FIG. 1

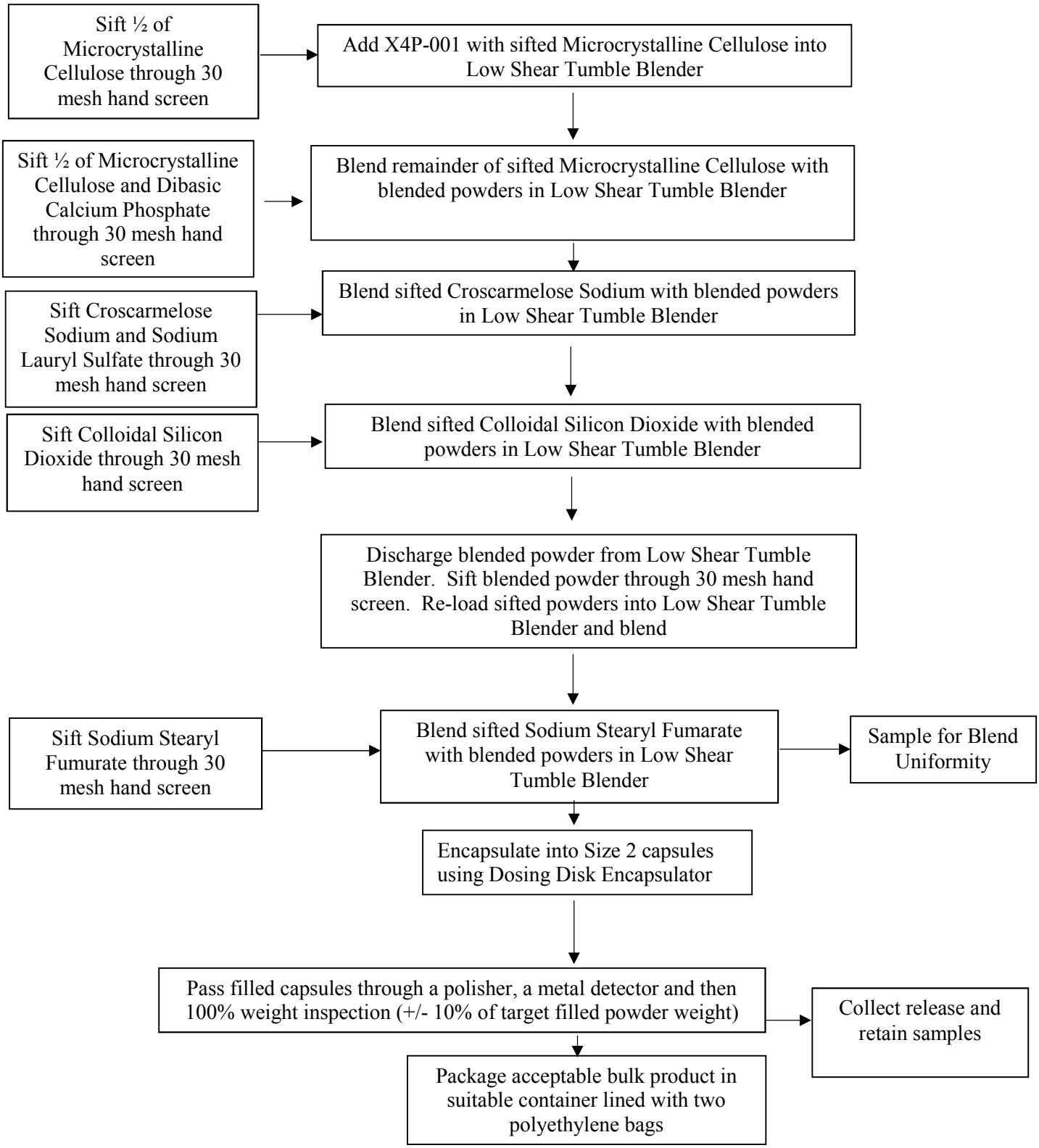

Sift ½ of Microcrystalline Cellulose through 30 mesh hand screen
Add X4P-001 with sifted Microcrystalline Cellulose into Low Shear Tumble Blender
Sift ½ of Microcrystalline Cellulose and Dibasic Calcium Phosphate through 30 mesh hand screen
Blend remainder of sifted Microcrystalline Cellulose with blended powders in Low Shear Tumble Blender
Sift Croscarmelose Sodium and Sodium Lauryl Sulfate through 30 mesh hand screen
Blend sifted Croscarmelose Sodium with blended powders in Low Shear Tumble Blender
Sift Colloidal Silicon Dioxide through 30 mesh hand screen
Blend sifted Colloidal Silicon Dioxide with blended powders in Low Shear Tumble Blender
Discharge blended powder from Low Shear Tumble Blender. Sift blended powder through 30 mesh hand screen. Re-load sifted powders into Low Shear Tumble Blender and blend
Sift Sodium Stearyl Fumurate through 30 mesh hand screen
Blend sifted Sodium Stearyl Fumarate with blended powders in Low Shear Tumble Blender
Sample for Blend Uniformity
Encapsulate into Size 2 capsules using Dosing Disk Encapsulator
Pass filled capsules through a polisher, a metal detector and then 100% weight inspection (+/- 10% of target filled powder weight)
Collect release and retain samples
Package acceptable bulk product in suitable container lined with two polyethylene bags

