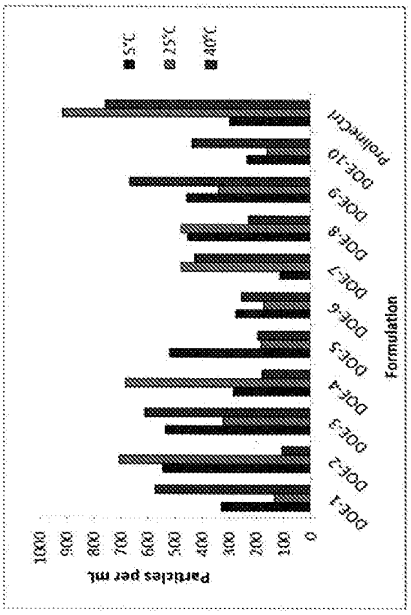


FIGURE 9B

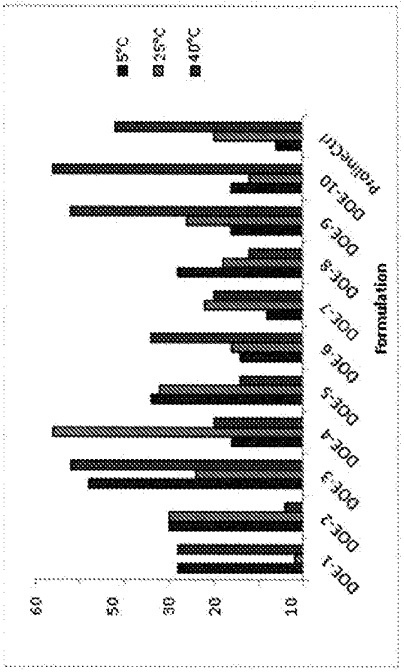


FIGURE 9C

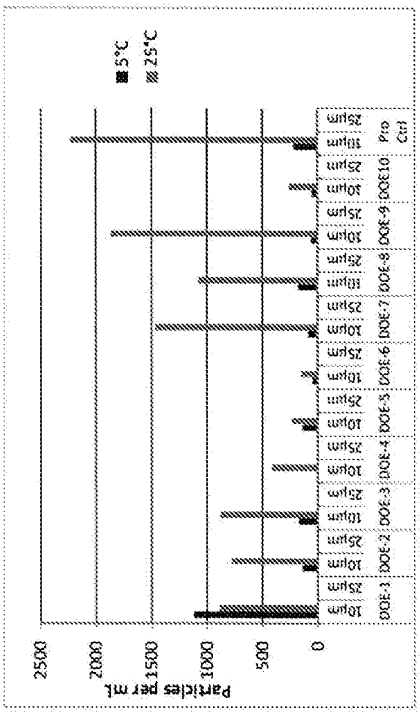


FIGURE 10

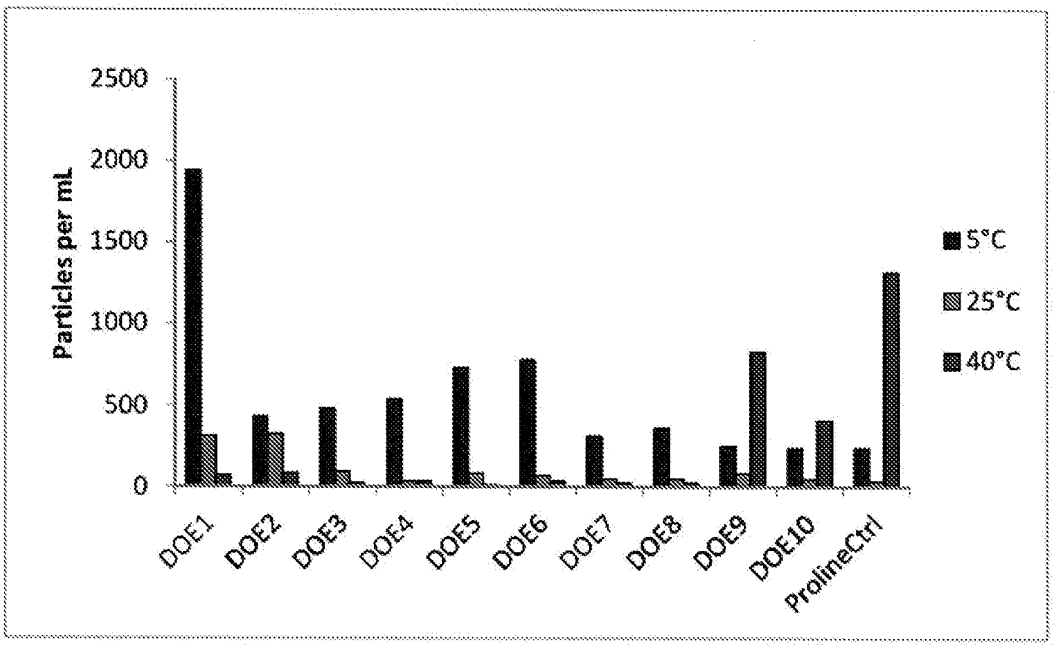


FIGURE 11

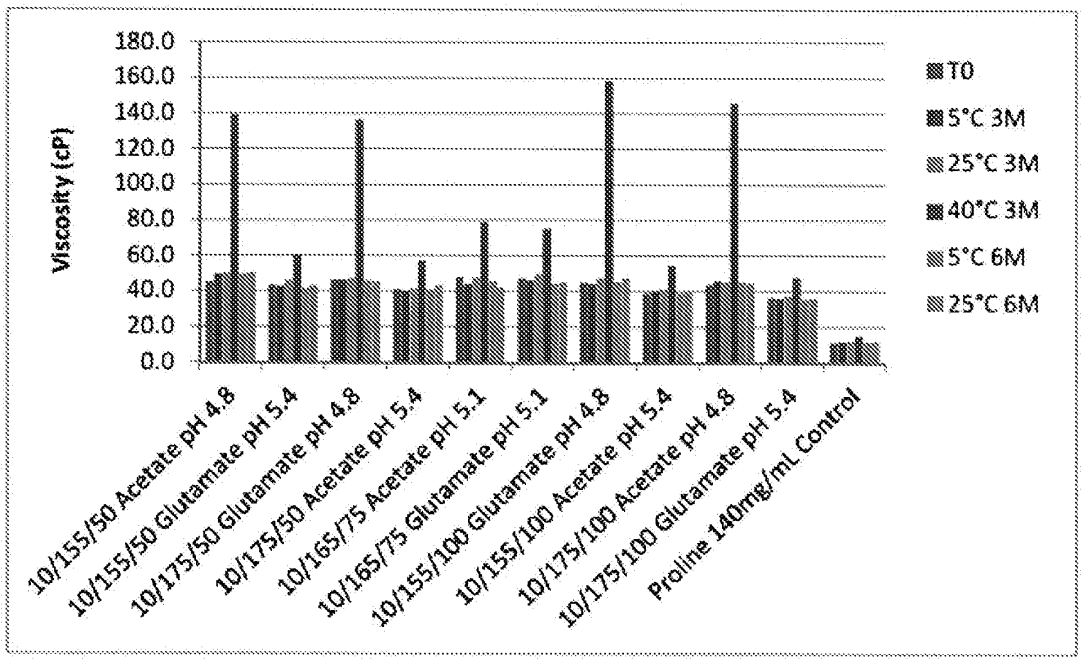
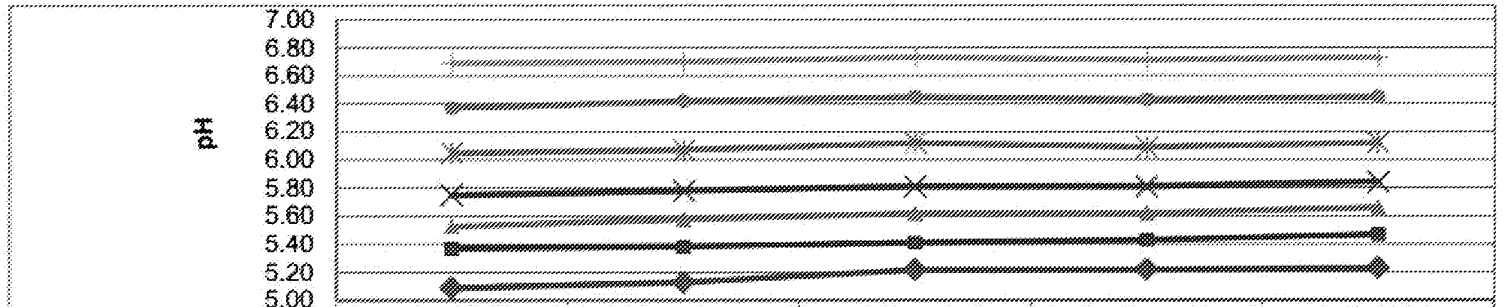


FIGURE 12



	T=0	T=2wk	T=1M	T=2M	T=3M
Acetate pH 5.1	5.09	5.13	5.22	5.22	5.23
Acetate pH 5.4	5.37	5.38	5.41	5.43	5.47
Acetate pH 5.7	5.53	5.58	5.62	5.62	5.66
Histidine pH 6.0	5.75	5.78	5.81	5.81	5.84
Histidine pH 6.3	6.05	6.07	6.12	6.09	6.12
Phosphate pH 6.6	6.37	6.42	6.45	6.43	6.45
Phosphate pH 6.9	6.69	6.70	6.73	6.71	6.73

