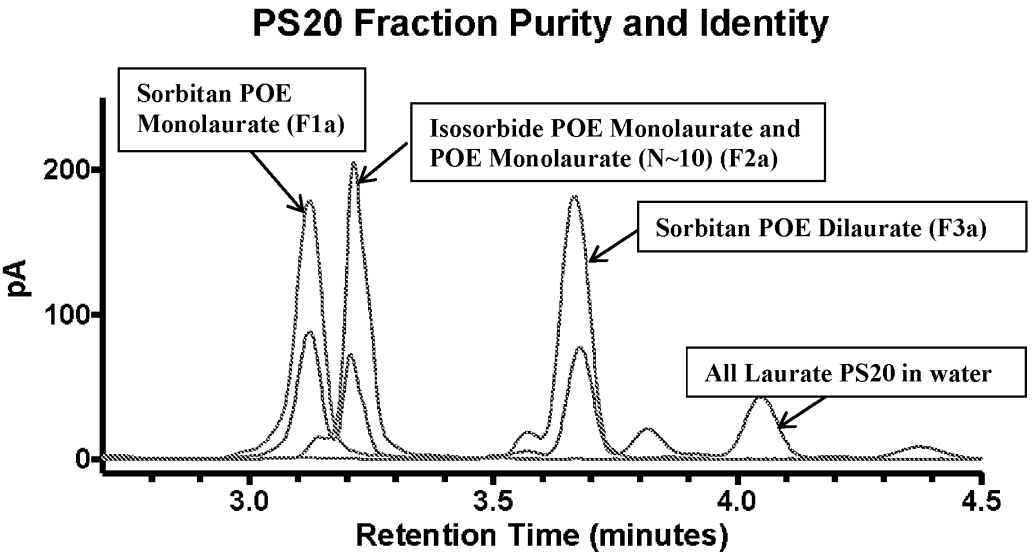

PS20 Fraction Purity and Identity
Sorbitan POE Monolaurate (F1a)
Isosorbide POE Monolaurate and POE Monolaurate (N~10) (F2a)
Sorbitan POE Dilaurate (F3a)
All Laurate PS20 in water
pA
200
100
0
3.0
3.5
4.0
4.5
Retention Time (minutes)

FIG. 1A

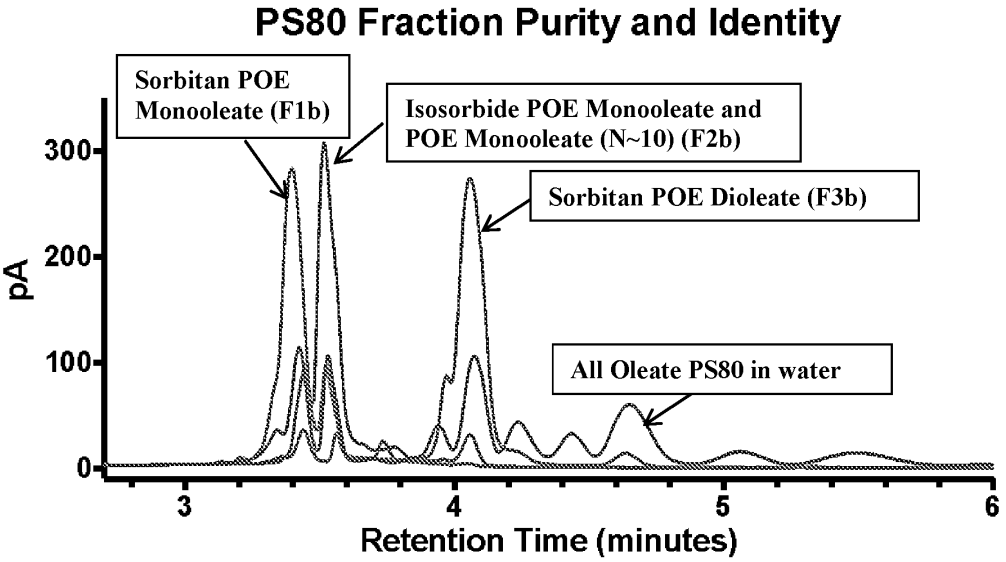

PS80 Fraction Purity and Identity
Sorbitan POE Monooleate (F1b)
Isosorbide POE Monooleate and POE Monooleate (N~10) (F2b)
Sorbitan POE Dioleate (F3b)
All Oleate PS80 in water
pA
300
200
100
0
3
4
5
6
Retention Time (minutes)

FIG. 1B

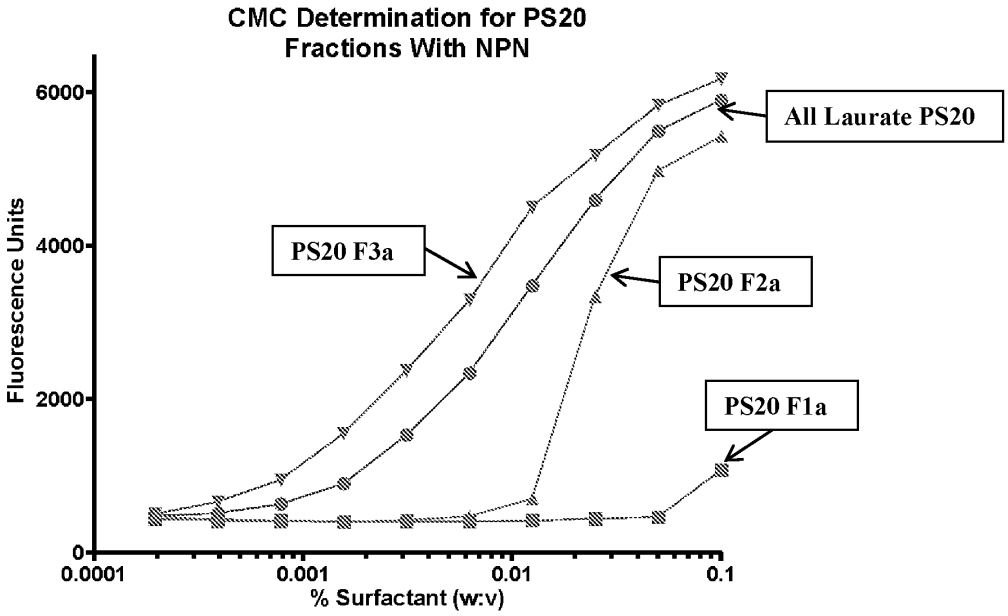

CMC Determination for PS20
Fractions With NPN
Fluorescence Units
6000
4000
2000
0
0.0001
0.001
0.01
0.1
% Surfactant (w:v)
All Laurate PS20
PS20 F3a
PS20 F2a
PS20 F1a

FIG. 2A

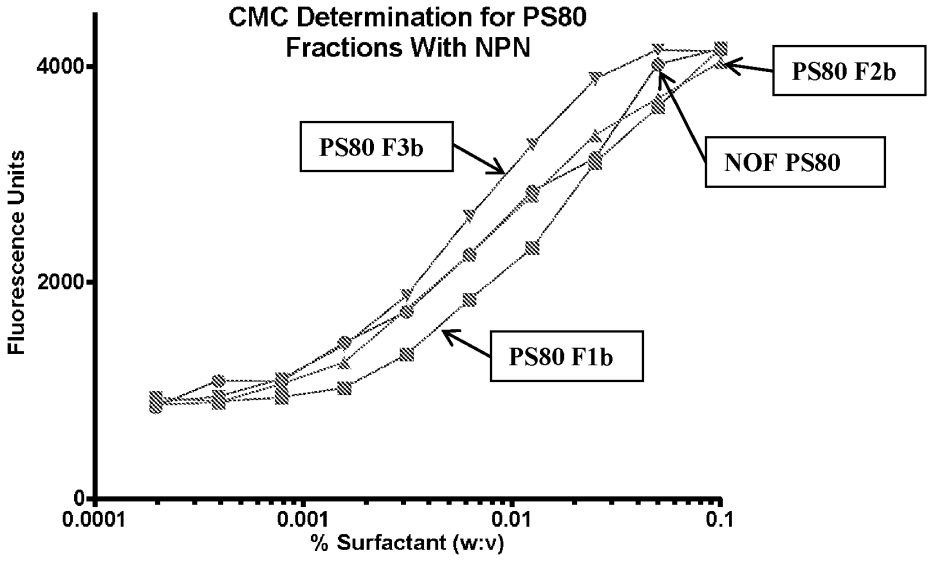

CMC Determination for PS80
Fractions With NPN
Fluorescence Units
4000
2000
0
0.0001
0.001
0.01
0.1
% Surfactant (w:v)
PS80 F2b
PS80 F3b
NOF PS80
PS80 F1b

FIG. 2B

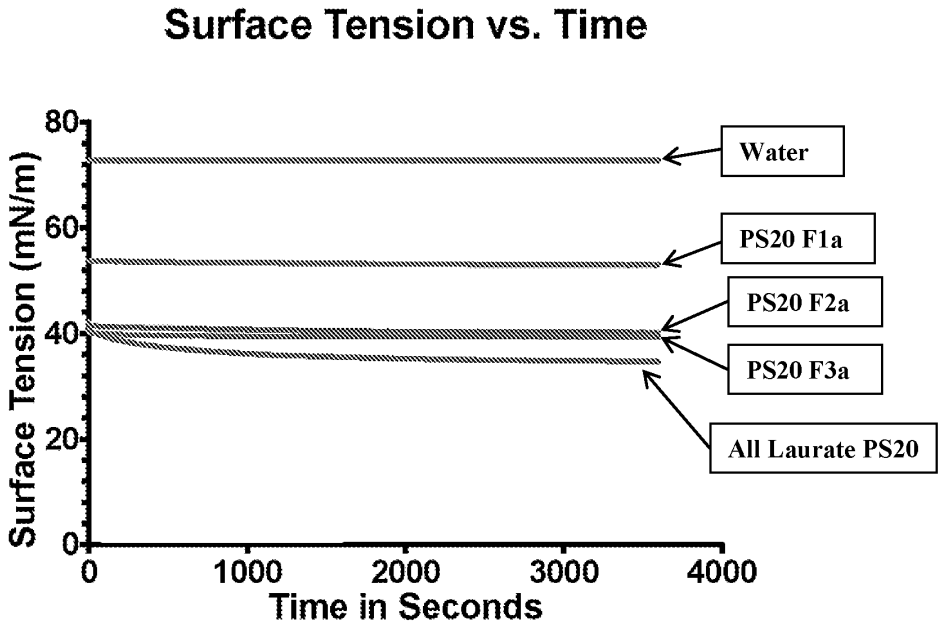

Surface Tension vs. Time
Surface Tension (mN/m)
80
60
40
20
0
0
1000
2000
3000
4000
Time in Seconds
Water
PS20 F1a
PS20 F2a
PS20 F3a
All Laurate PS20

FIG. 3A

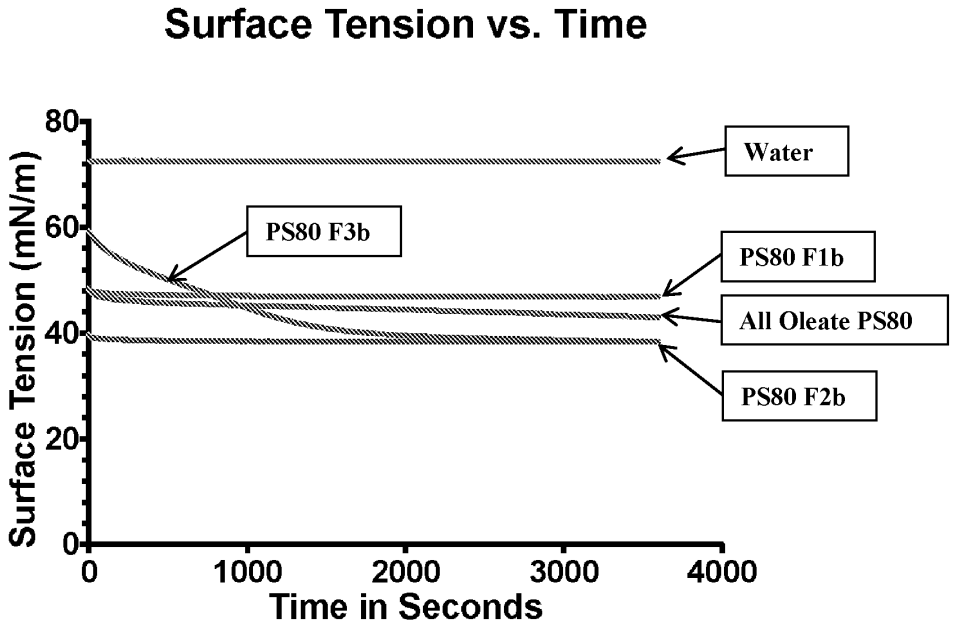

Surface Tension vs. Time
Surface Tension (mN/m)
80
60
40
20
0
0
1000
2000
3000
4000
Time in Seconds
Water
PS80 F3b
PS80 F1b
All Oleate PS80
PS80 F2b