FIG. 2

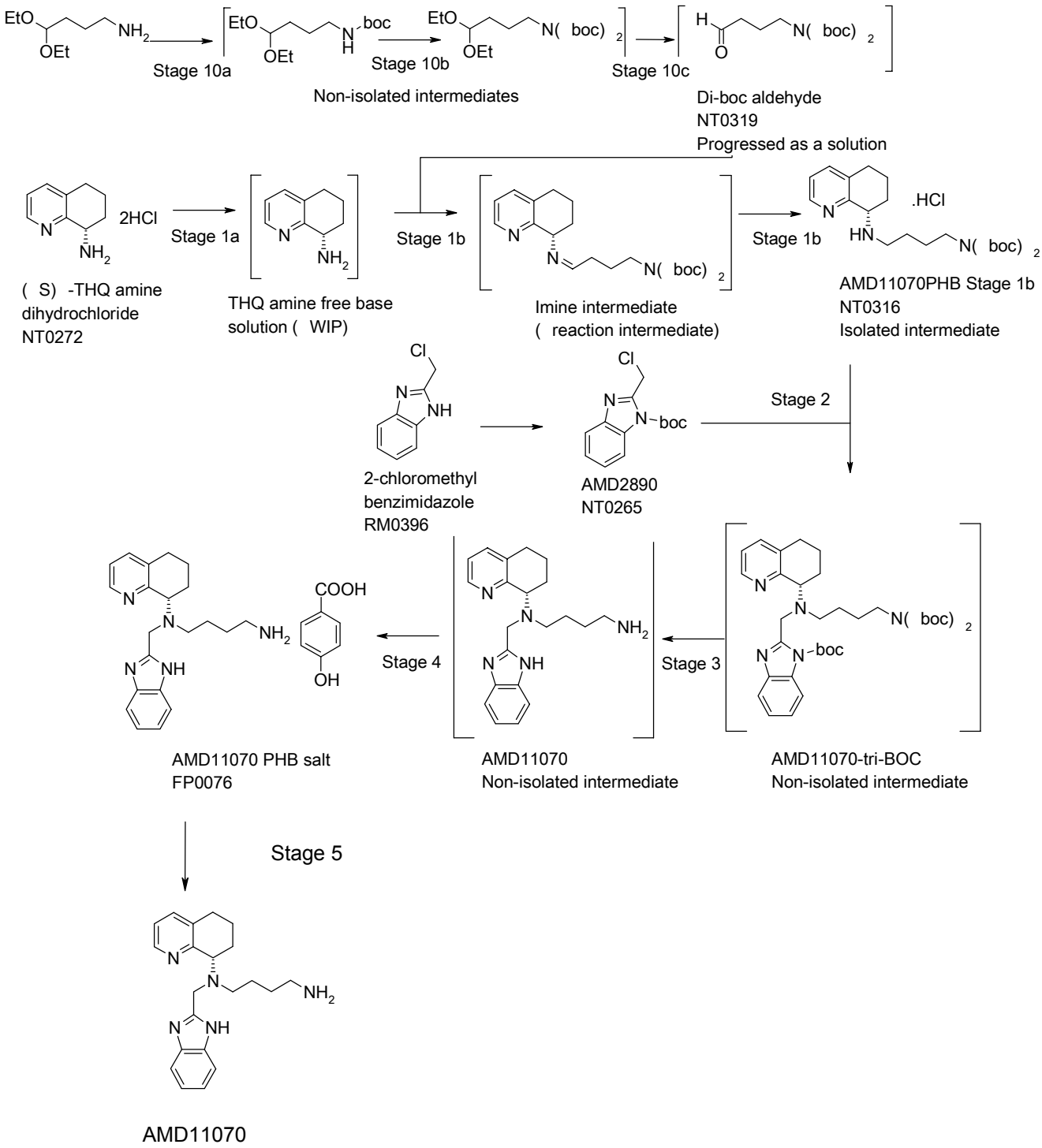

Stage 10a
Stage 10b
Stage 10c
Non-isolated intermediates
Di-boc aldehyde
NT0319
Progressed as a solution
2HCl
Stage 1a
Stage 1b
Stage 1b
.HCl
(S) -THQ amine
dihydrochloride
NT0272
THQ amine free base
solution (WIP)
Imine intermediate
(reaction intermediate)
AMD11070PHB Stage 1b
NT0316
Isolated intermediate
2-chloromethyl
benzimidazole
RM0396
AMD2890
NT0265
Stage 2
Stage 3
Stage 4
AMD11070 PHB salt
FP0076
AMD11070
Non-isolated intermediate
AMD11070-tri-BOC
Non-isolated intermediate
Stage 5
AMD11070