FIGURE 13A

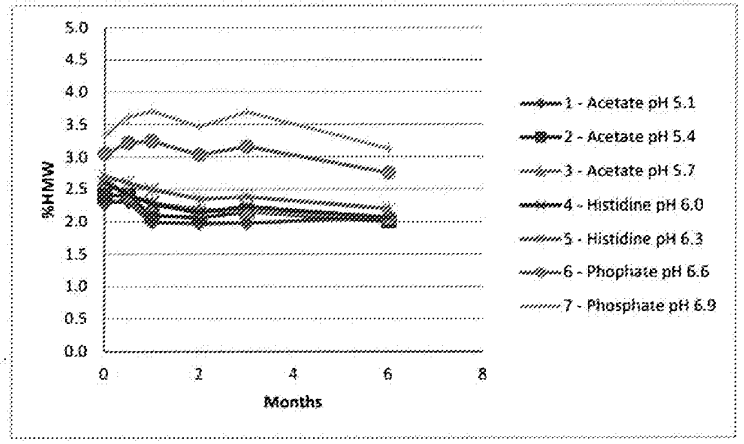


FIGURE 13B

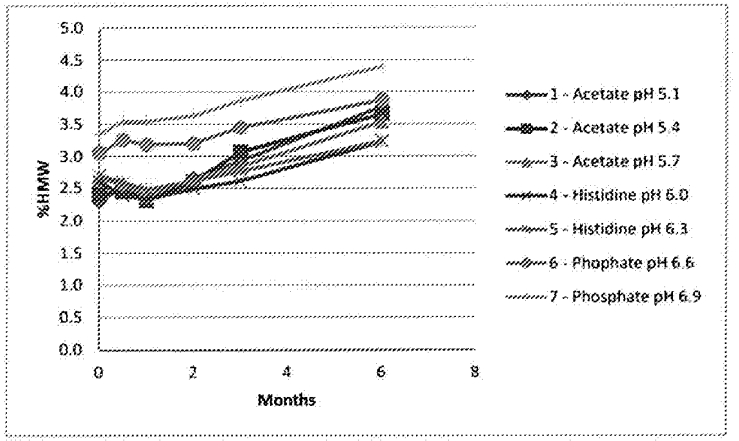


FIGURE 13C

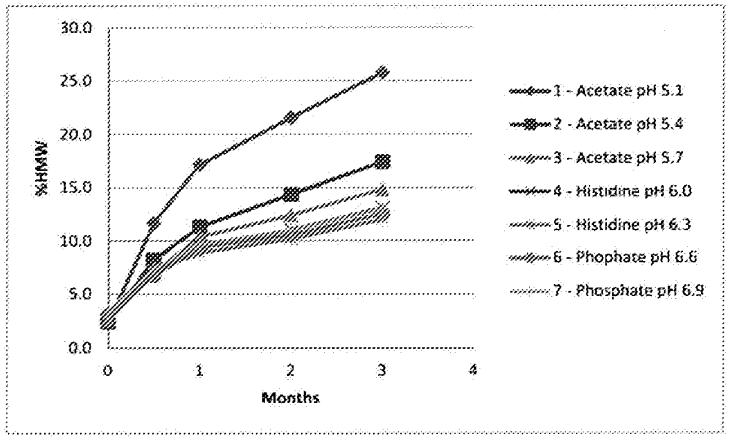


FIGURE 14

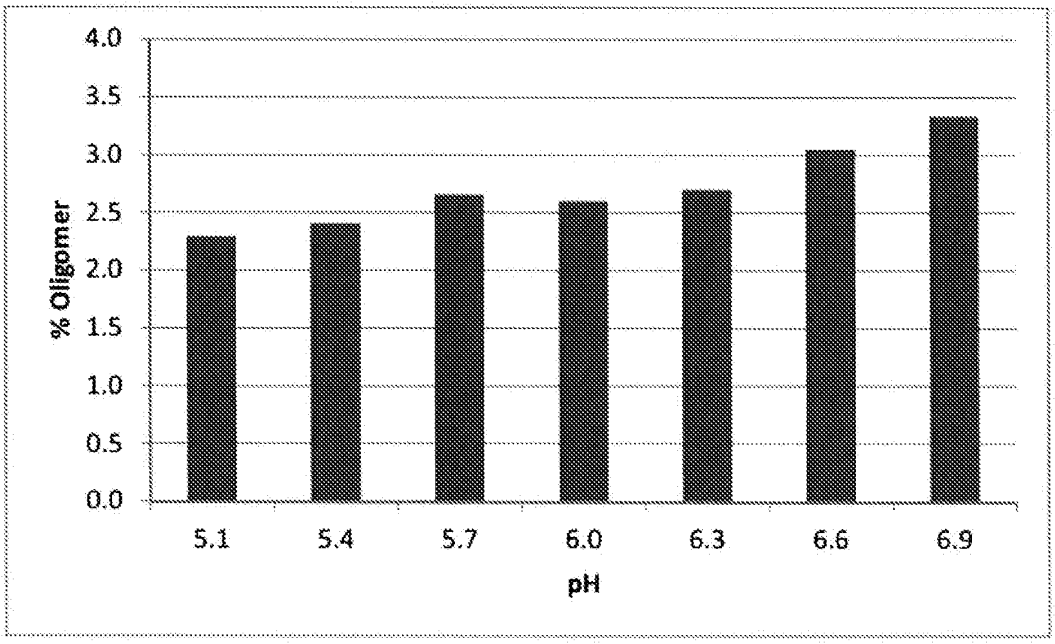


FIGURE 15

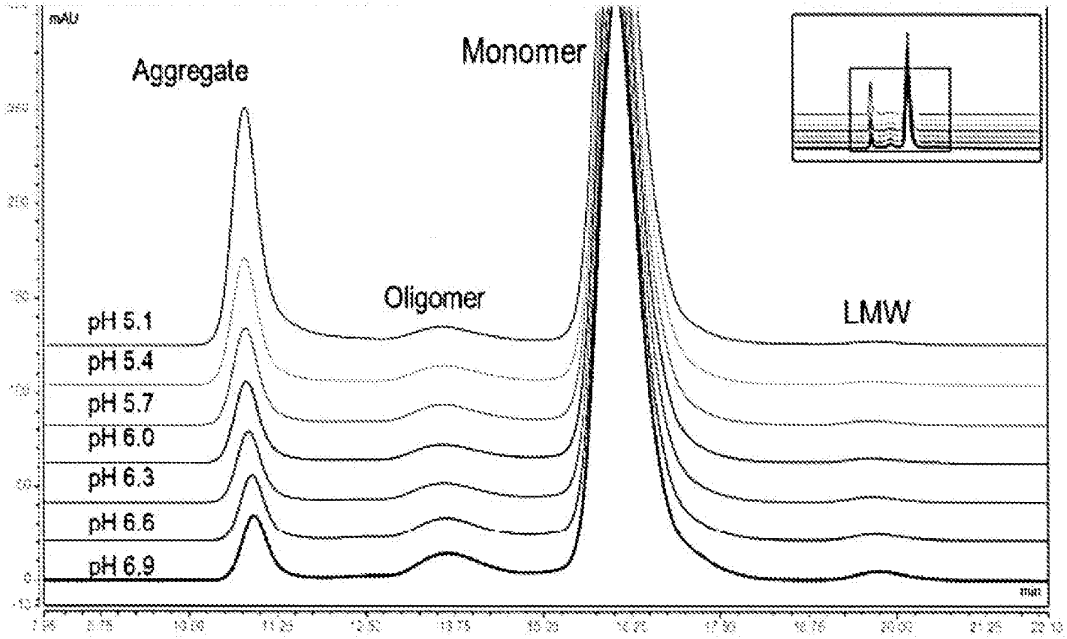


FIGURE 16A

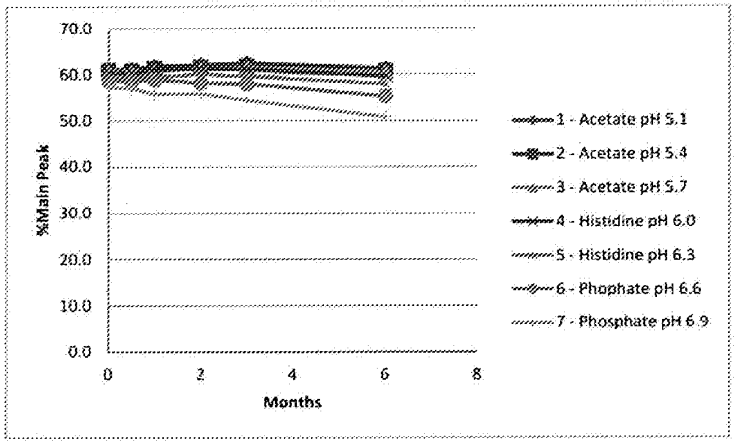


FIGURE 16B

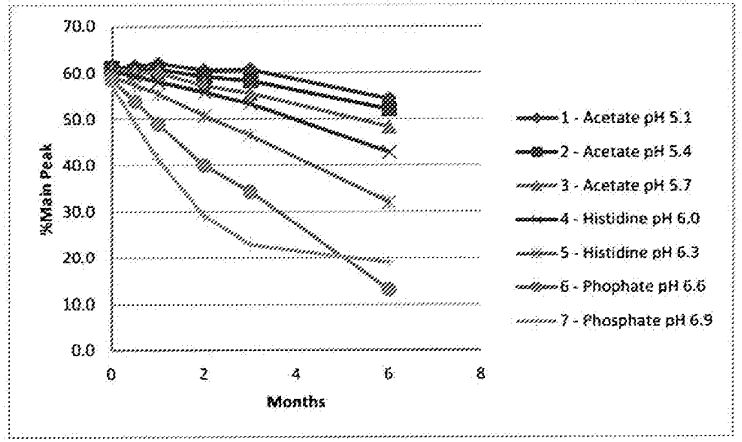


FIGURE 16C

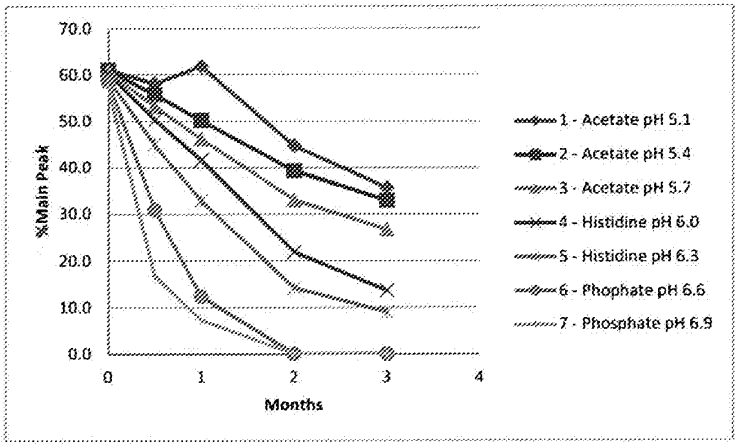


FIGURE 17

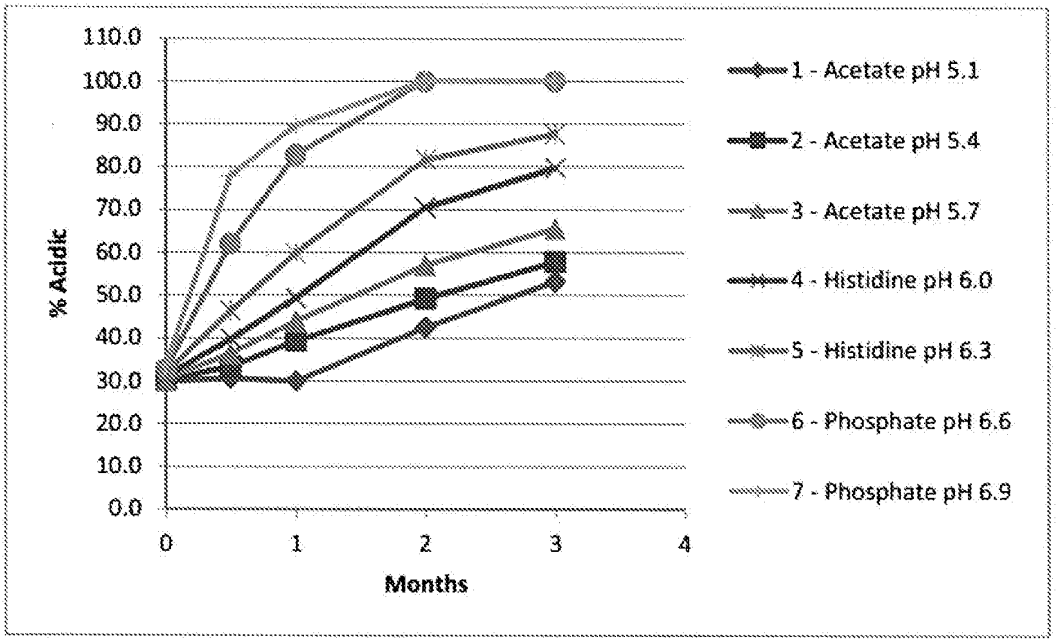


FIGURE 18