FIG. 3B

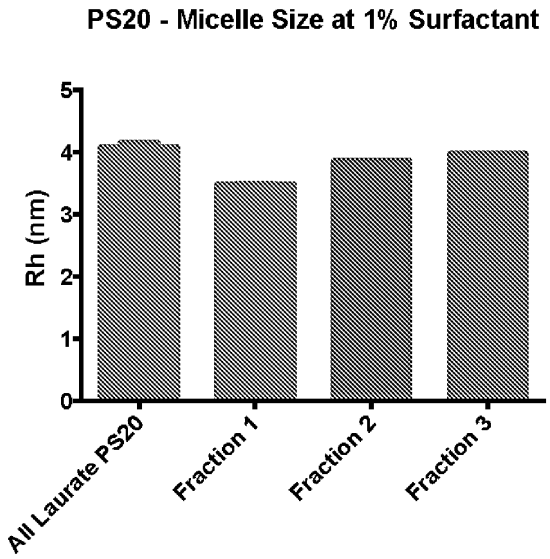

PS20 - Micelle Size at 1% Surfactant
Rh (nm)
0
1
2
3
4
5
All Laurate PS20
Fraction 1
Fraction 2
Fraction 3

FIG. 4A

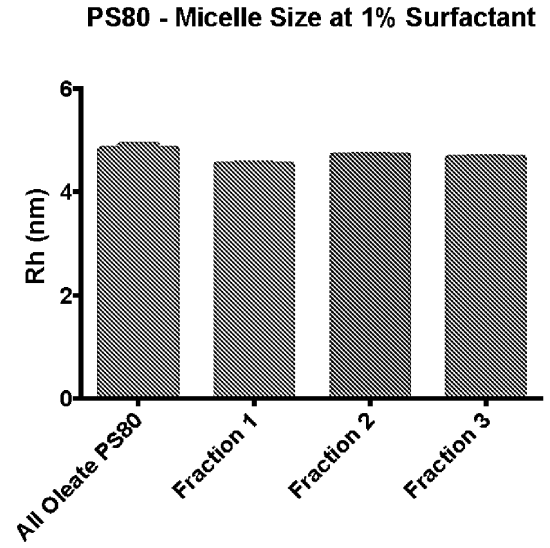

PS80 - Micelle Size at 1% Surfactant
Rh (nm)
0
2
4
6
All Oleate PS80
Fraction 1
Fraction 2
Fraction 3

FIG. 4B

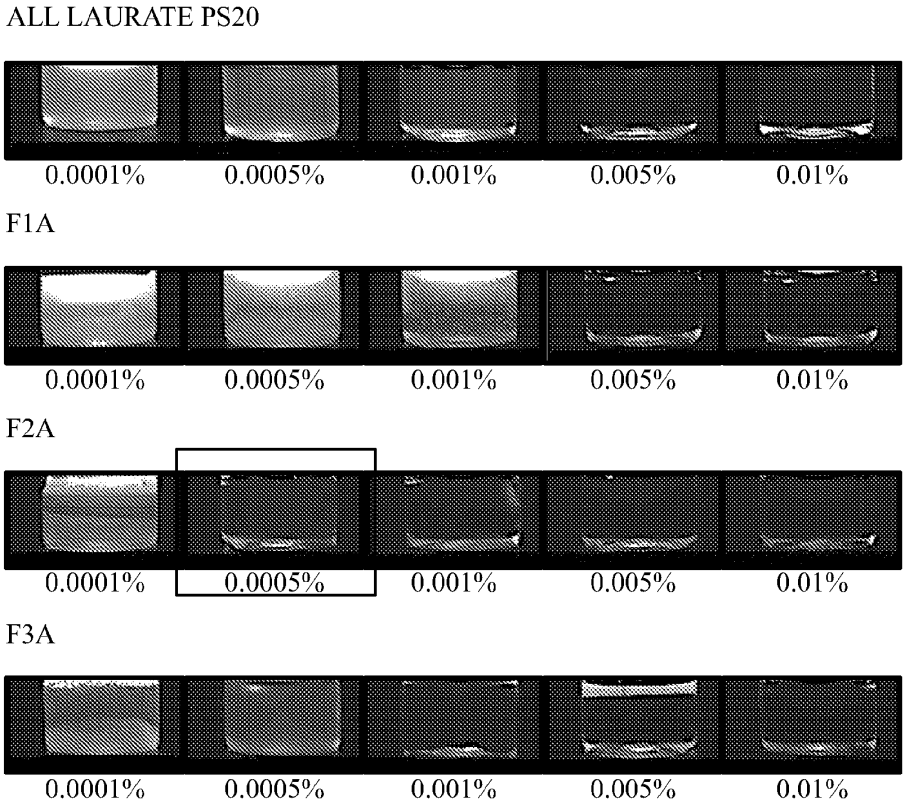

ALL LAURATE PS20
0.0001%
0.0005%
0.001%
0.005%
0.01%
F1A
0.0001%
0.0005%
0.001%
0.005%
0.01%
F2A
0.0001%
0.0005%
0.001%
0.005%
0.01%
F3A
0.0001%
0.0005%
0.001%
0.005%
0.01%

FIG. 5

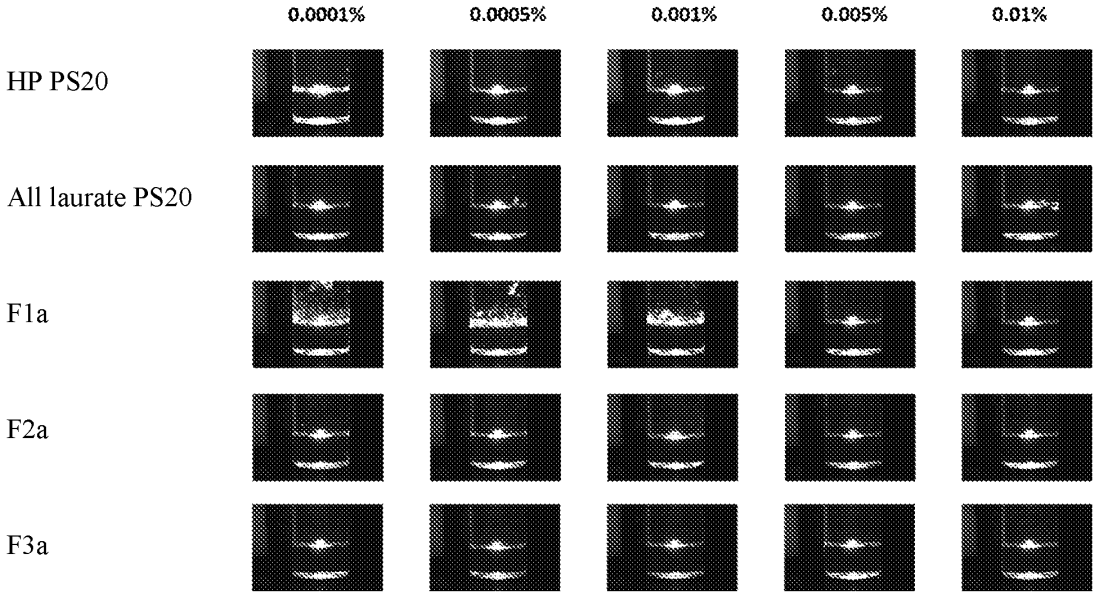

0.0001%
0.0005%
0.001%
0.005%
0.01%
HP PS20
All laurate PS20
F1a
F2a
F3a

FIG. 6A

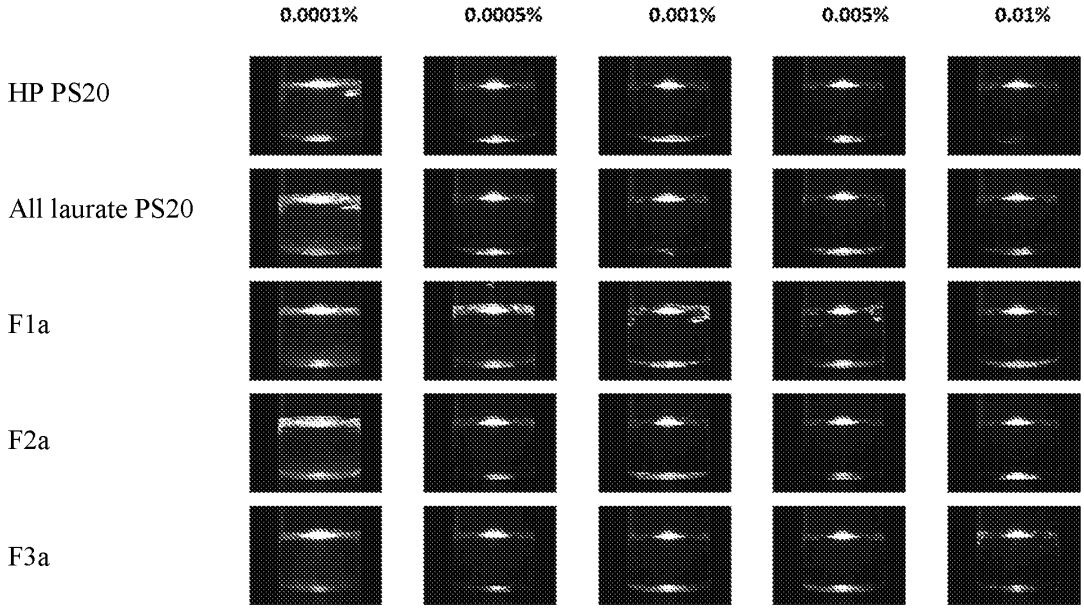

0.0001%
0.0005%
0.001%
0.005%
0.01%
HP PS20
All laurate PS20
F1a
F2a
F3a

FIG. 6B

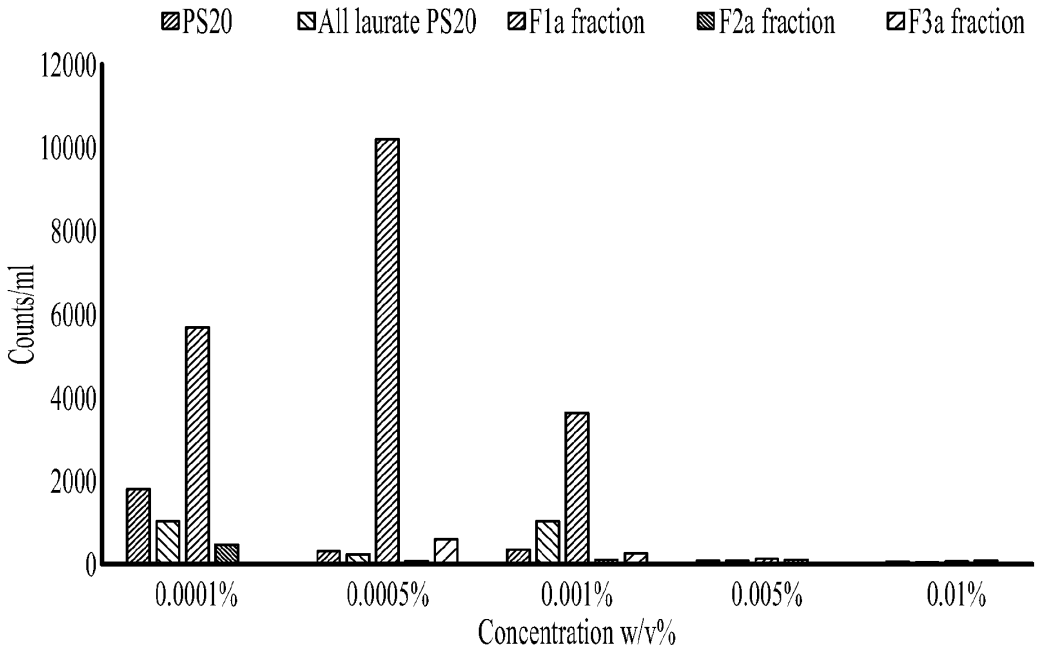

PS20
All laurate PS20
F1a fraction
F2a fraction
F3a fraction
12000
10000
8000
6000
4000
2000
0
Counts/ml
0.0001%
0.0005%
0.001%
0.005%
0.01%
Concentration w/v%