FIG. 3

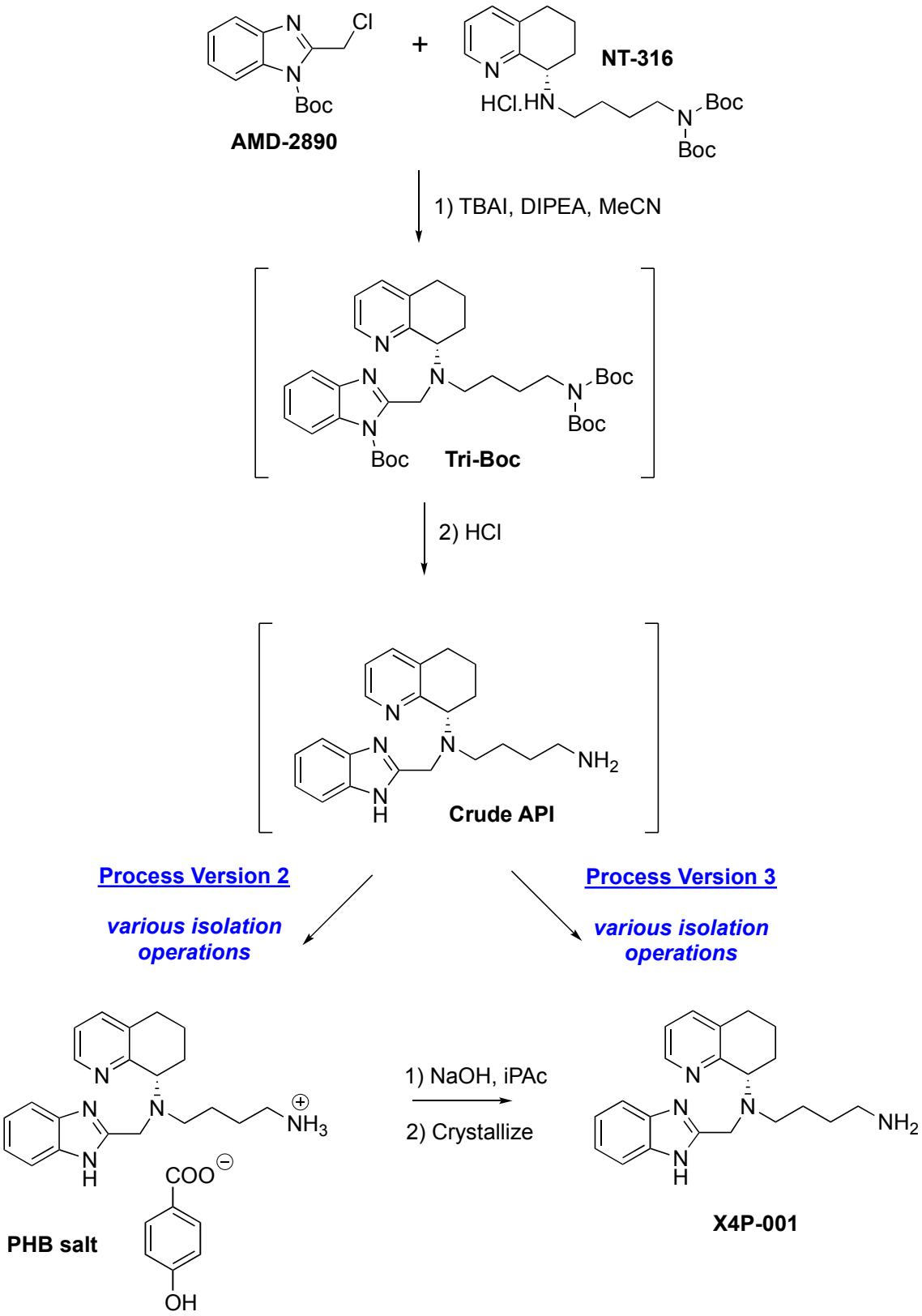