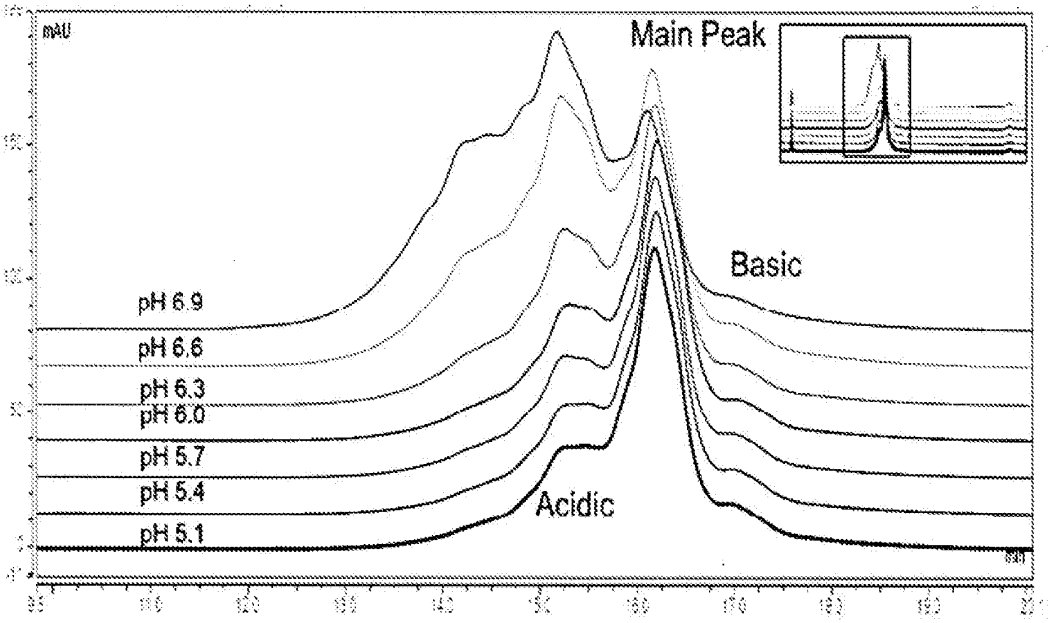


FIGURE 19

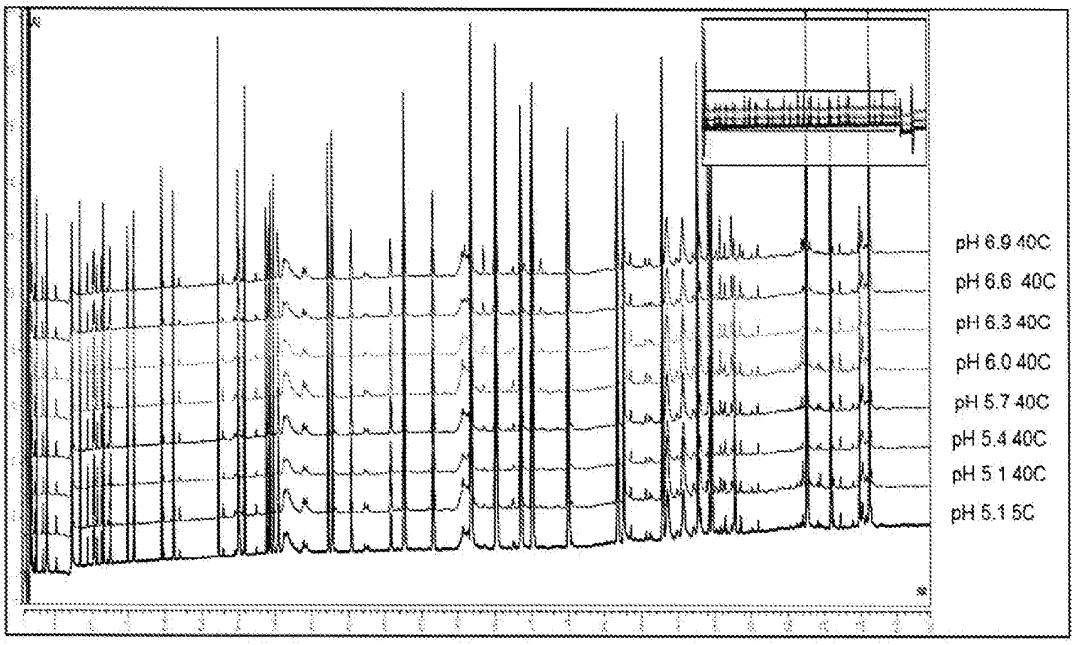


FIGURE 20

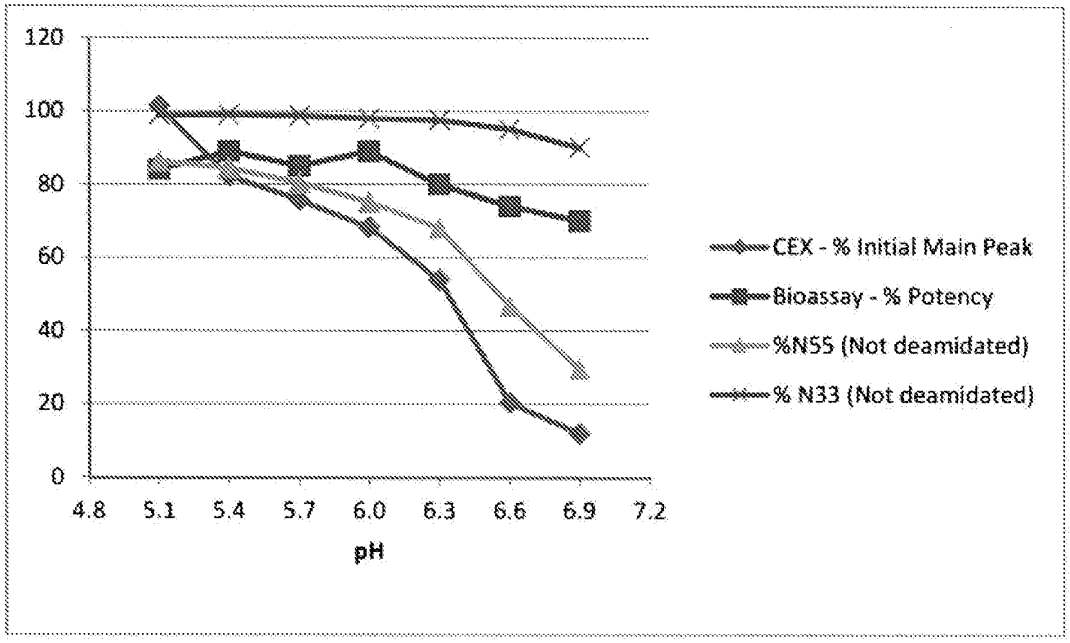


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FIGURE 21A

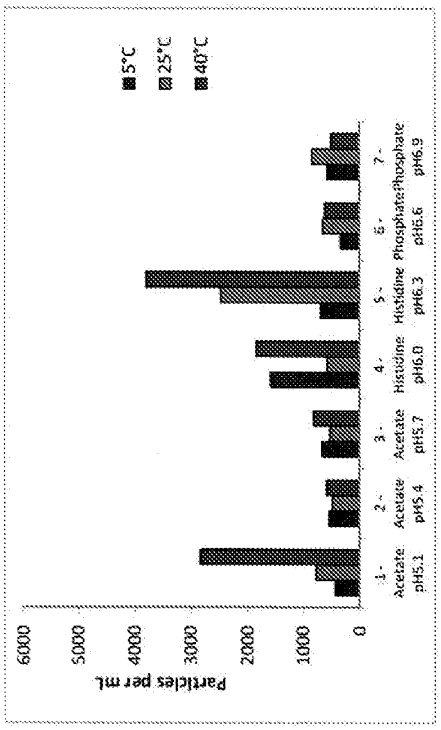

FIGURE 21B

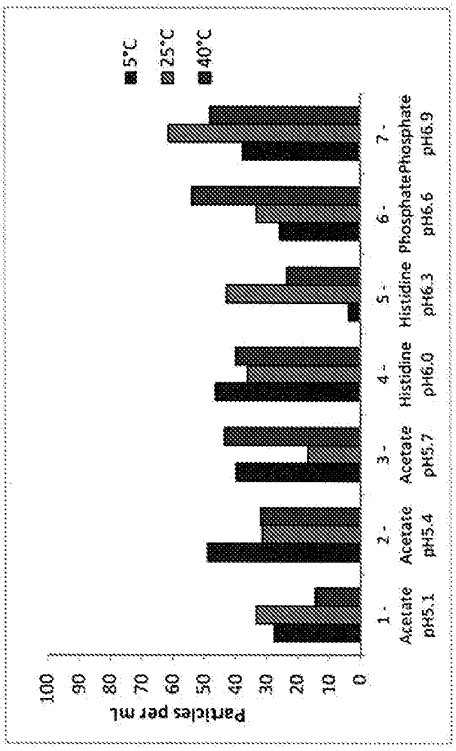

FIGURE 21C

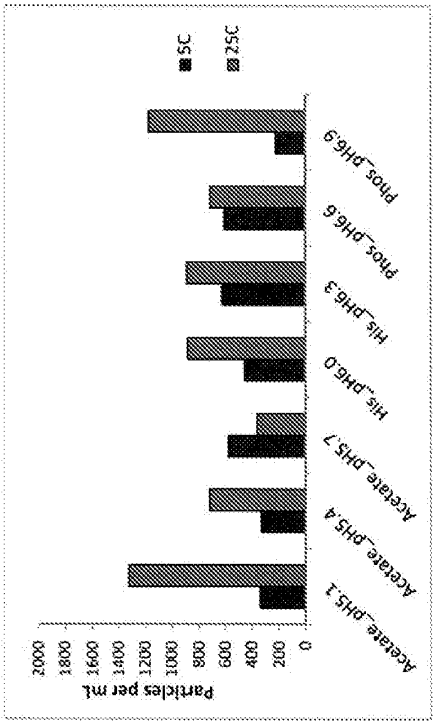

FIGURE 21D

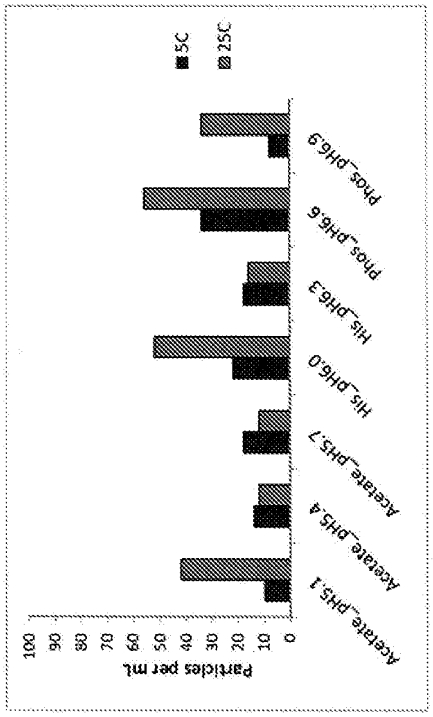

FIGURE 22

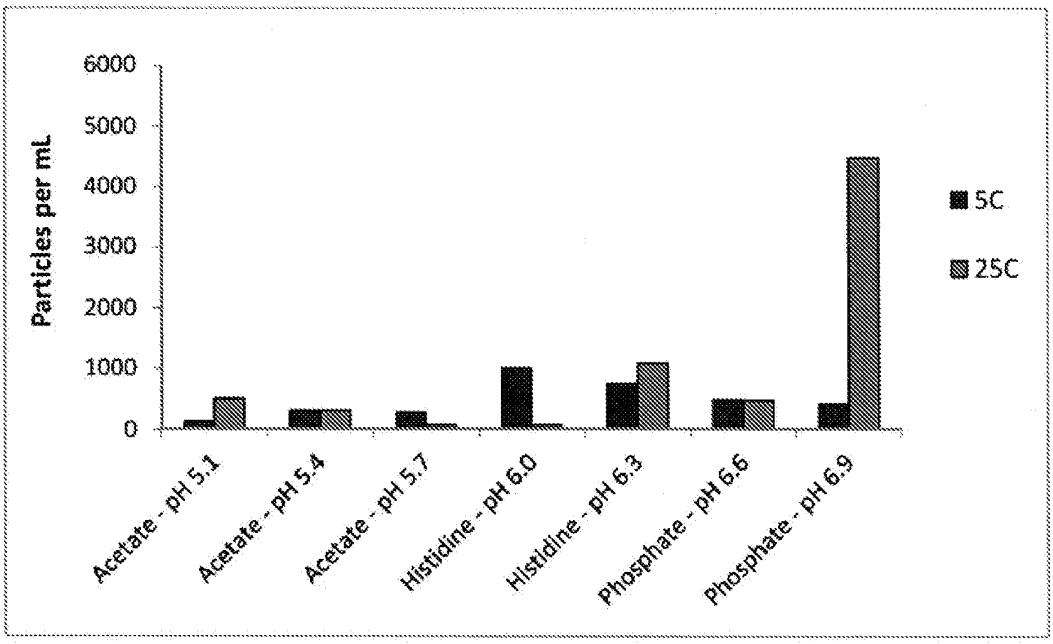

FIGURE 23

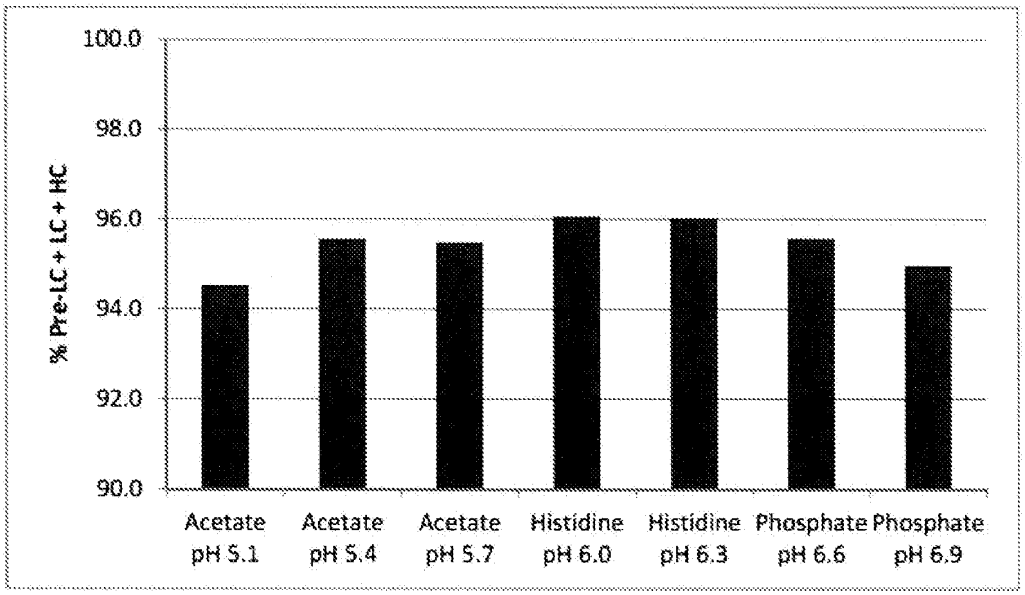

FIGURE 24