FIG. 7A

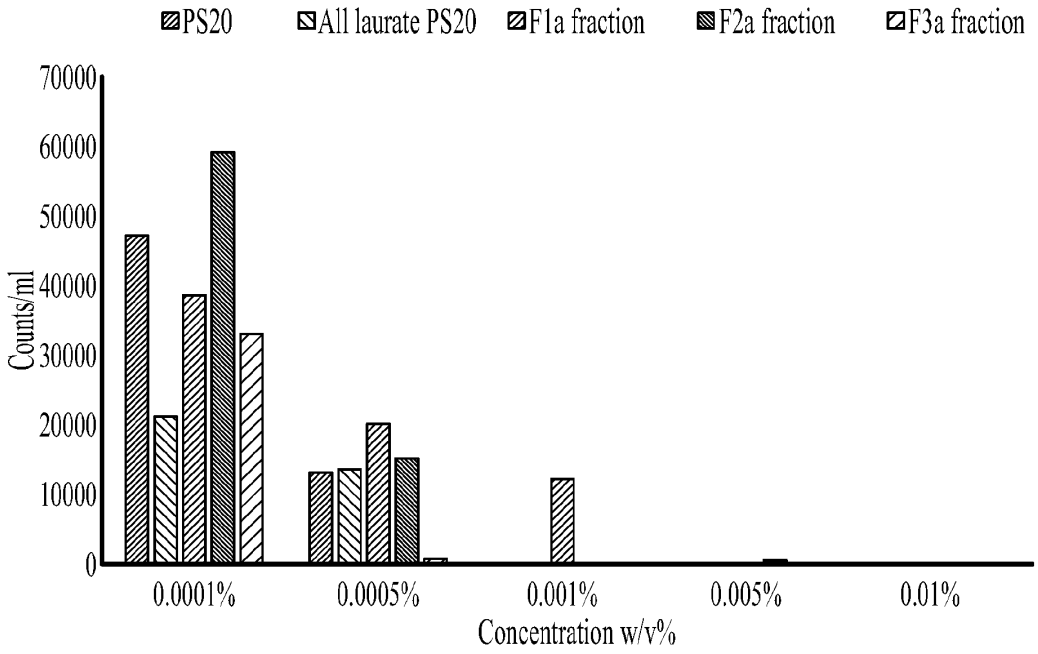

PS20
All laurate PS20
F1a fraction
F2a fraction
F3a fraction
70000
60000
50000
40000
30000
20000
10000
0
Counts/ml
0.0001%
0.0005%
0.001%
0.005%
0.01%
Concentration w/v%

FIG. 7B

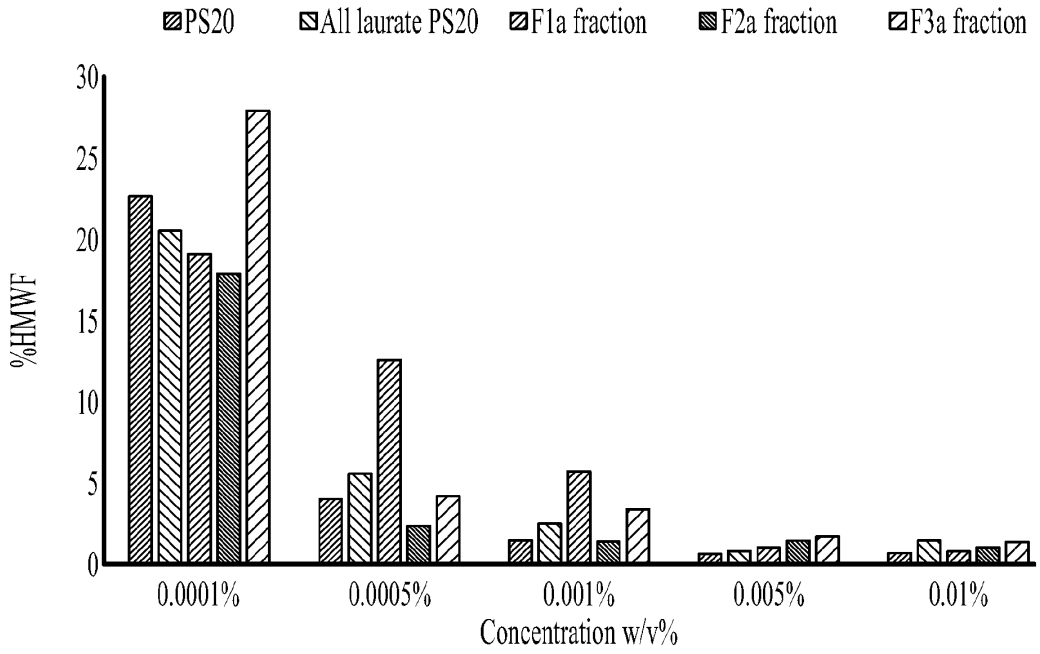

PS20
All laurate PS20
F1a fraction
F2a fraction
F3a fraction
%HMWF
30
25
20
15
10
5
0
0.0001%
0.0005%
0.001%
0.005%
0.01%
Concentration w/v%

FIG. 8A

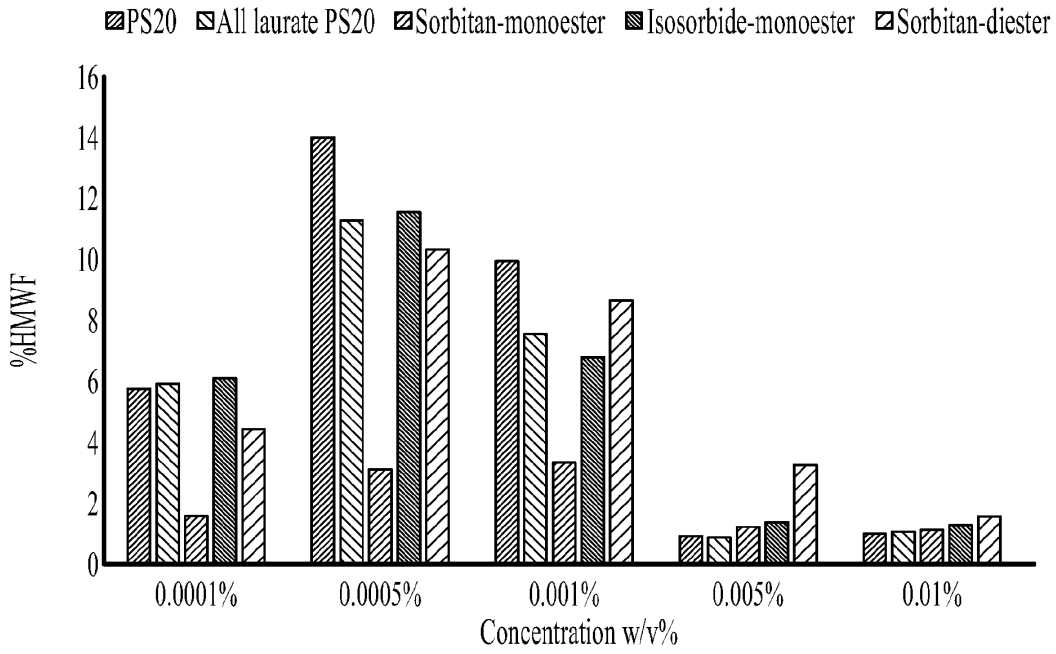

PS20
All laurate PS20
Sorbitan-monoester
Isosorbide-monoester
Sorbitan-diester
%HMWF
16
14
12
10
8
6
4
2
0
0.0001%
0.0005%
0.001%
0.005%
0.01%
Concentration w/v%

FIG. 8B

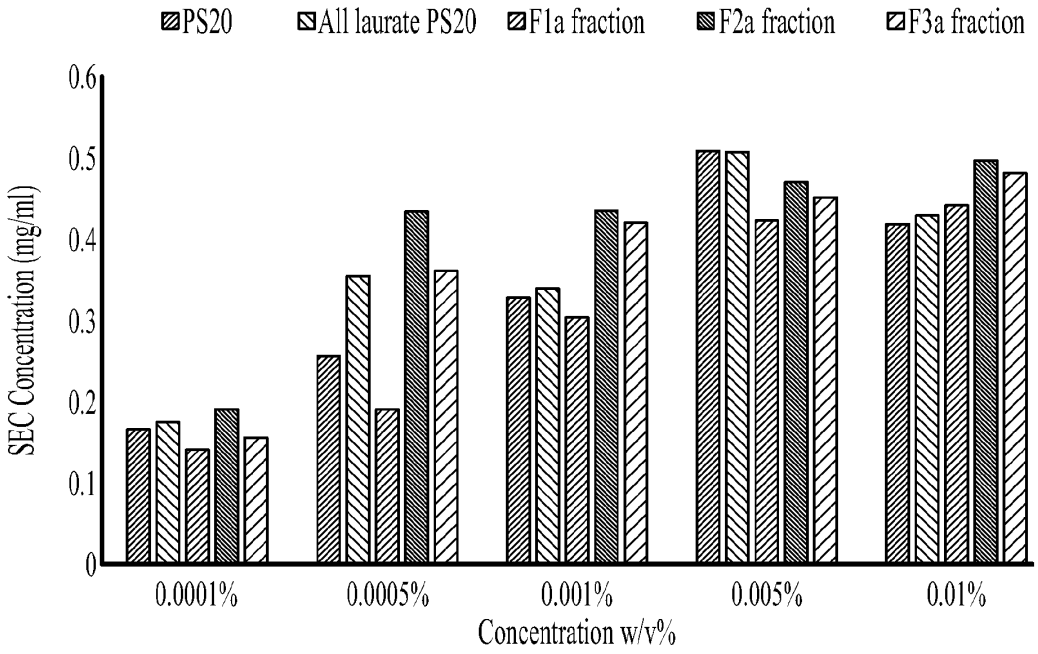

PS20
All laurate PS20
F1a fraction
F2a fraction
F3a fraction
SEC Concentration (mg/ml)
0.6
0.5
0.4
0.3
0.2
0.1
0
0.0001%
0.0005%
0.001%
0.005%
0.01%
Concentration w/v%

FIG. 9A

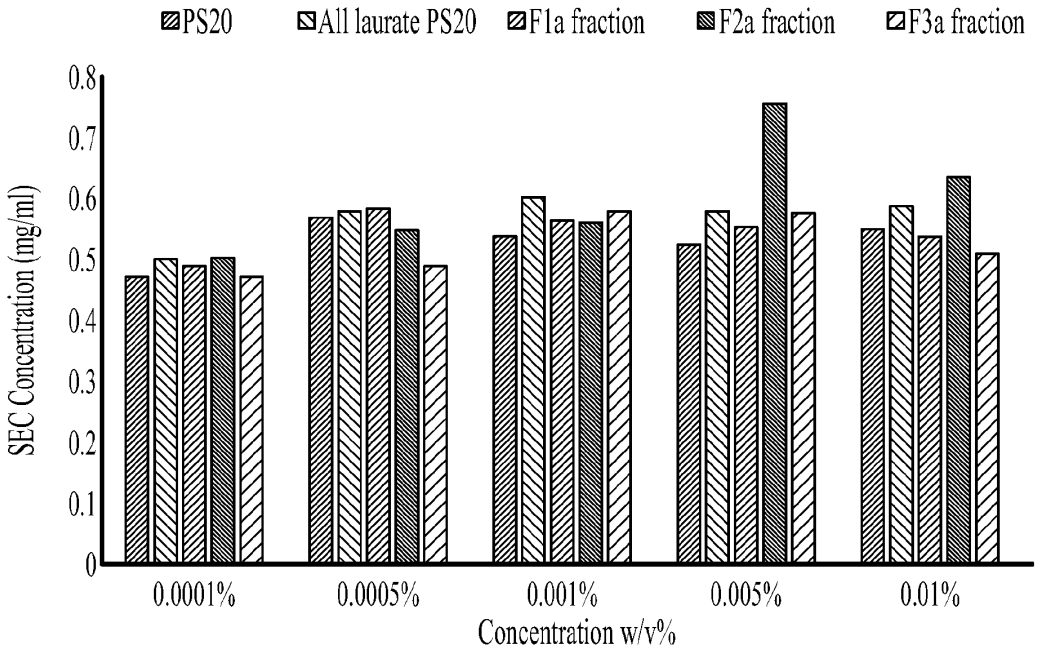

PS20
All laurate PS20
F1a fraction
F2a fraction
F3a fraction
SEC Concentration (mg/ml)
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0.0001%
0.0005%
0.001%
0.005%
0.01%
Concentration w/v%