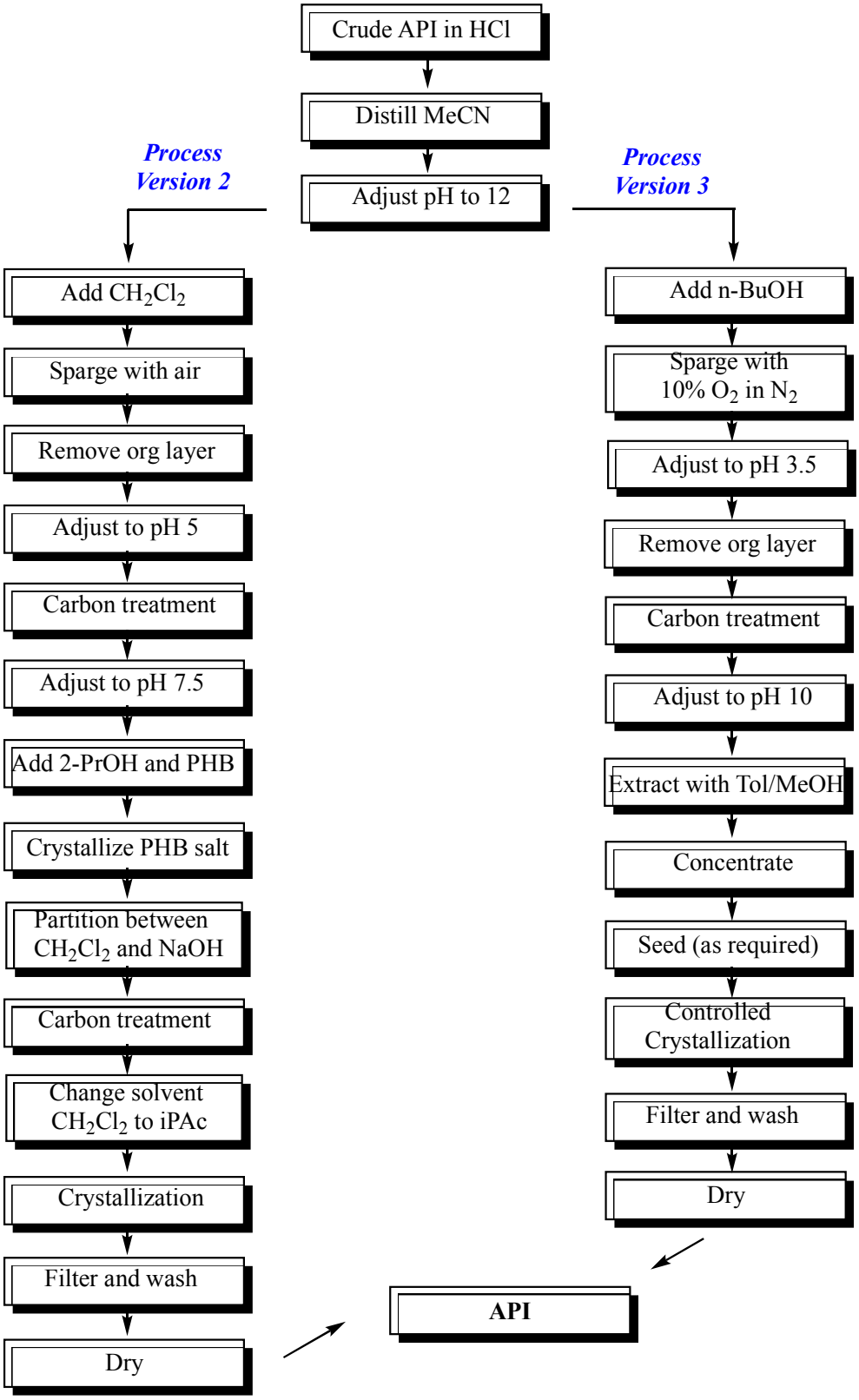