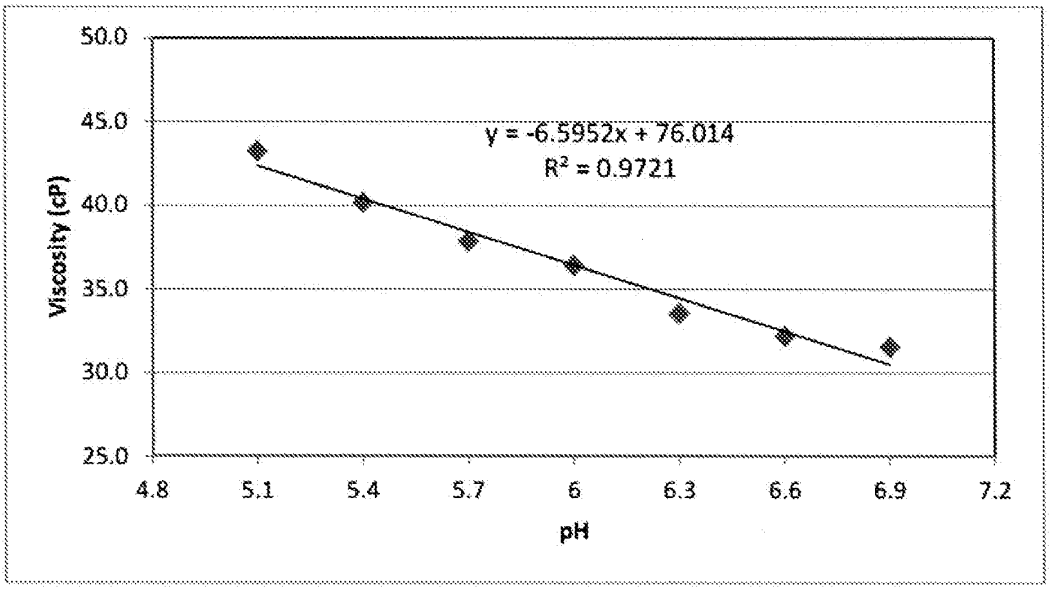
50.0
45.0
40.0
35.0
30.0
25.0
Viscosity (cP)
y = -6.5952x + 76.014
R² = 0.9721
4.8
5.1
5.4
5.7
6
6.3
6.6
6.9
7.2
pH

FIGURE 25A

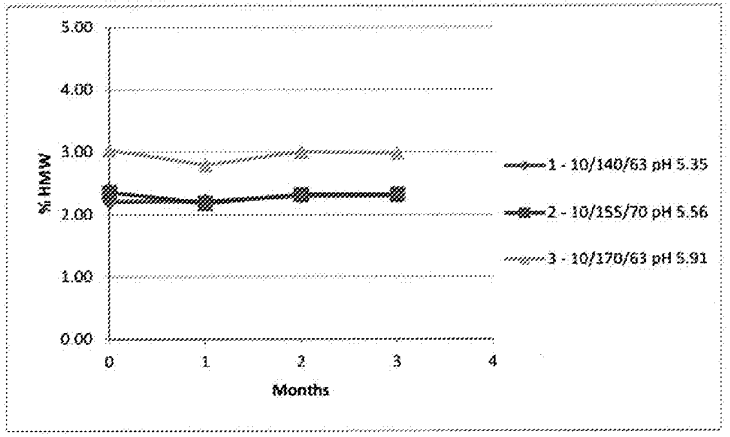

FIGURE 25B

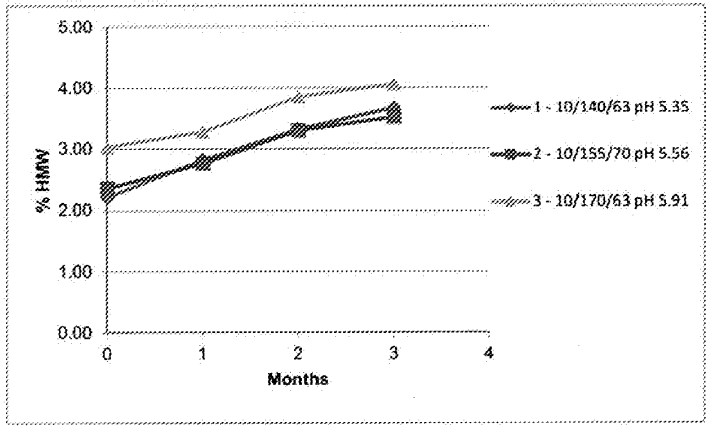

FIGURE 25C

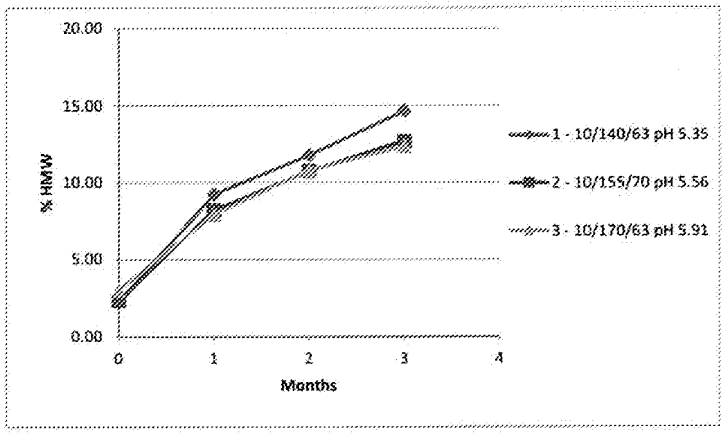

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FIGURE 26A

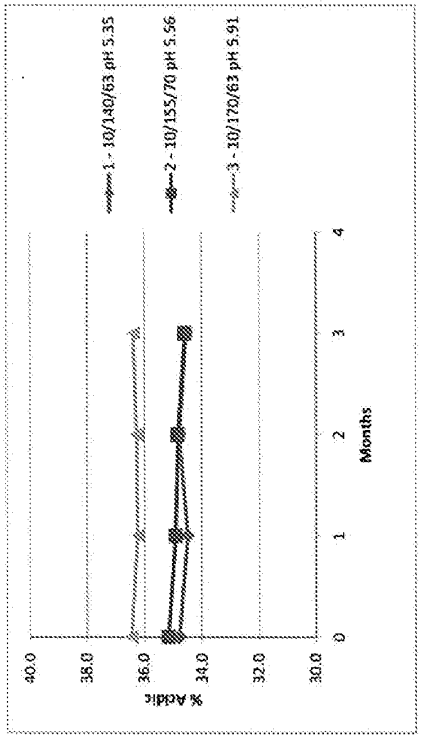


FIGURE 26B

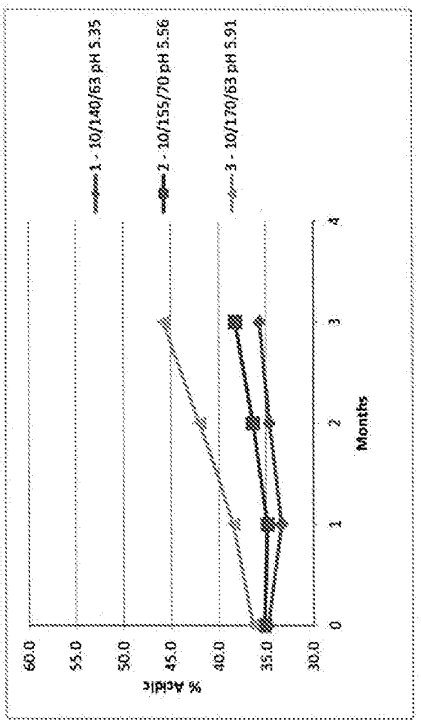
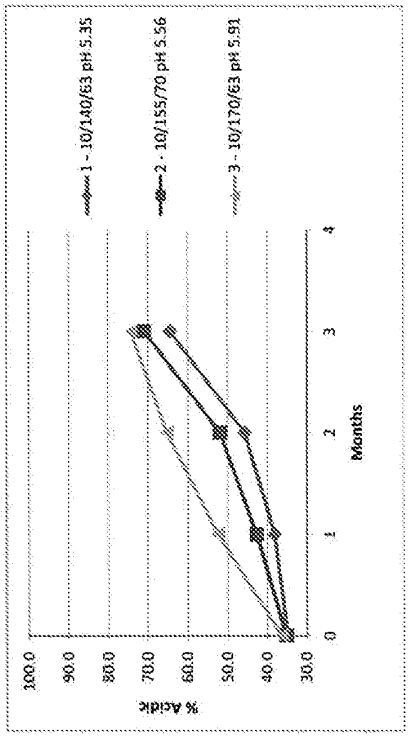