FIG. 9B

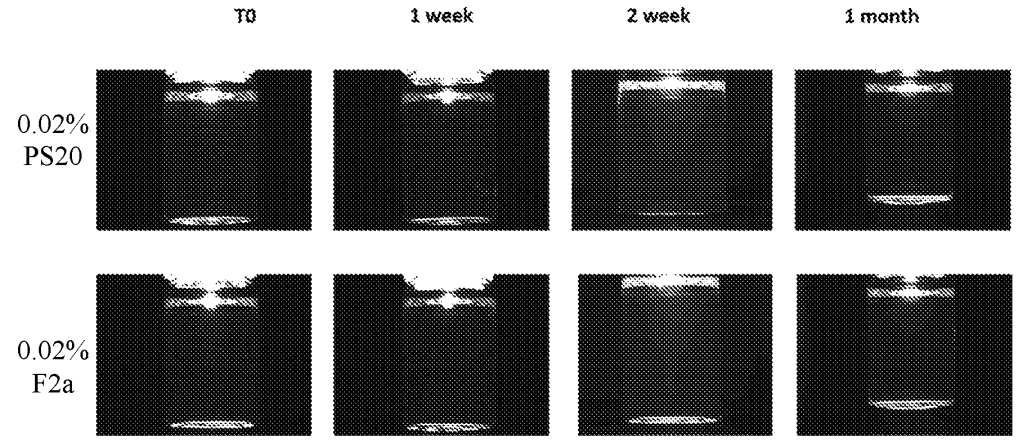


FIG. 10A

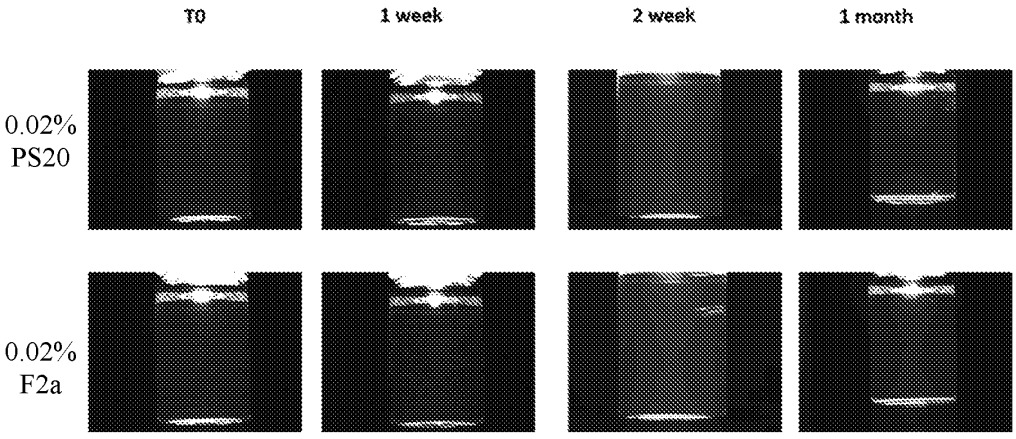


FIG. 10B

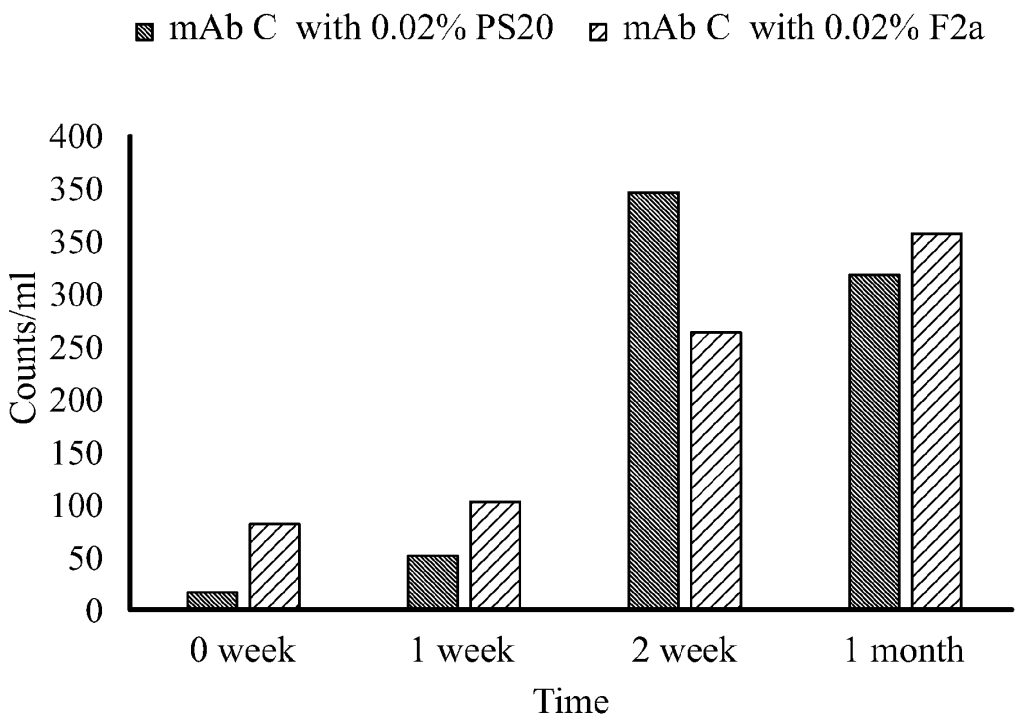


FIG. 11A

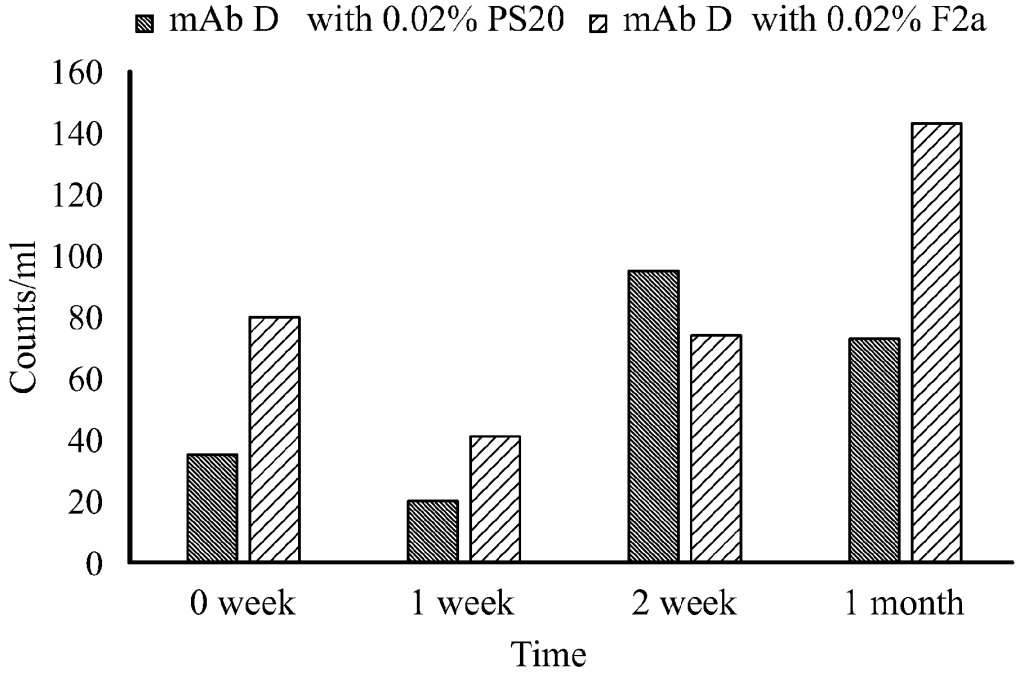


FIG. 11B

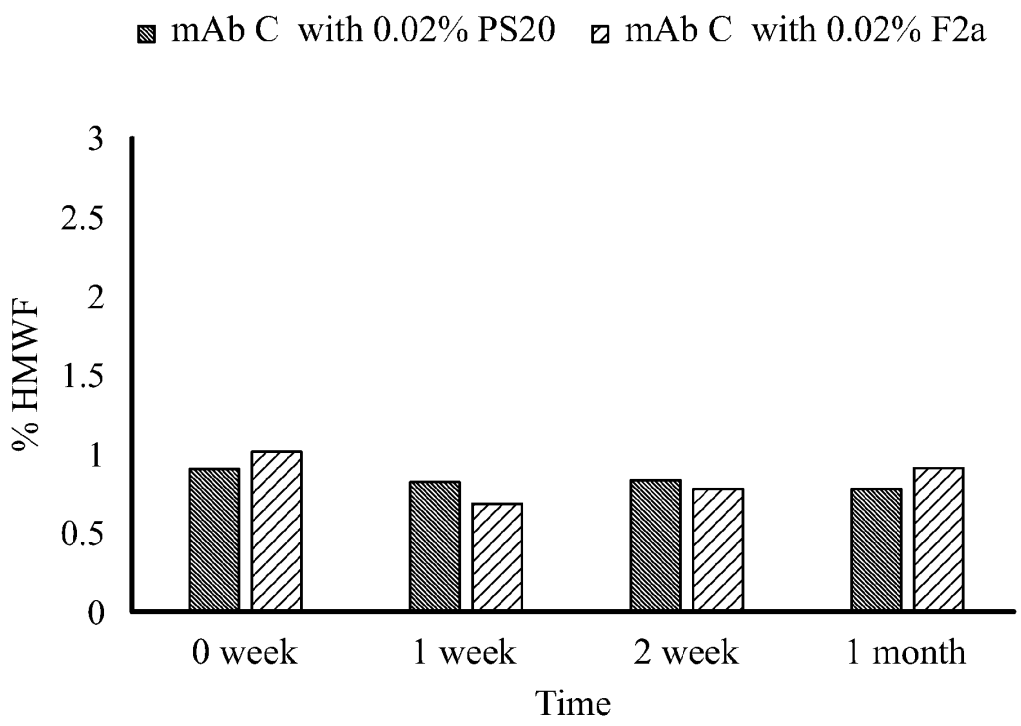


FIG. 12A

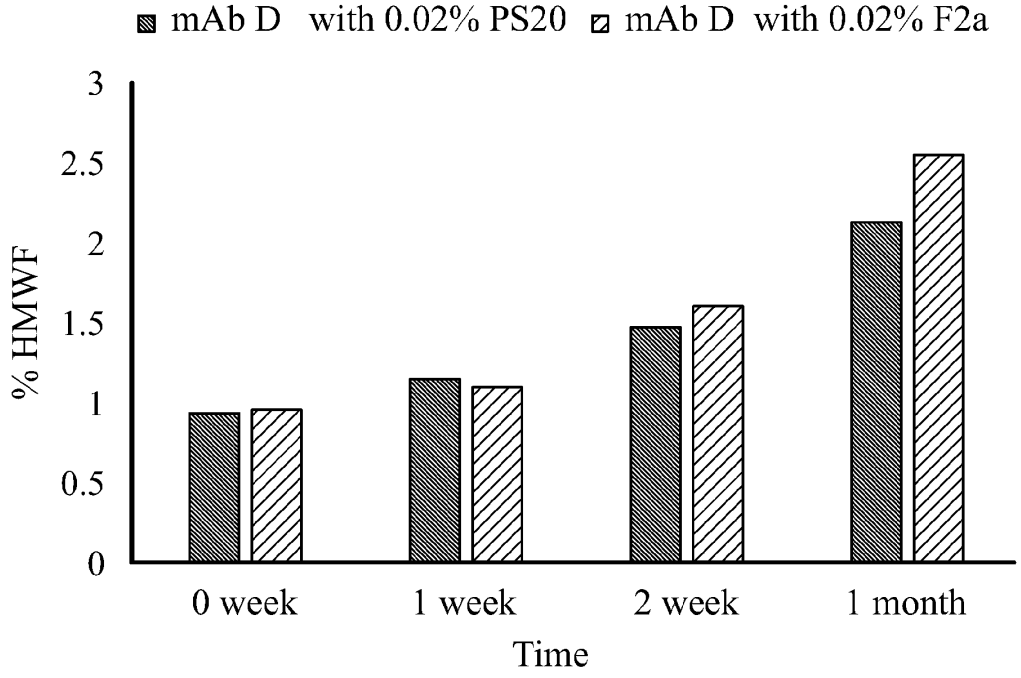


FIG. 12B

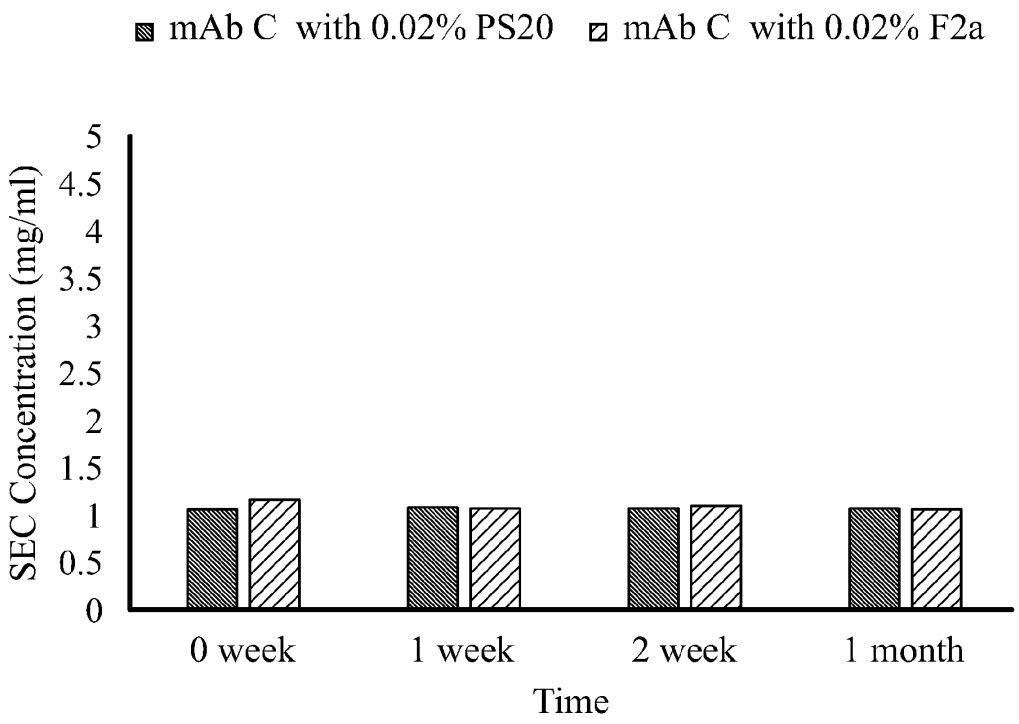


FIG. 13A

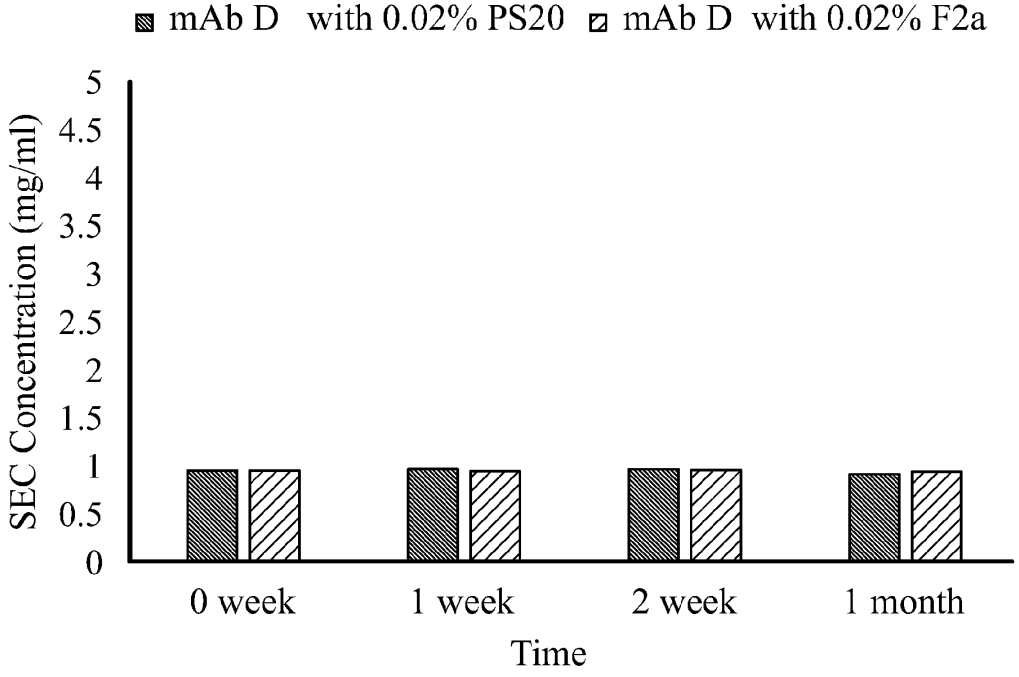


FIG. 13B

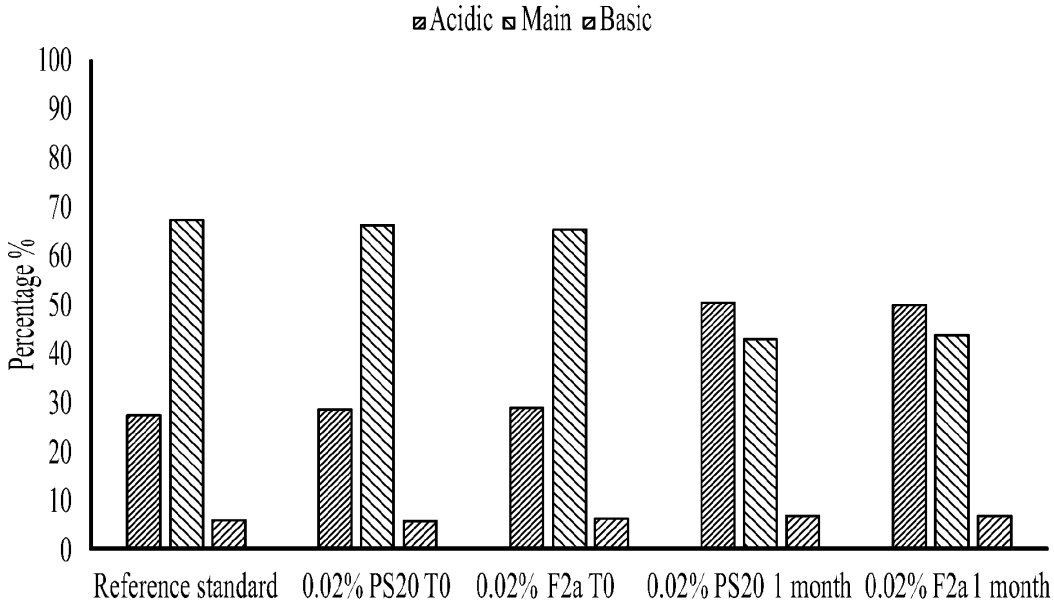

Acidic Main Basic
100
90
80
70
60
50
40
30
20
10
0
Percentage %
Reference standard
0.02% PS20 T0
0.02% F2a T0
0.02% PS20 1 month
0.02% F2a 1 month