AMD-2890
NT-316
1) TBAI, DIPEA, MeCN
Tri-Boc
2) HCl
Crude API
Process Version 2
various isolation operations
Process Version 3
various isolation operations
PHB salt
1) NaOH, iPAc
2) Crystallize
X4P-001

FIG. 4


Crude API in HCl
Distill MeCN
Adjust pH to 12
Process Version 2
Add CH_2Cl_2
Sparge with air
Remove org layer
Adjust to pH 5
Carbon treatment
Adjust to pH 7.5
Add 2-PrOH and PHB
Crystallize PHB salt
Partition between CH_2Cl_2 and NaOH
Carbon treatment
Change solvent CH_2Cl_2 to iPAc
Crystallization
Filter and wash
Dry
Process Version 3
Add n-BuOH
Sparge with 10% O_2 in N_2
Adjust to pH 3.5
Remove org layer
Carbon treatment
Adjust to pH 10
Extract with Tol/MeOH
Concentrate
Seed (as required)
Controlled Crystallization
Filter and wash
Dry
API

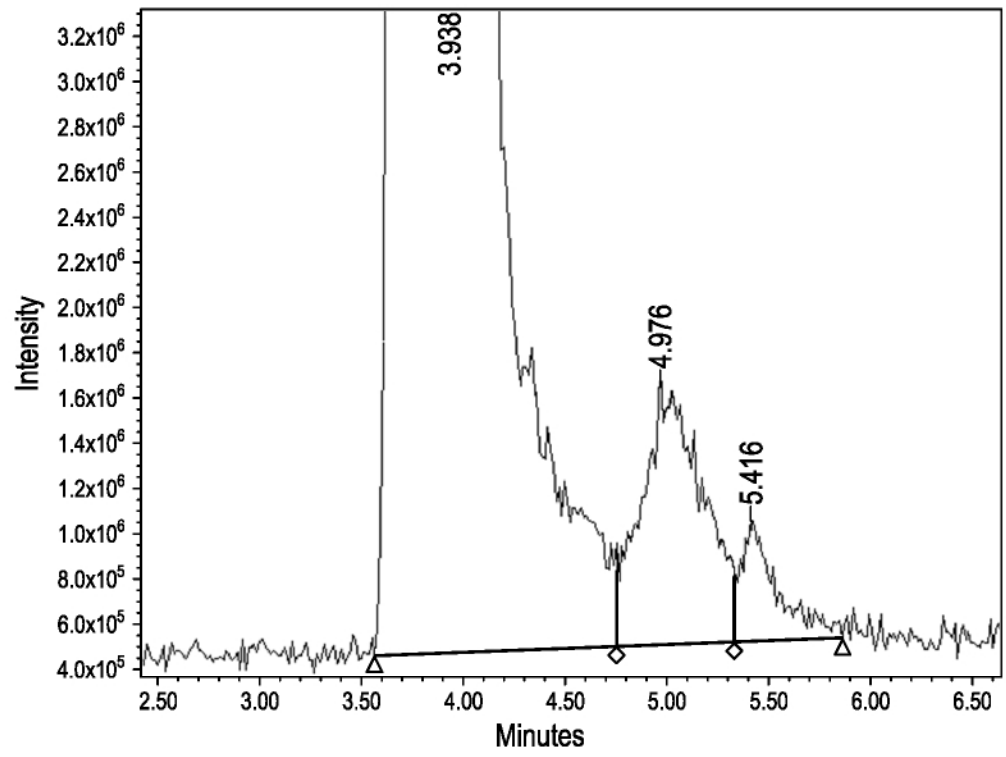

3.938
4.976
5.416
Intensity
Minutes
3.2x10^6
3.0x10^6
2.8x10^6
2.6x10^6
2.4x10^6
2.2x10^6
2.0x10^6
1.8x10^6
1.6x10^6
1.4x10^6
1.2x10^6
1.0x10^6
8.0x10^5
6.0x10^5
4.0x10^5
2.50
3.00
3.50
4.00
4.50
5.00
5.50
6.00
6.50