FIGURE 26C



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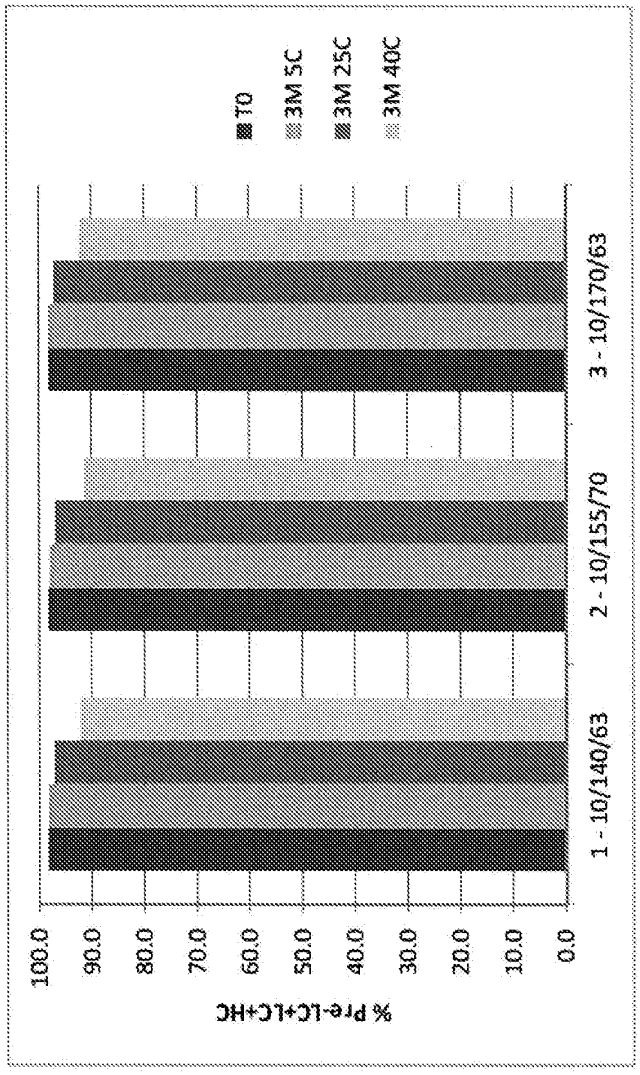


FIGURE 27

FIGURE 28

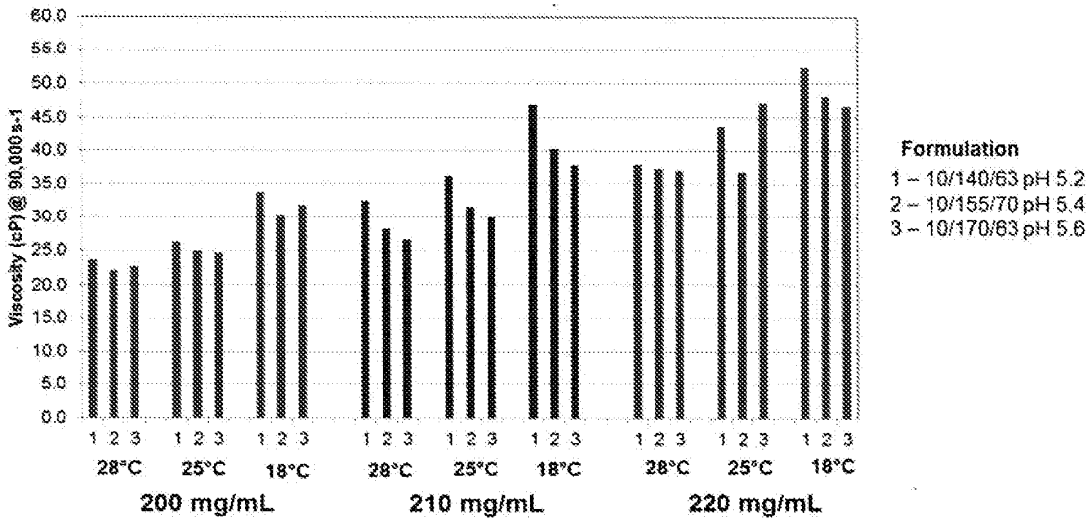

Viscosity (cP) @ 90,000 s-1
60.0
55.0
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
1 2 3
28°C
25°C
18°C
200 mg/mL
210 mg/mL
220 mg/mL
Formulation
1 – 10/140/63 pH 5.2
2 – 10/155/70 pH 5.4
3 – 10/170/63 pH 5.6

FIGURE 29

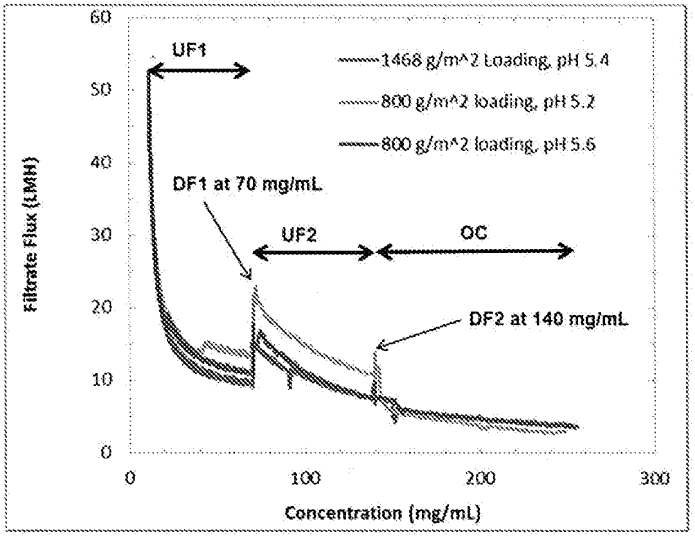
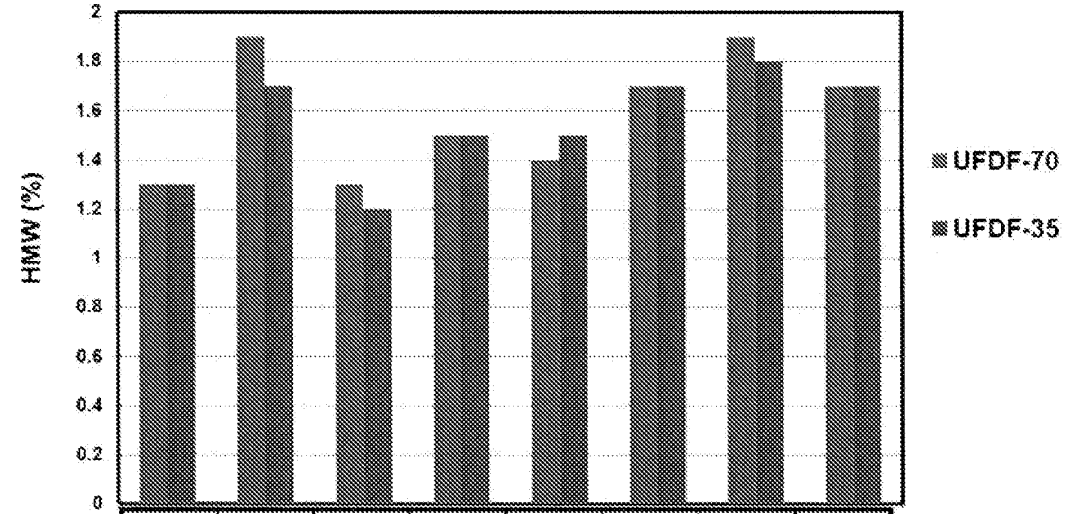
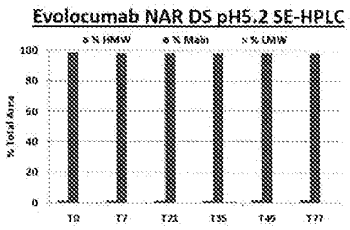


FIGURE 30



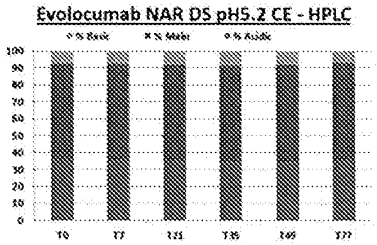
	UF0	UF1	DF1	UF2	DF2	OC1	OC2	DS
	Concentration (mg/mL)							
UFDF-35	11	35	35	140	140	207	233	213
UFDF-70	11	70	70	140	140	238	250	213

FIGURE 31A



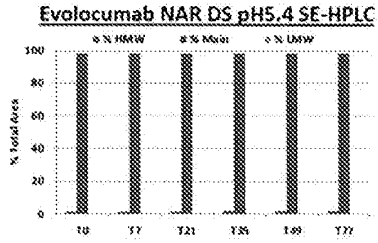
Evolocumab NAR DS pH 5.2 – SE-HPLC	T0	T7	T21	T35	T49	T77
% HMW	1.4	1.5	1.7	1.7	1.8	1.8
% Main	98.6	98.5	98.3	98.2	98.2	98.1
% LMW	0	0	0	0.1	0	0

FIGURE 31B



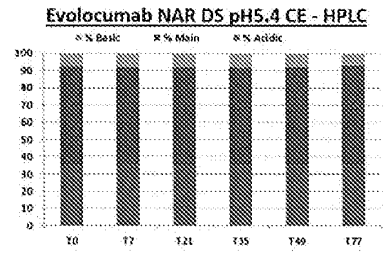
Evolocumab NAR DS pH 5.2 – SE-HPLC	T0	T7	T21	T35	T49	T77
% Acidic	35.8	36	35.4	34.8	34.8	35.3
% Main	56.8	56.4	56.3	56.8	57.1	57.6
% Basic	7.6	7.5	8.3	8.5	8.1	7.1

FIGURE 31C



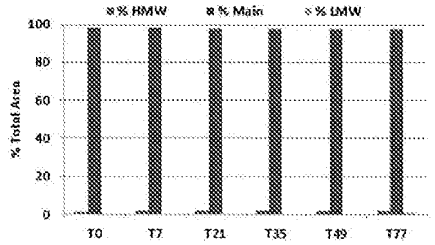
Evolocumab NAR DS pH 5.4 – SE-HPLC	T0	T7	T21	T35	T49	T77
% HMW	1.5	1.5	1.7	1.8	1.8	1.9
% Main	98.5	98.5	98.3	98.2	98.2	98.1
% LMW	0	0	0	0	0	0

FIGURE 31D



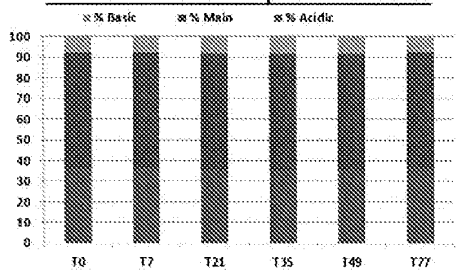
Evolocumab NAR DS pH 5.4 – SE-HPLC	T0	T7	T21	T35	T49	T77
% Acidic	35.3	35.5	35.1	34.6	34.7	35.6
% Main	57.1	56.8	56.8	57	57.1	57.5
% Basic	7.6	8	8.1	8.3	8.1	7