FIG. 14

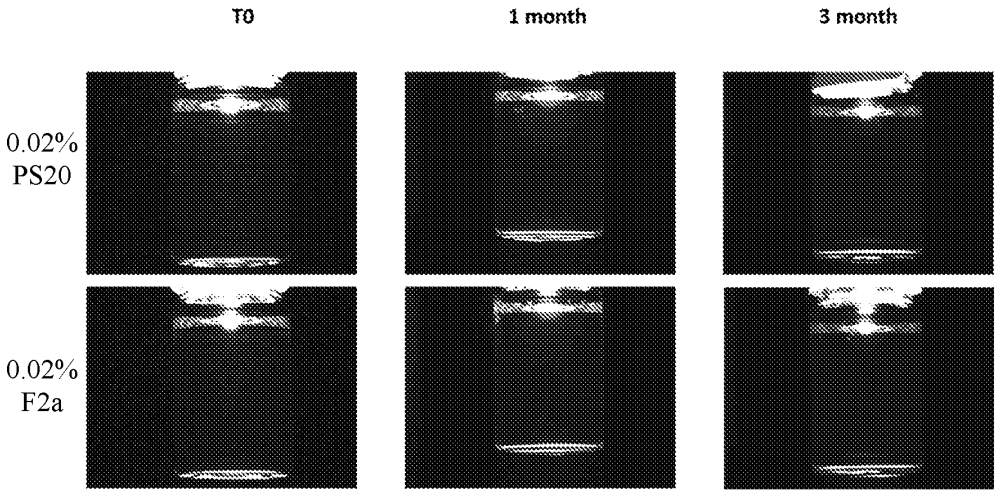


FIG. 15A

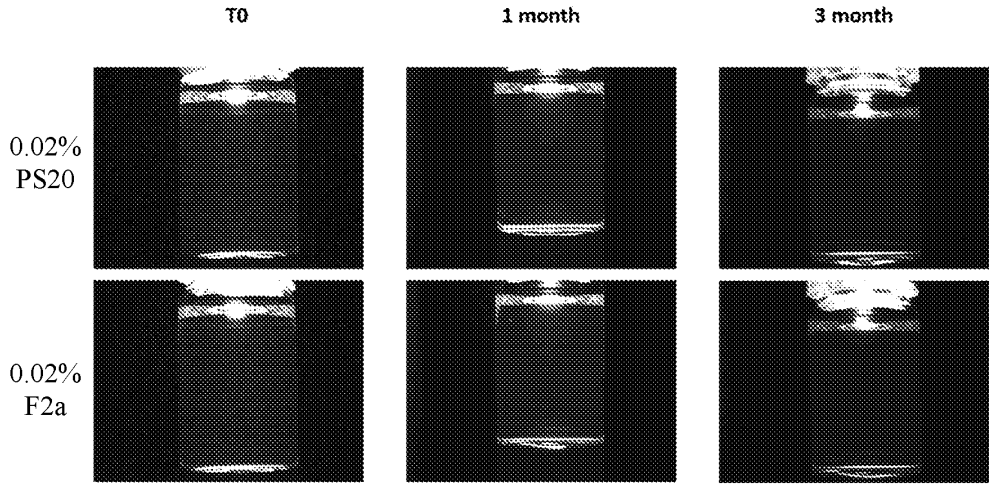


FIG. 15B

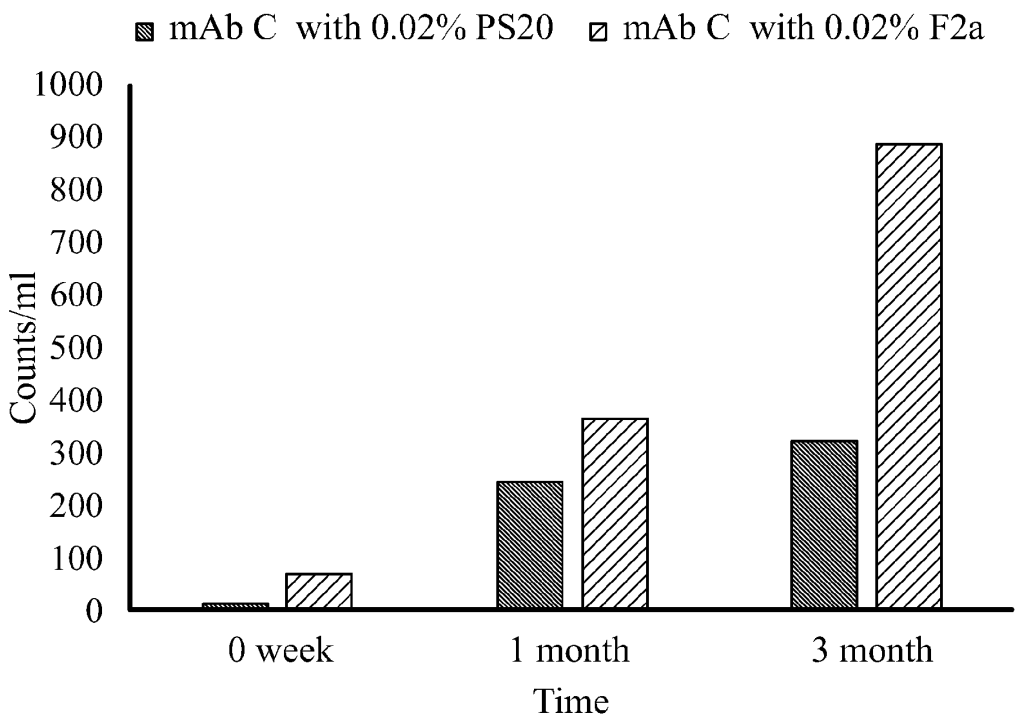


FIG. 16A

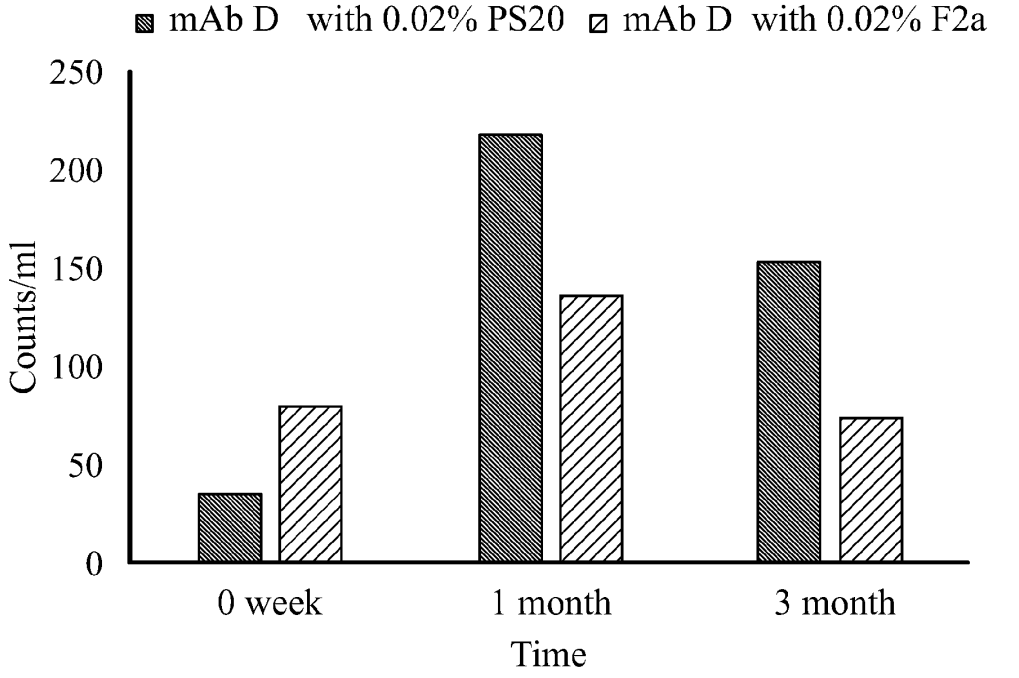


FIG. 16B

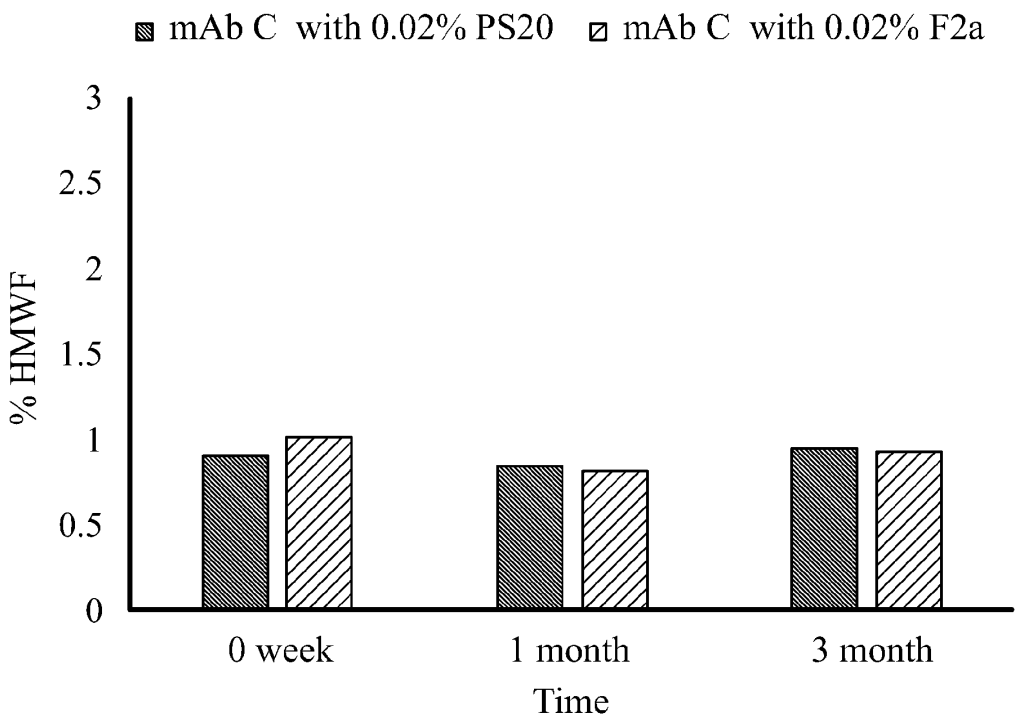


FIG. 17A

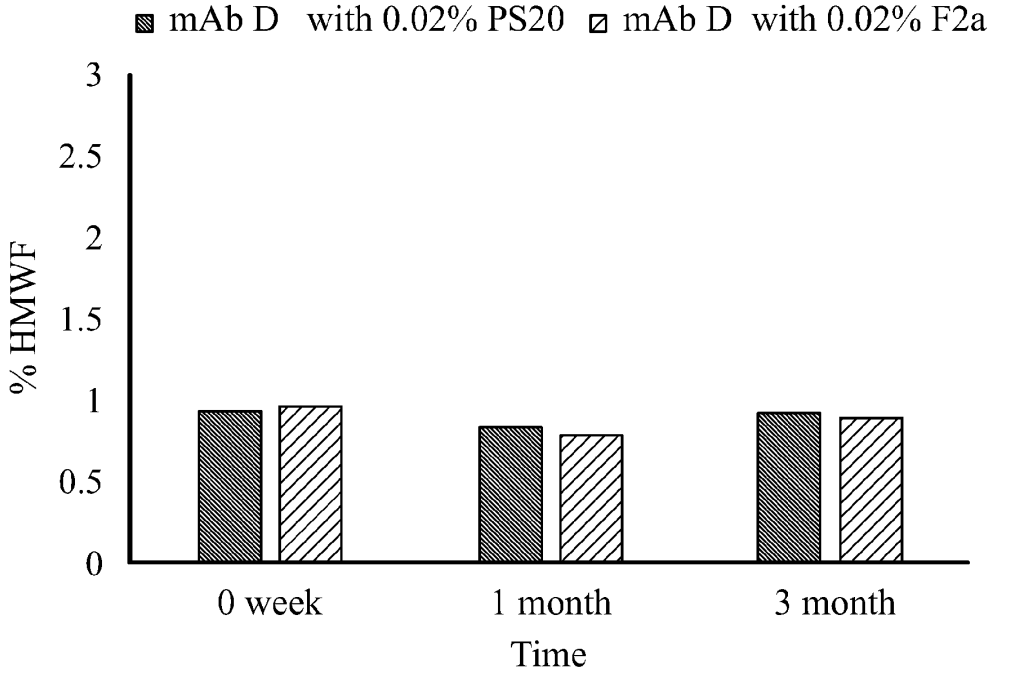