FIG. 5

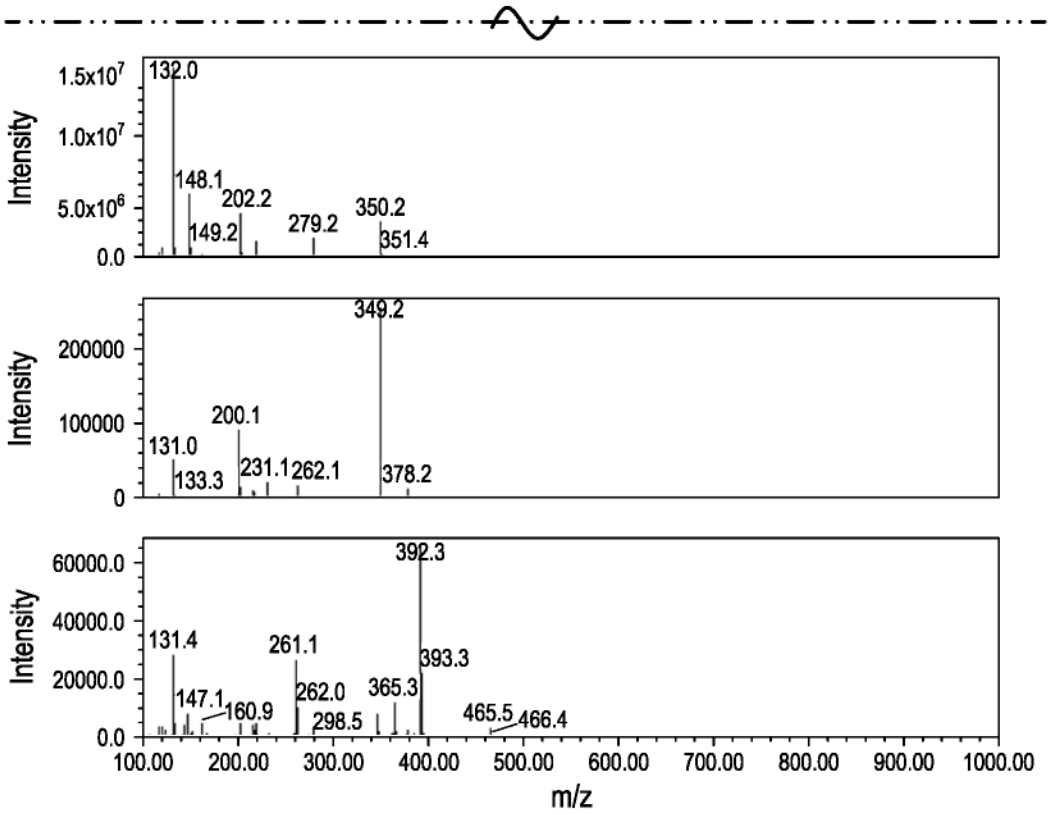


FIG. 5 (continued)