FIGURE 31E



Evolocumab NAR DS pH 5.6 – SE-HPLC	T0	T7	T21	T35	T49	T77
% HMW	1.7	1.8	2	2.1	2.2	2.2
% Main	98.3	98.2	98	97.9	97.8	97.7
% LMW	0	0	0	0	0	0.1

FIGURE 31F



Evolocumab NAR DS pH 5.6 – SE-HPLC	T0	T7	T21	T35	T49	T77
% Acidic	36.1	36	35.5	35.2	35.2	36.2
% Main	56.3	56.2	56.2	56.5	56.5	56.7
% Basic	7.7	7.8	8.3	8.3	8.3	7.1

FIGURE 32

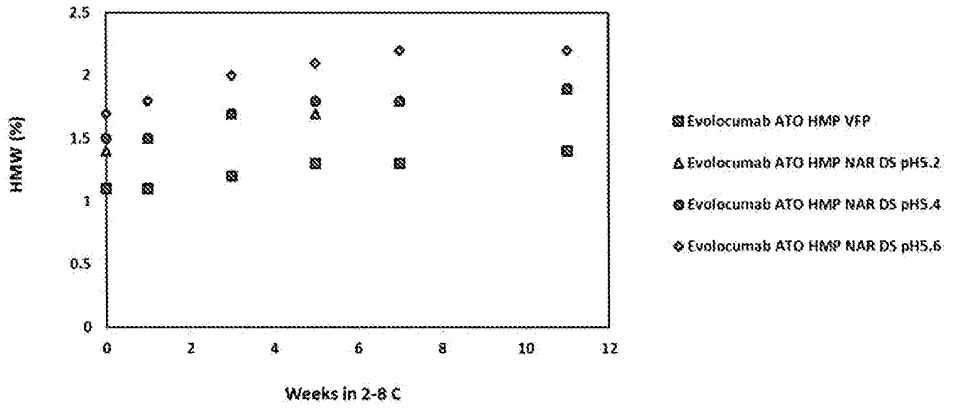


FIGURE 33

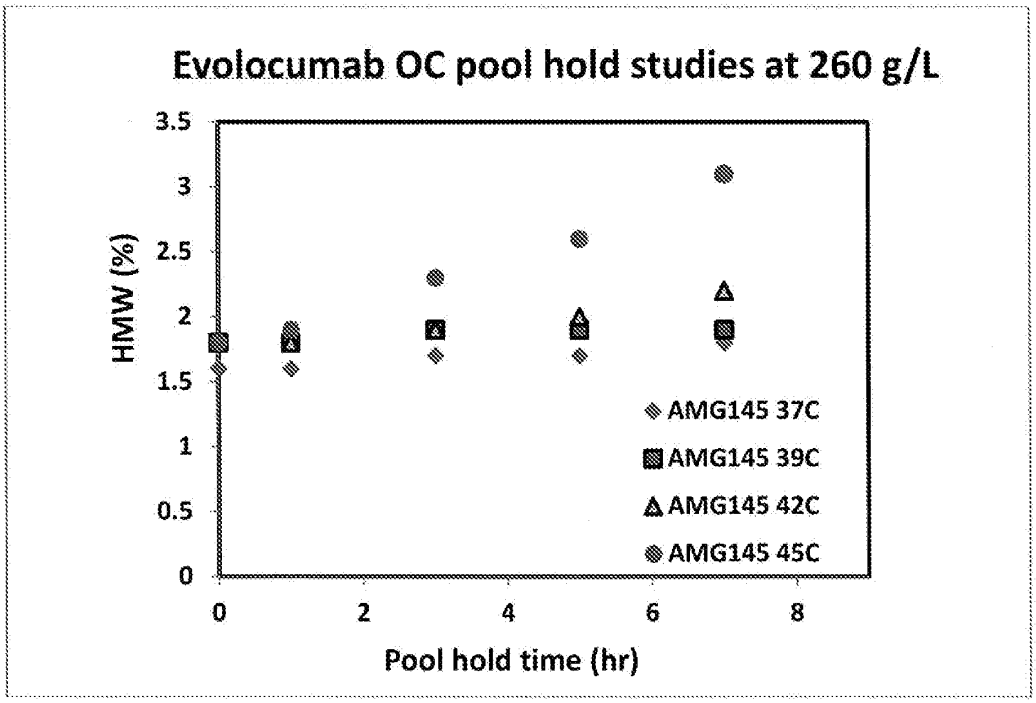


FIGURE 34

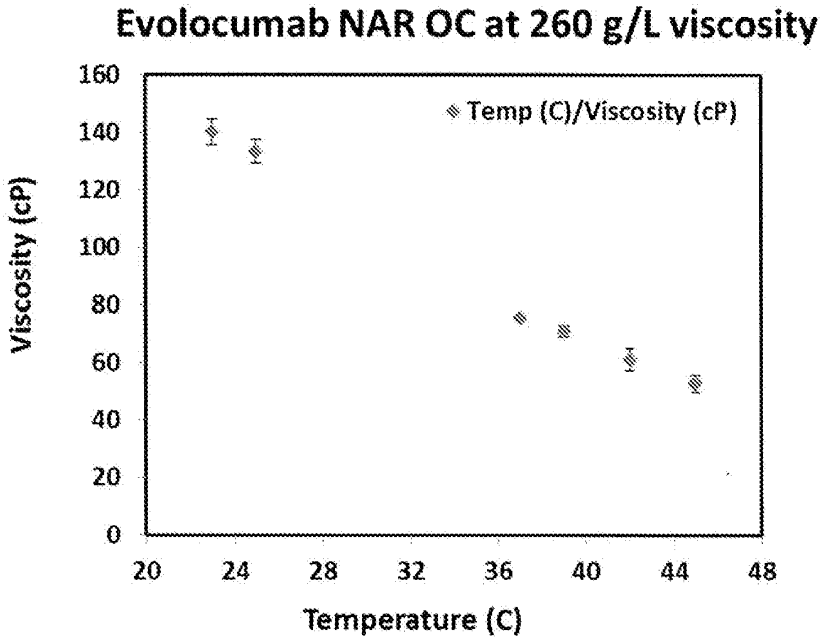

Evolocumab NAR OC at 260 g/L viscosity
Temp (C)/Viscosity (cP)
Viscosity (cP)
160
140
120
100
80
60
40
20
0
20
24
28
32
36
40
44
48
Temperature (C)