FIG. 17B

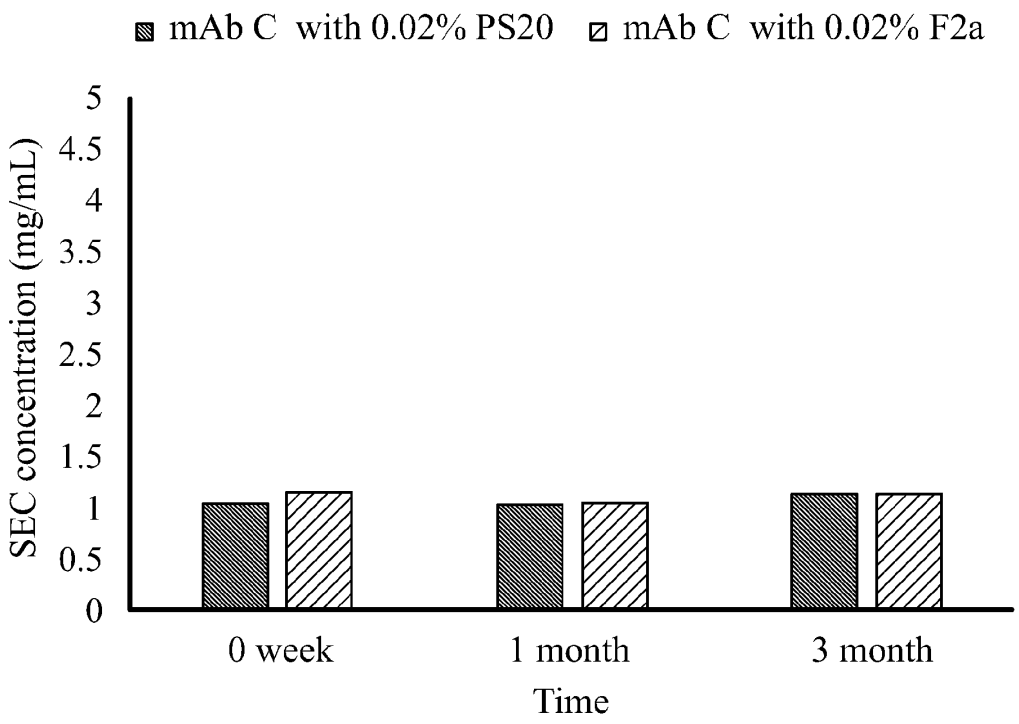


FIG. 18A

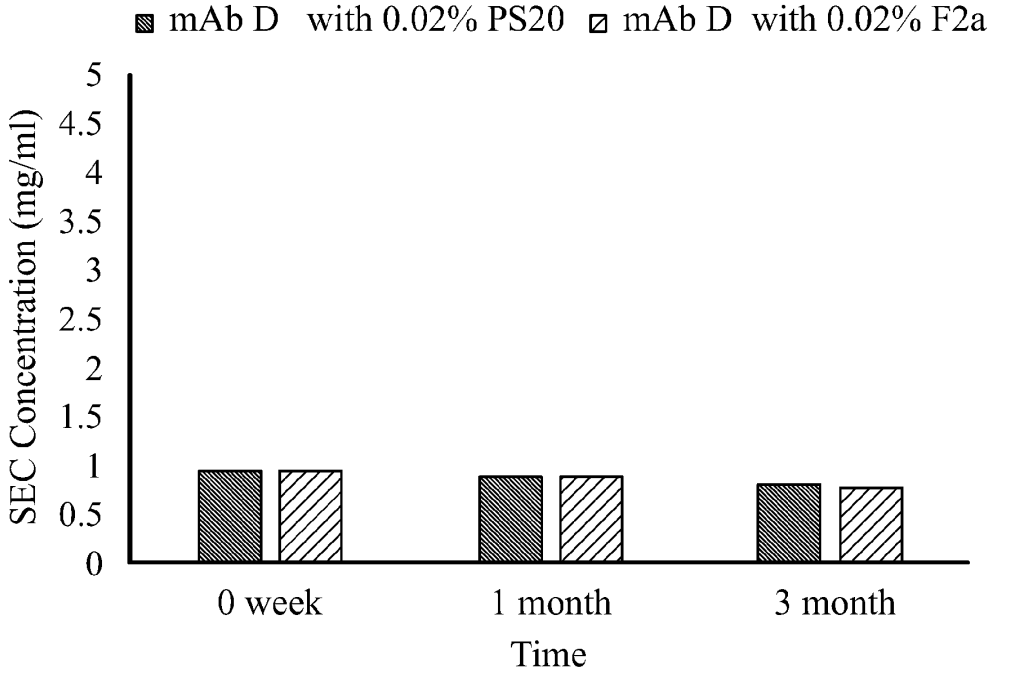


FIG. 18B

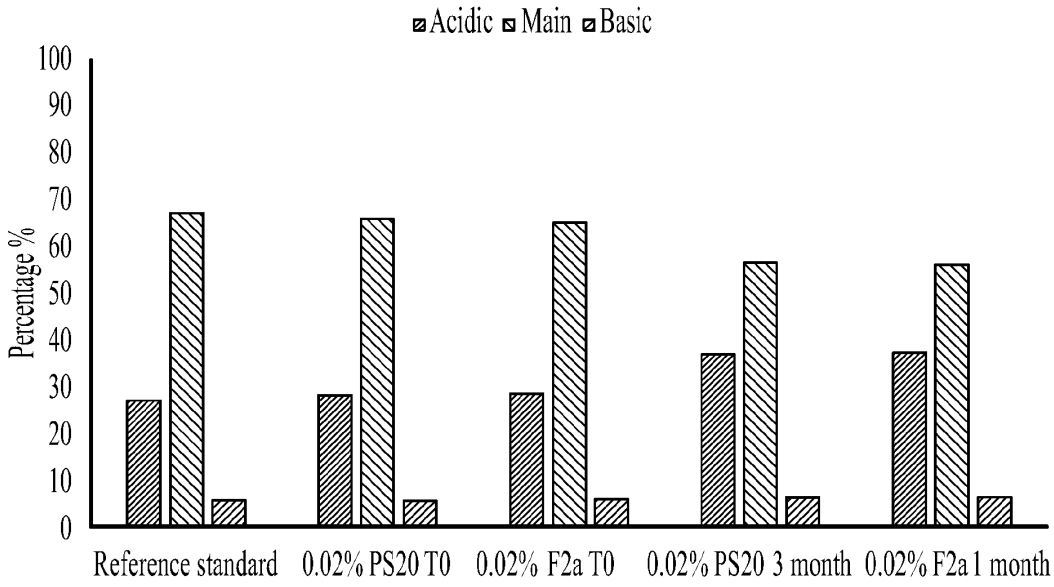

Acidic
Main
Basic
100
90
80
70
60
50
40
30
20
10
0
Percentage %
Reference standard
0.02% PS20 T0
0.02% F2a T0
0.02% PS20 3 month
0.02% F2a 1 month