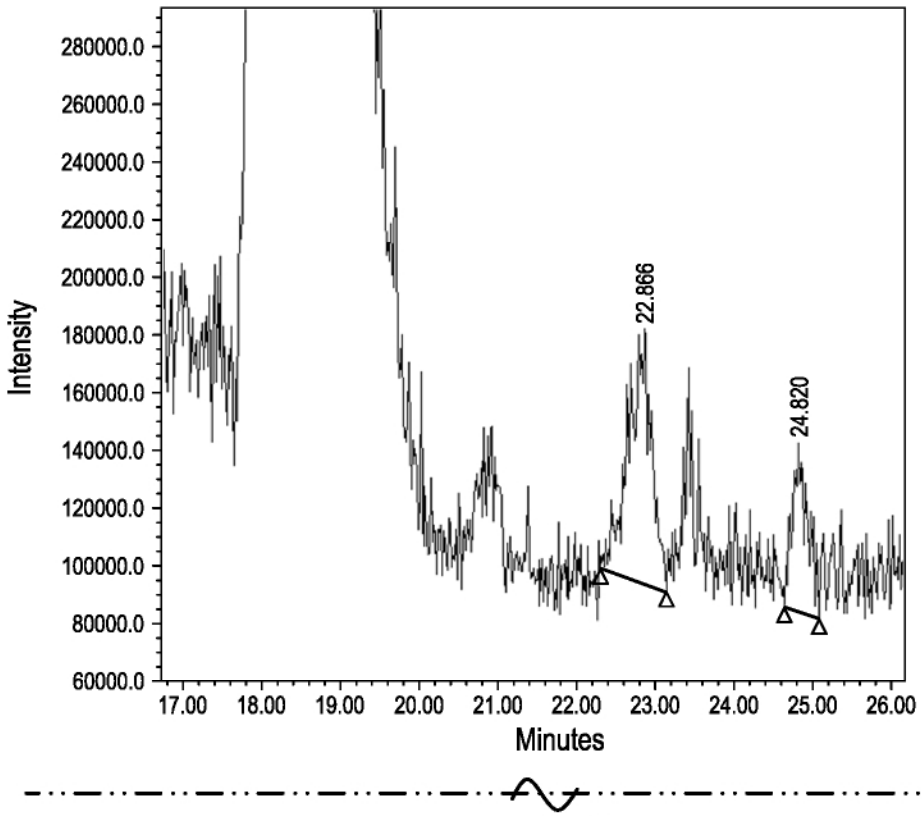

Intensity
280000.0
260000.0
240000.0
220000.0
200000.0
180000.0
160000.0
140000.0
120000.0
100000.0
80000.0
60000.0
22.866
24.820
17.00
18.00
19.00
20.00
21.00
22.00
23.00
24.00
25.00
26.00
Minutes

FIG. 6

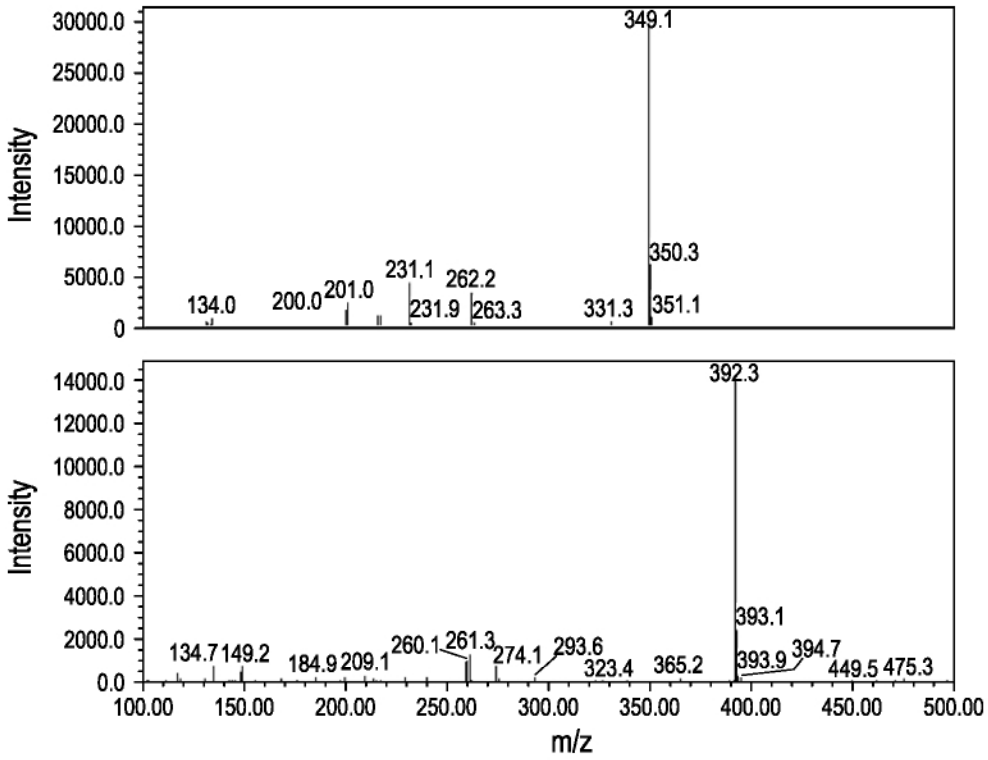


FIG. 6 (continued)