FIGURE 35A

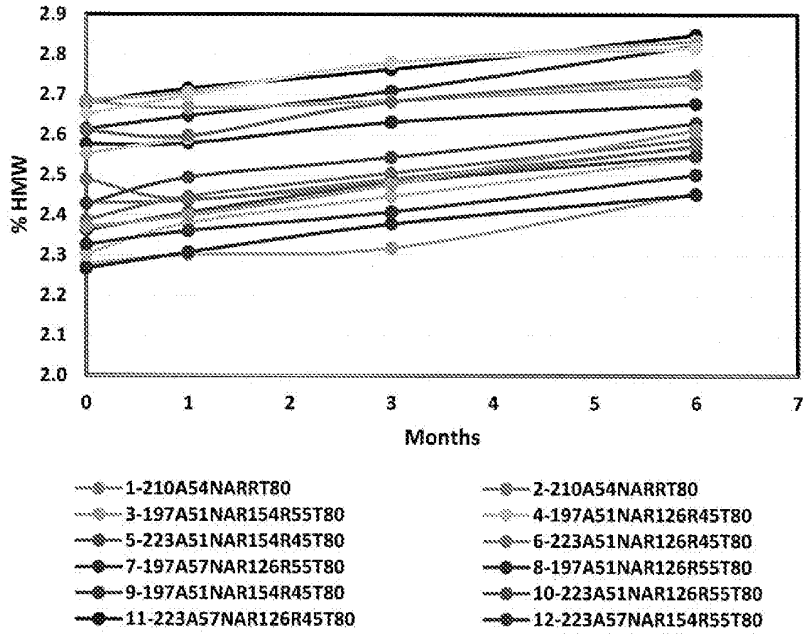


FIGURE 35B

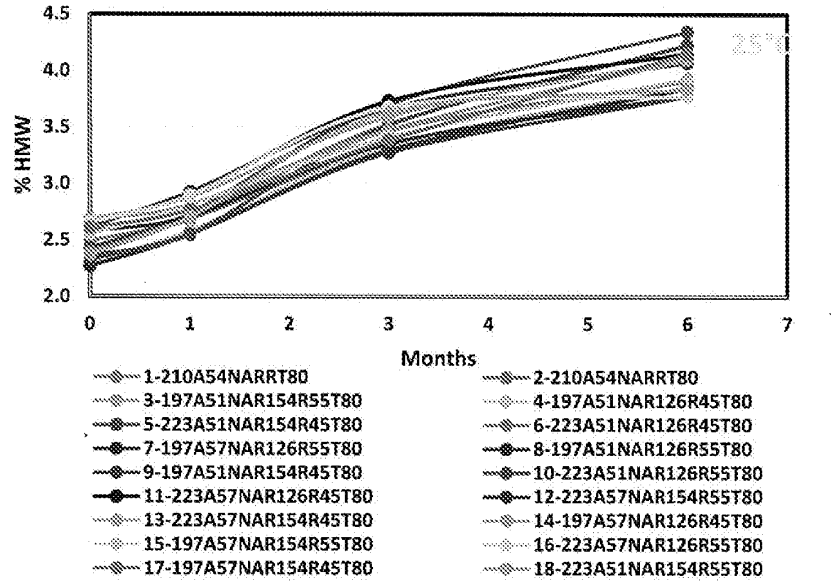


FIGURE 35C

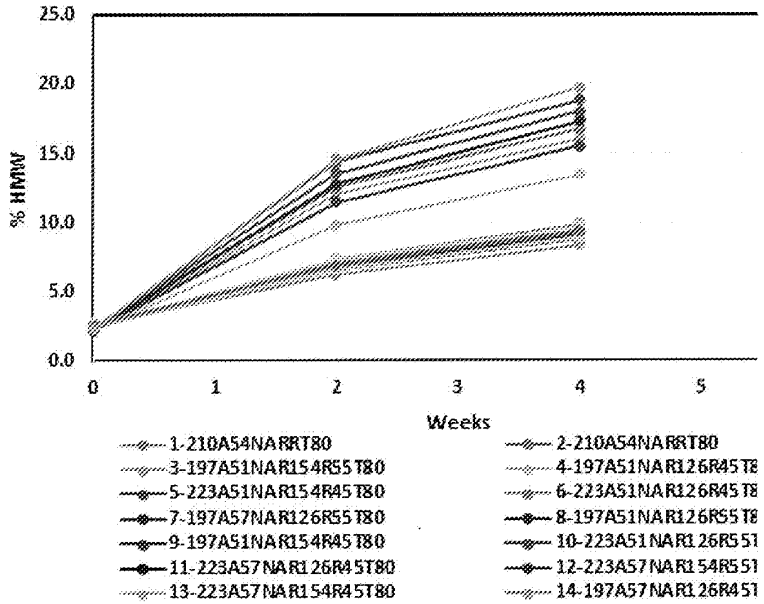


FIGURE 35D

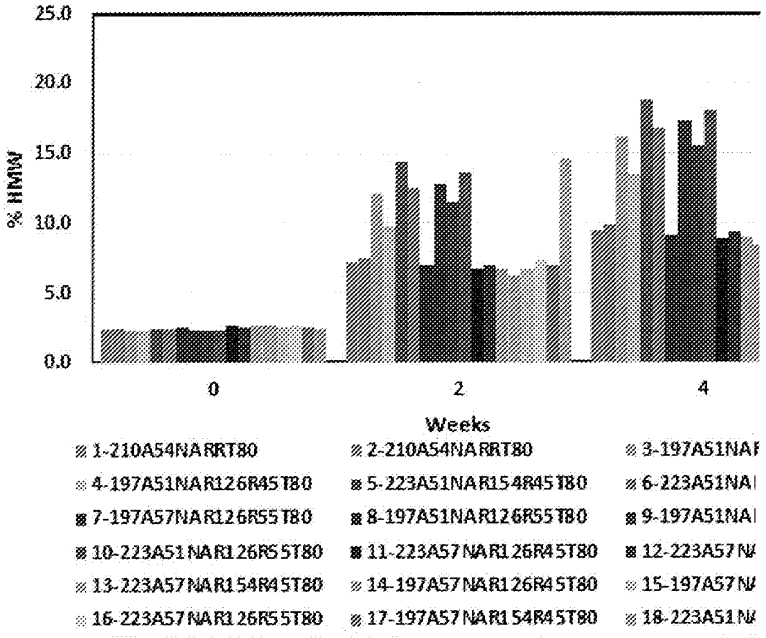


FIGURE 36A

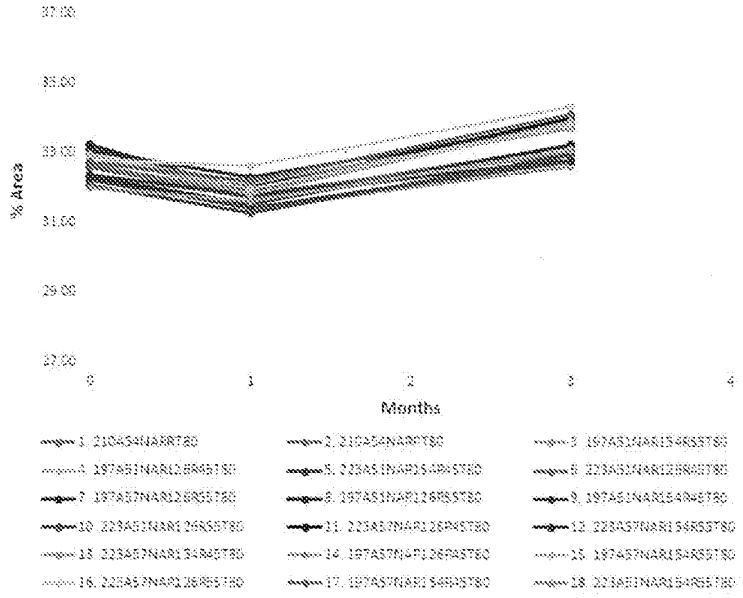


FIGURE 36B

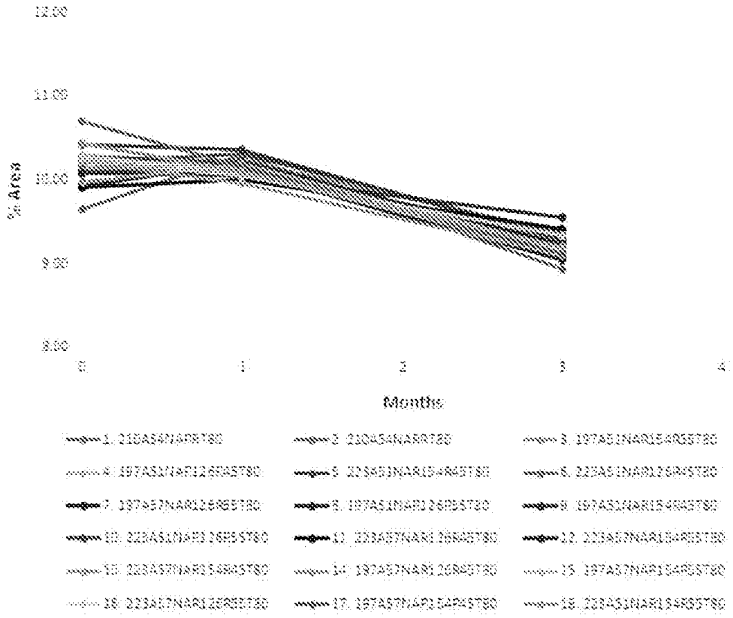


FIGURE 36C

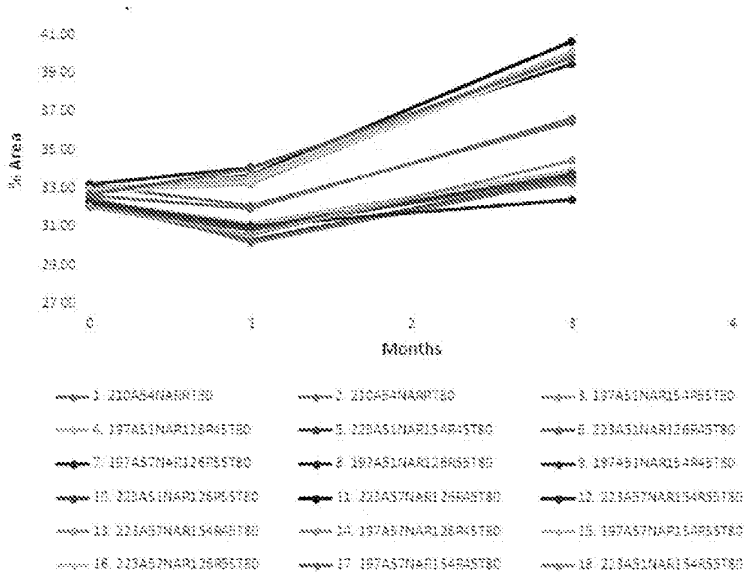


FIGURE 36D

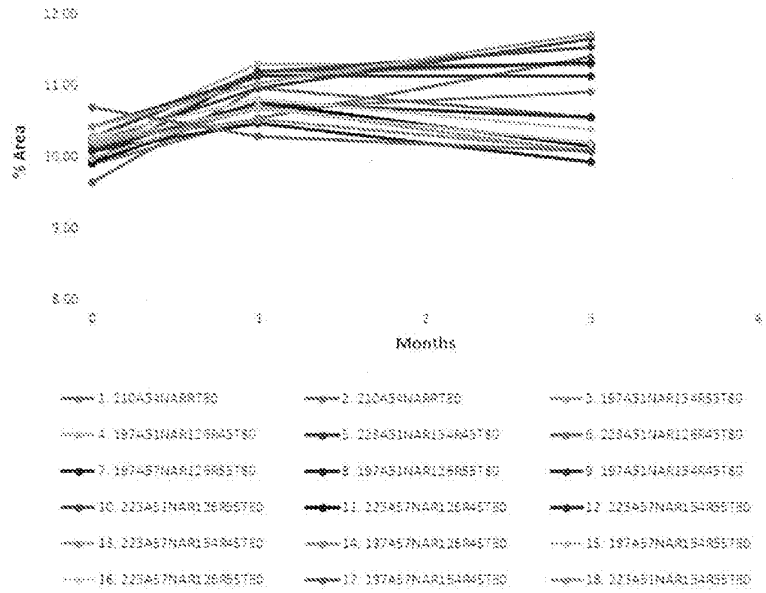


FIGURE 36E

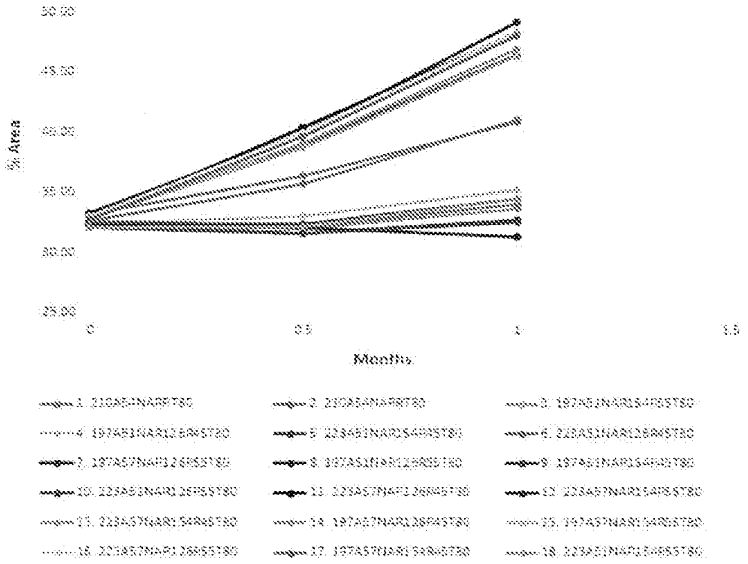