FIG. 19

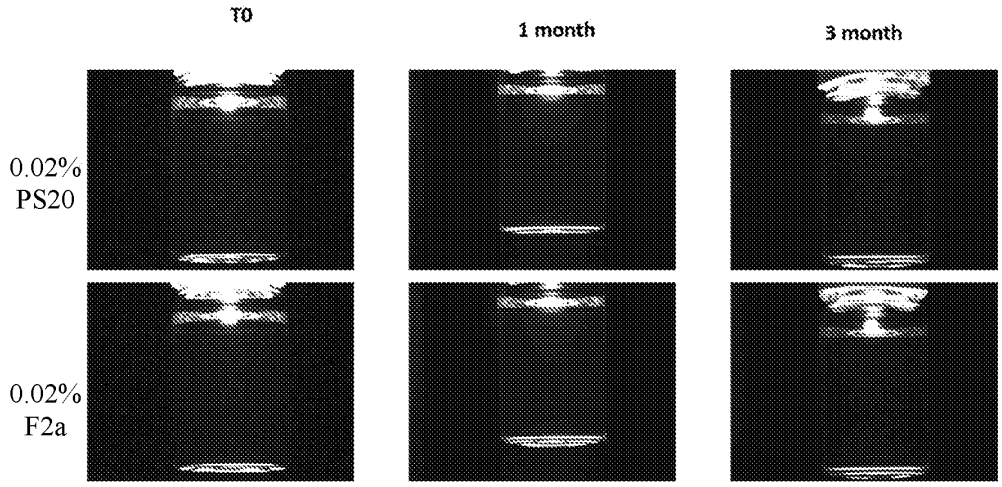


FIG. 20A

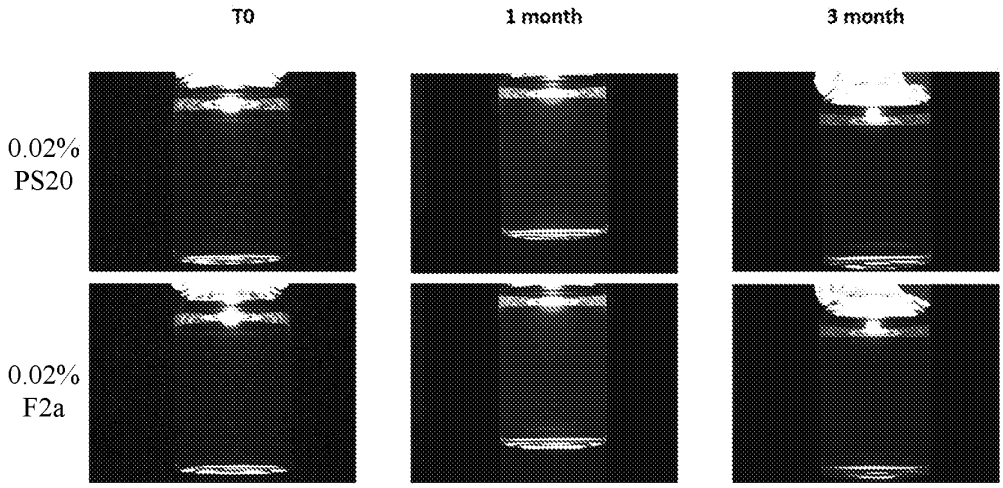


FIG. 20B

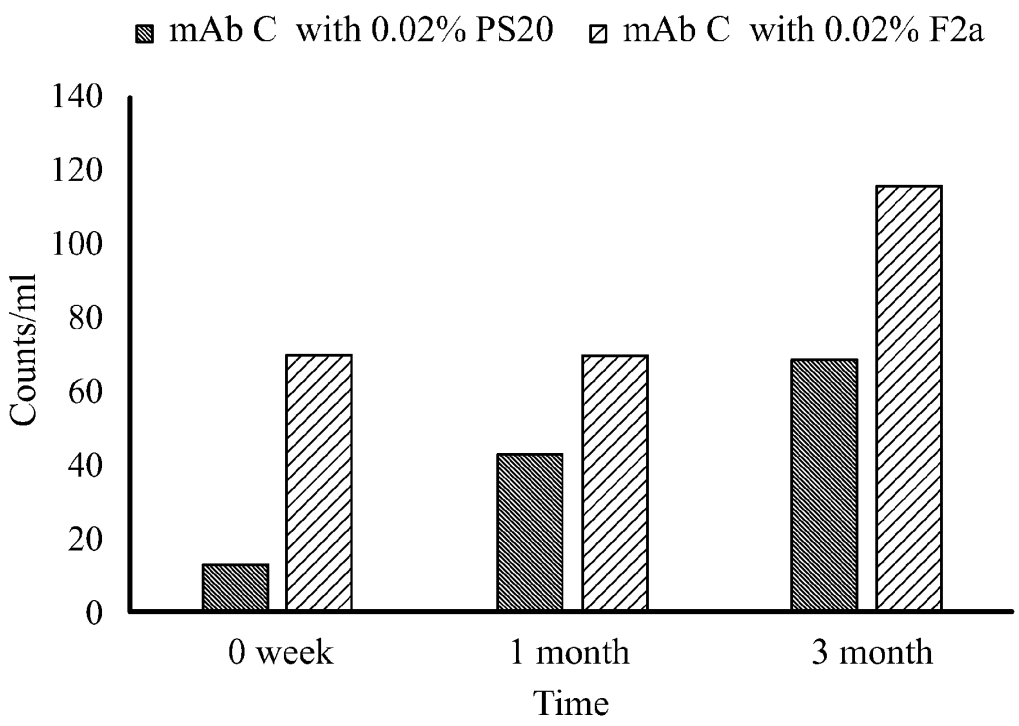


FIG. 21A

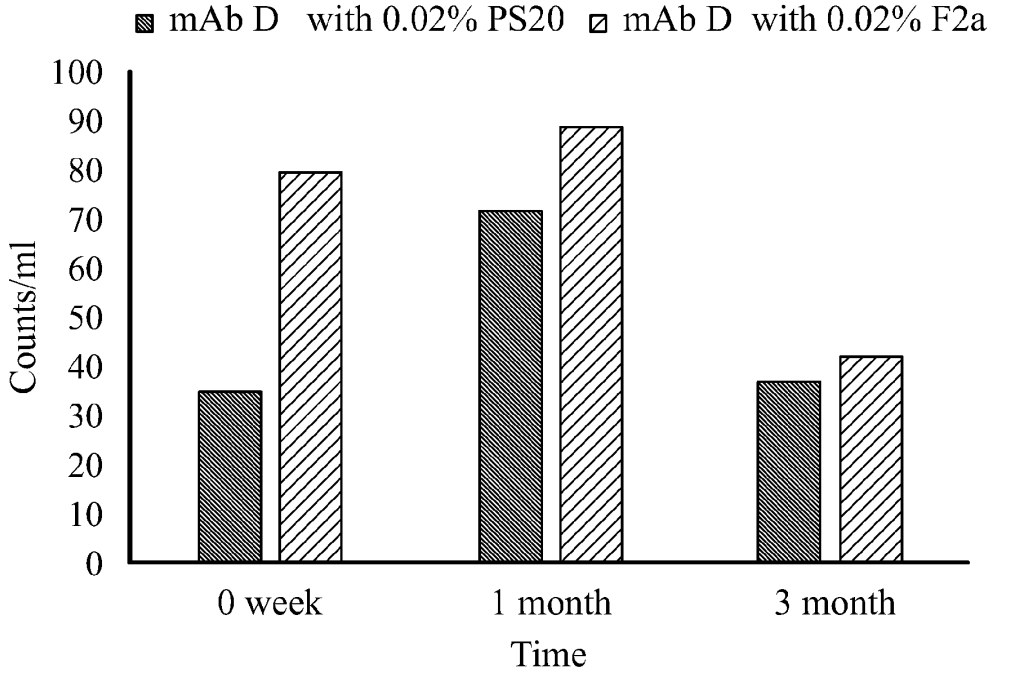


FIG. 21B

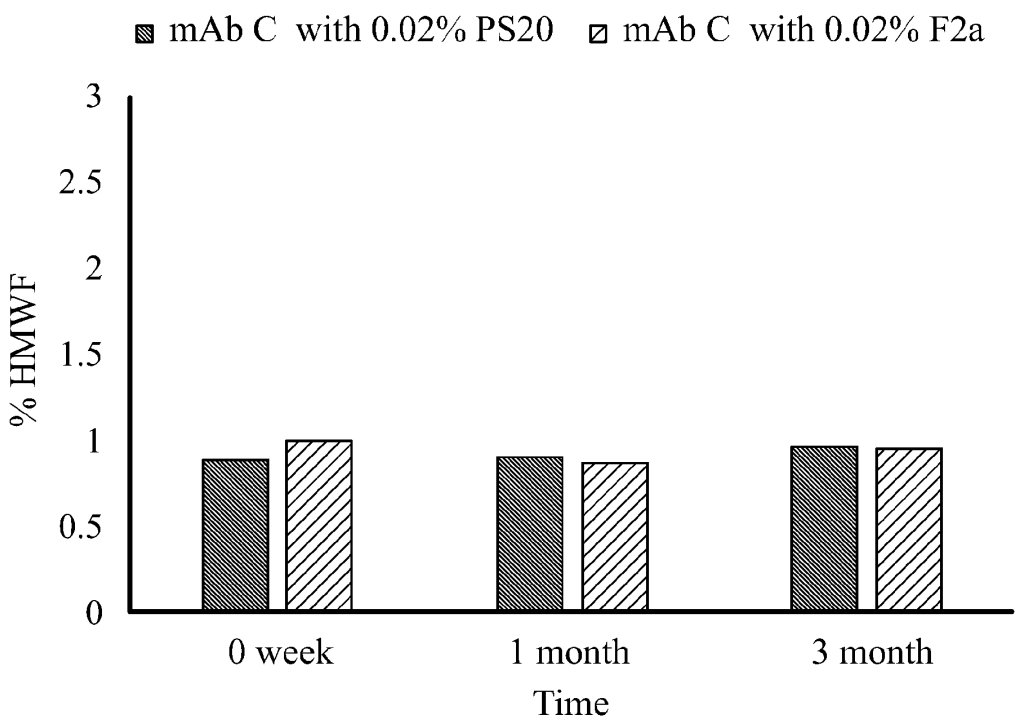


FIG. 22A

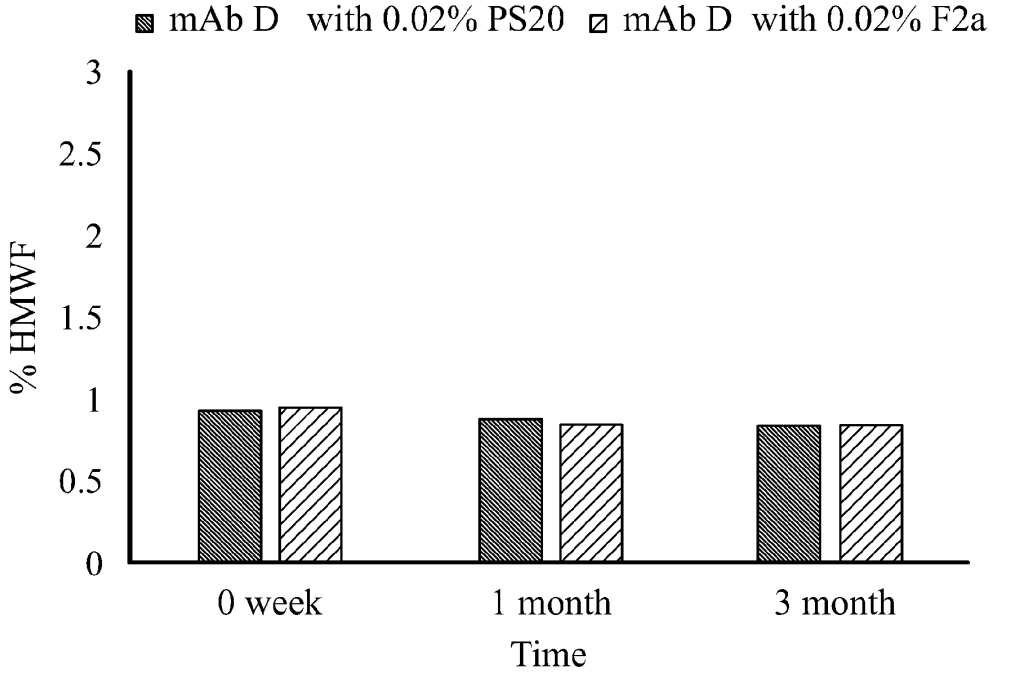


FIG. 22B

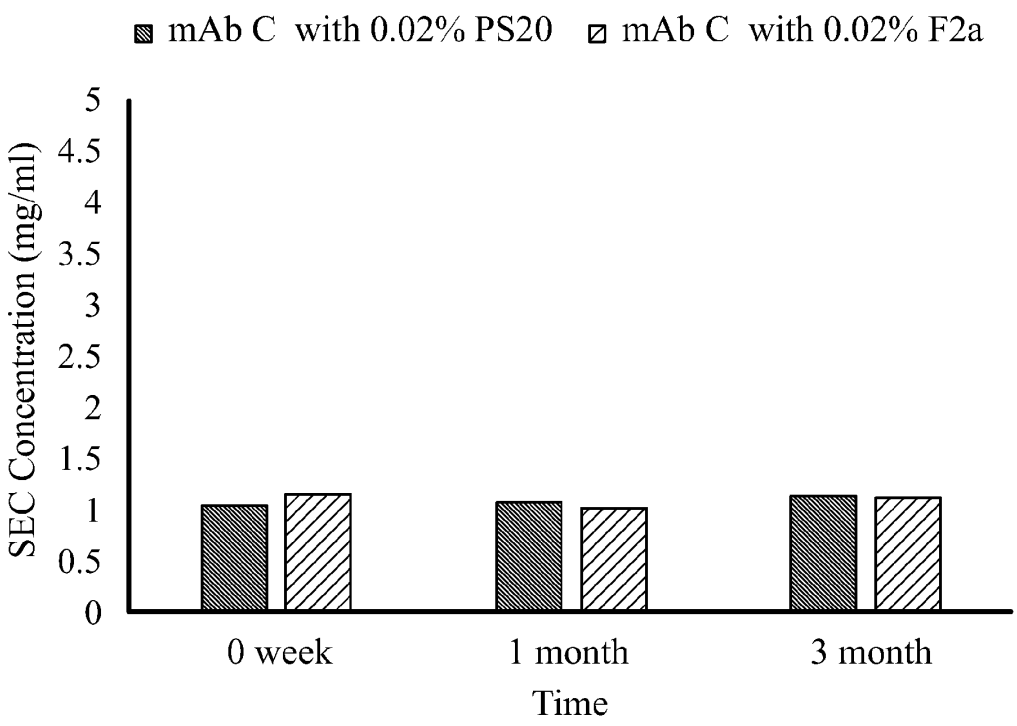


FIG. 23A

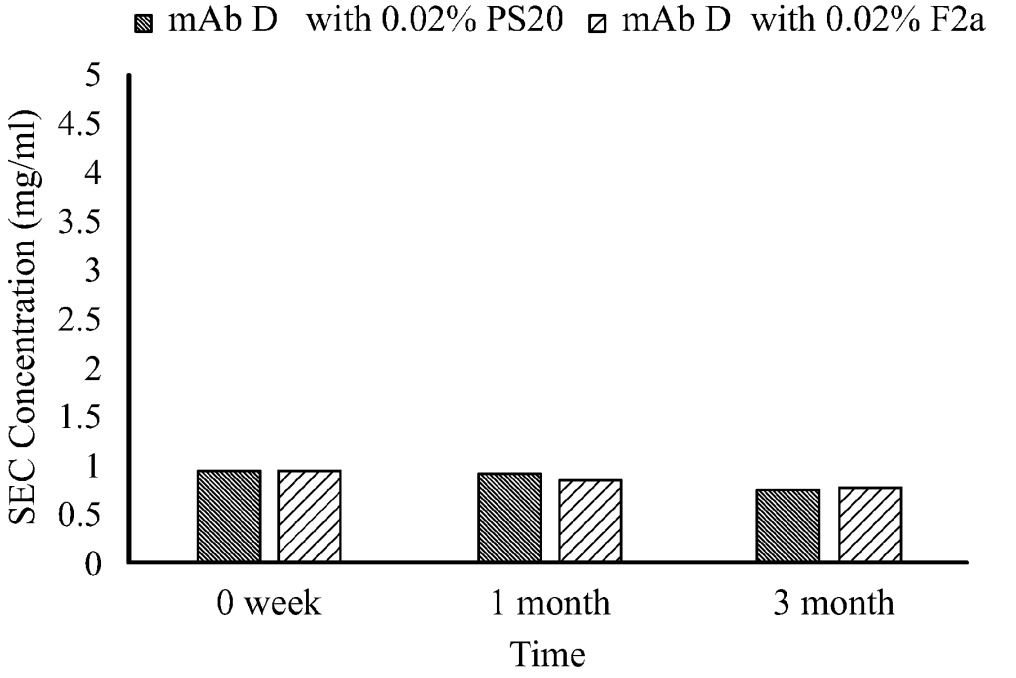


FIG. 23B