FIGURE 36F

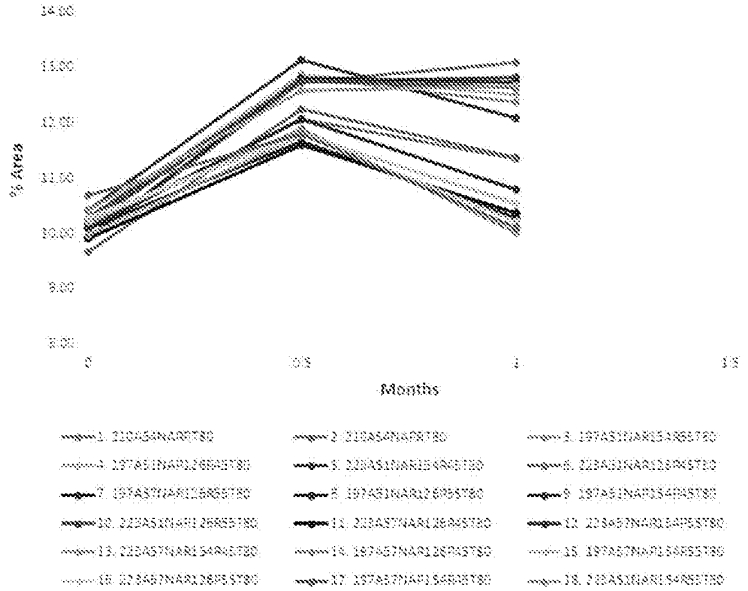


FIGURE 37A

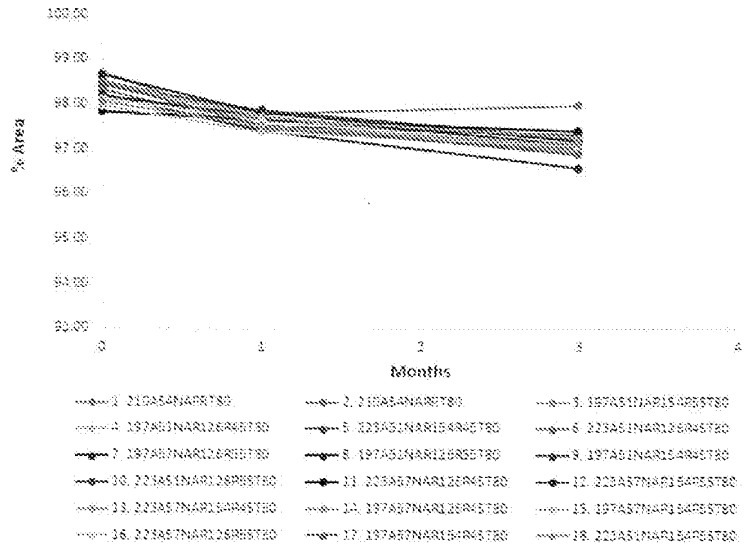


FIGURE 37B

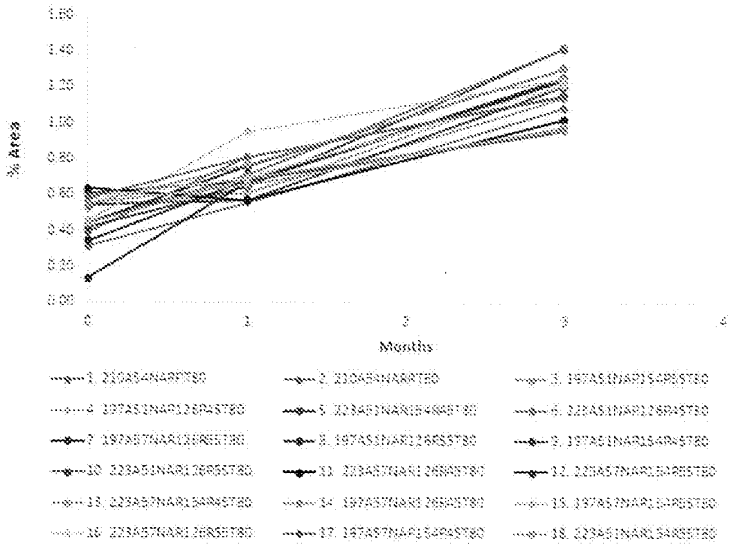


FIGURE 37C

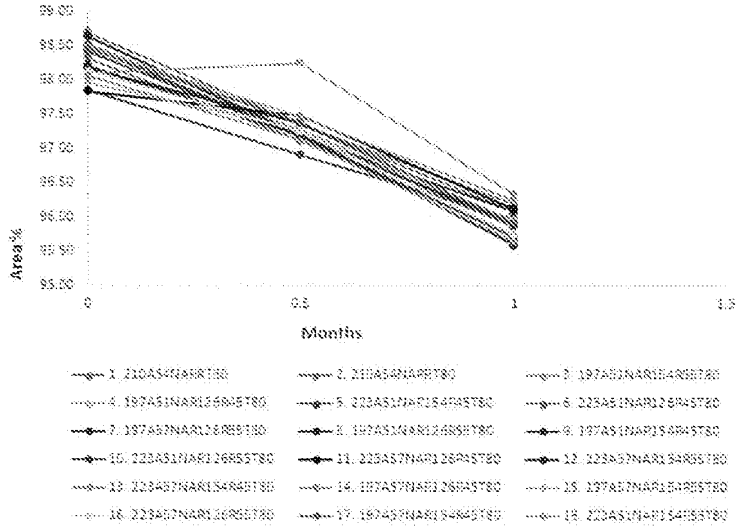


FIGURE 37D

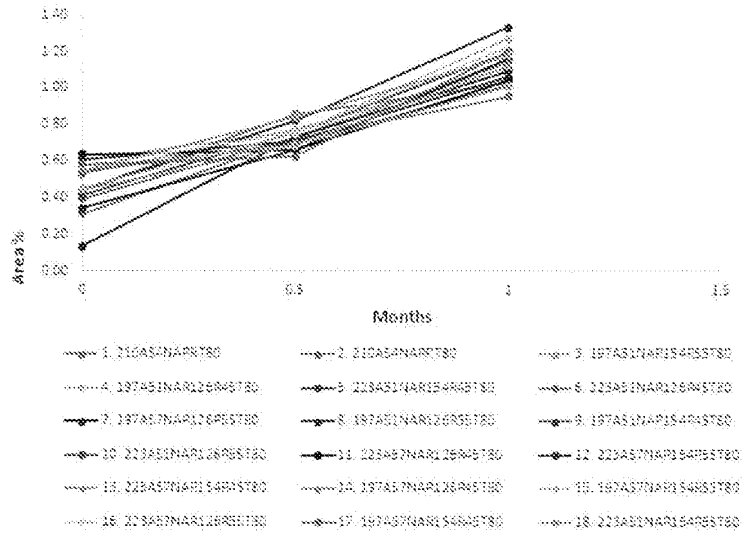


FIGURE 38A

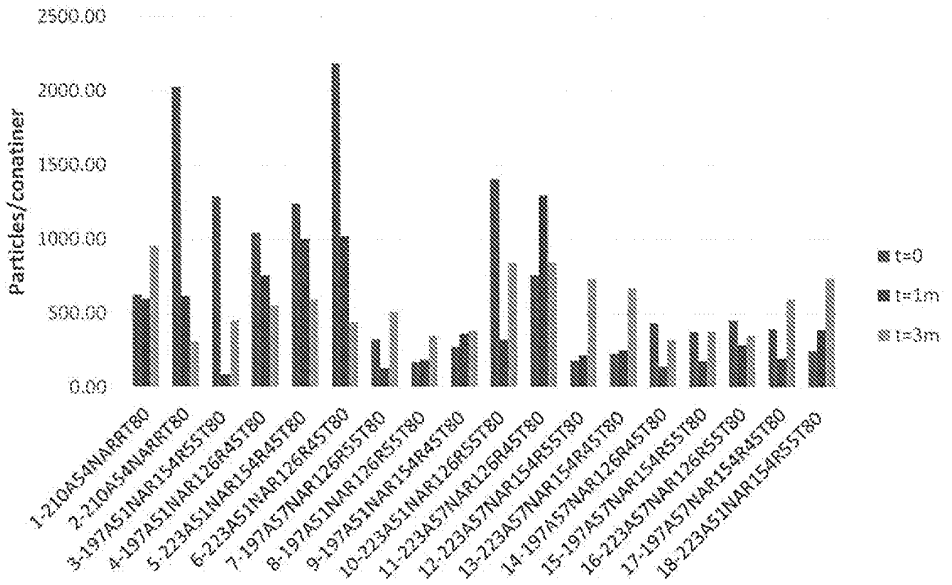


FIGURE 38B

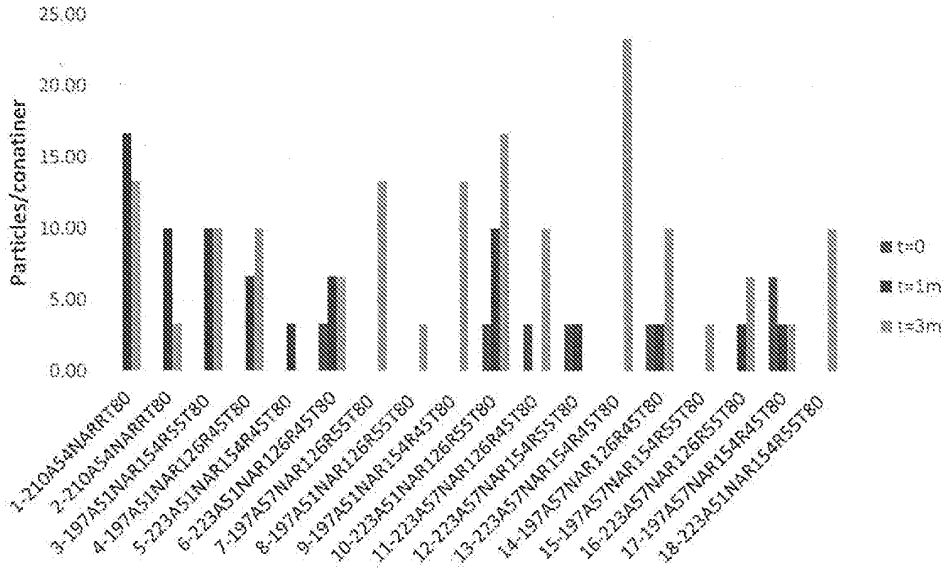


FIGURE 38C

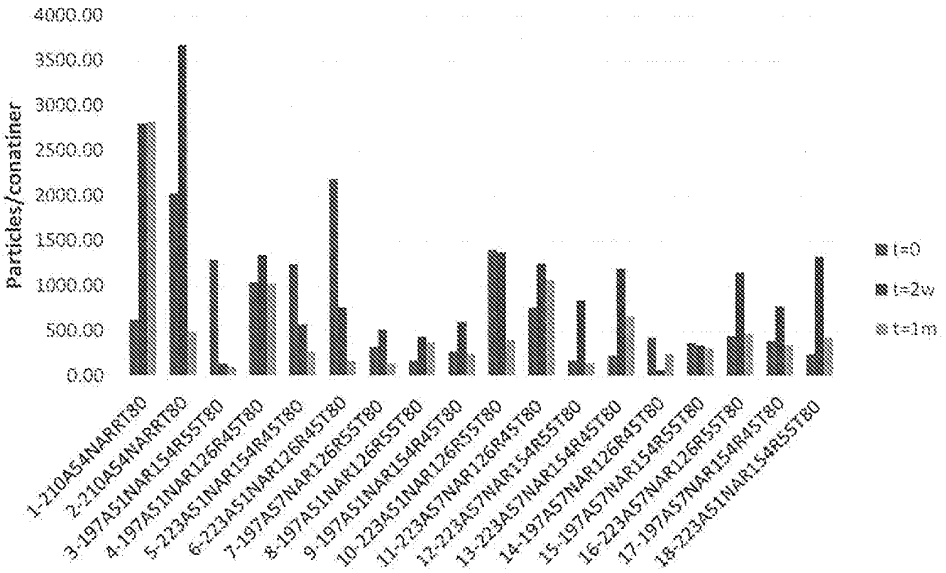
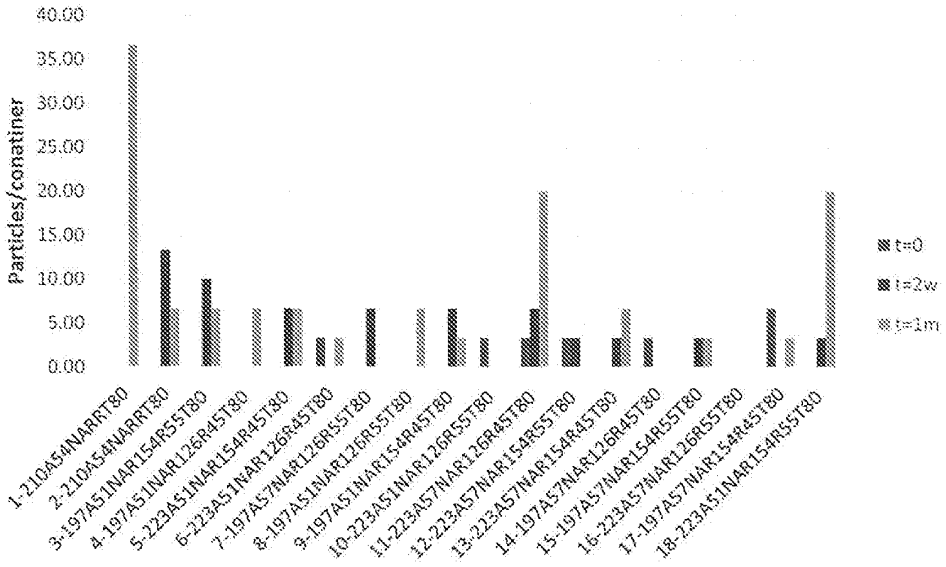



FIGURE 38D