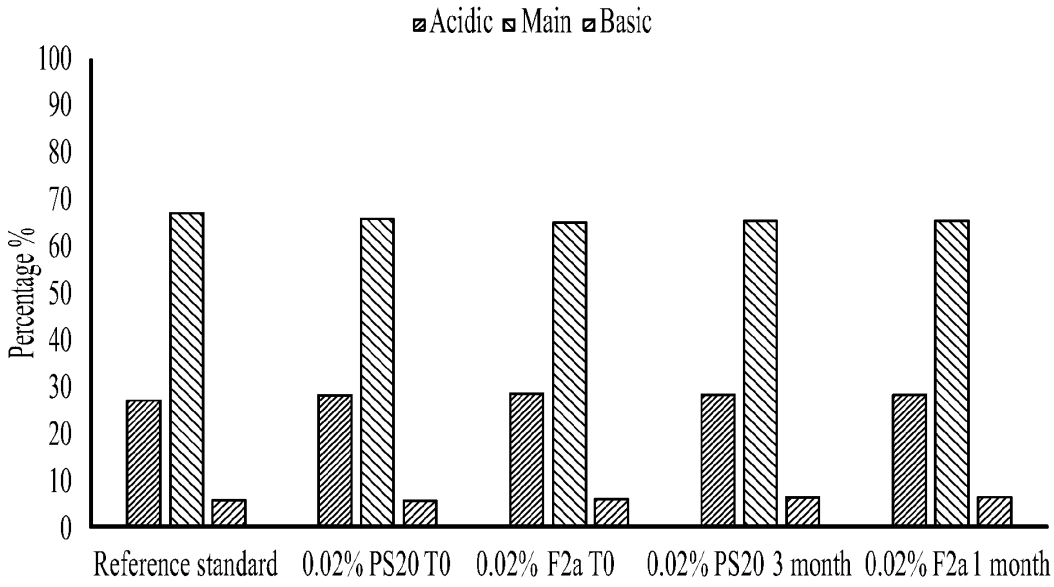

Acidic Main Basic
100
90
80
70
60
50
40
30
20
10
0
Percentage %
Reference standard
0.02% PS20 T0
0.02% F2a T0
0.02% PS20 3 month
0.02% F2a 1 month

FIG. 24

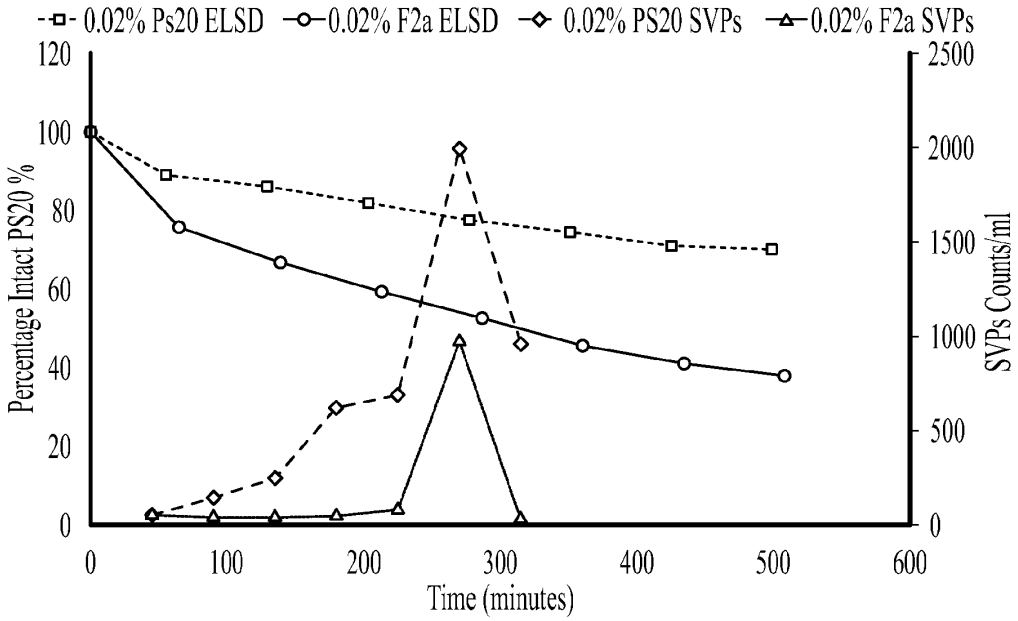

0.02% Ps20 ELSD
0.02% F2a ELSD
0.02% PS20 SVPs
0.02% F2a SVPs
Percentage Intact PS20 %
SVPs Counts/ml
Time (minutes)
120
100
80
60
40
20
0
2500
2000
1500
1000
500
0
0
100
200
300
400
500
600

FIG. 25