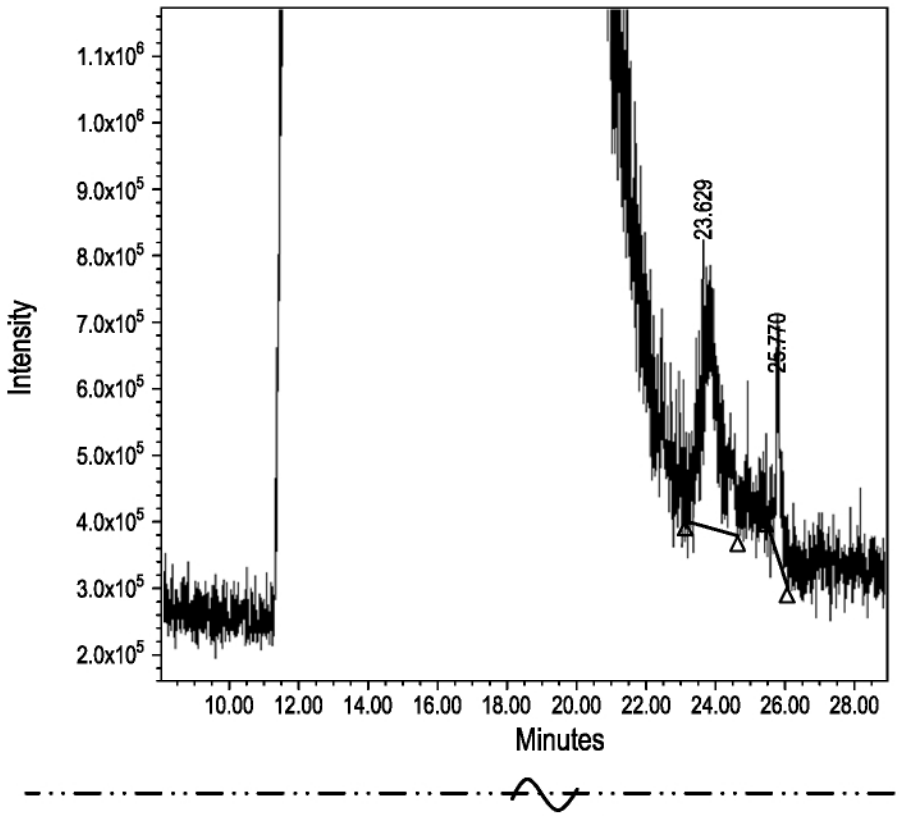

Intensity
1.1x10^6
1.0x10^6
9.0x10^5
8.0x10^5
7.0x10^5
6.0x10^5
5.0x10^5
4.0x10^5
3.0x10^5
2.0x10^5
23.629
25.770
10.00
12.00
14.00
16.00
18.00
20.00
22.00
24.00
26.00
28.00
Minutes

FIG. 7

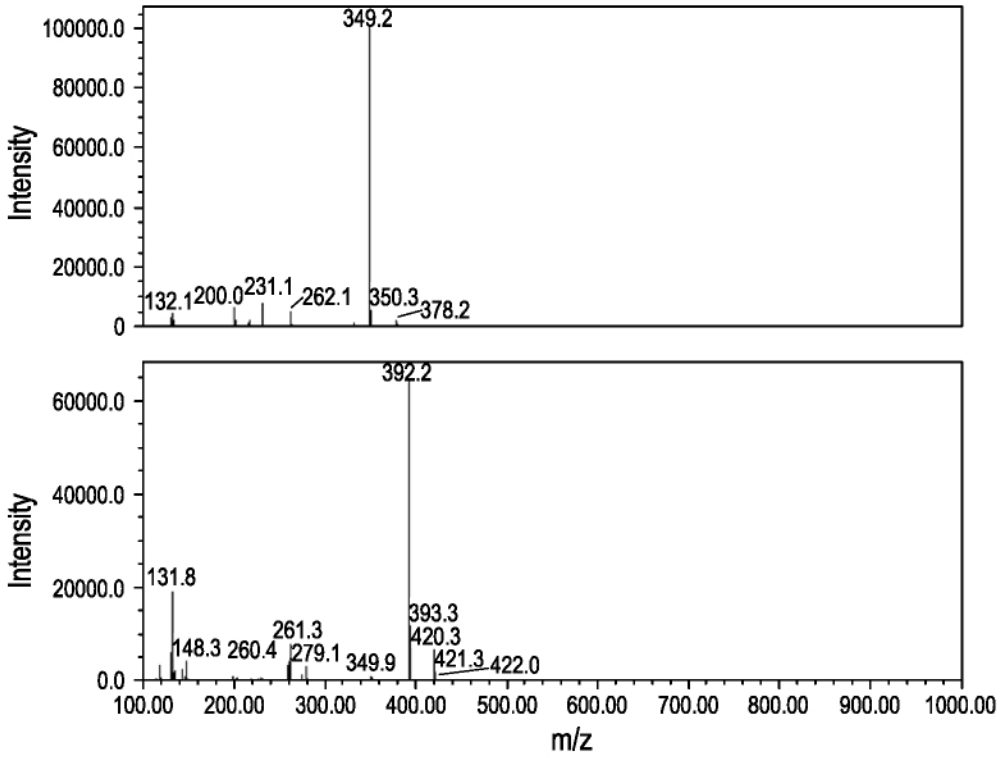


FIG. 7 (continued)

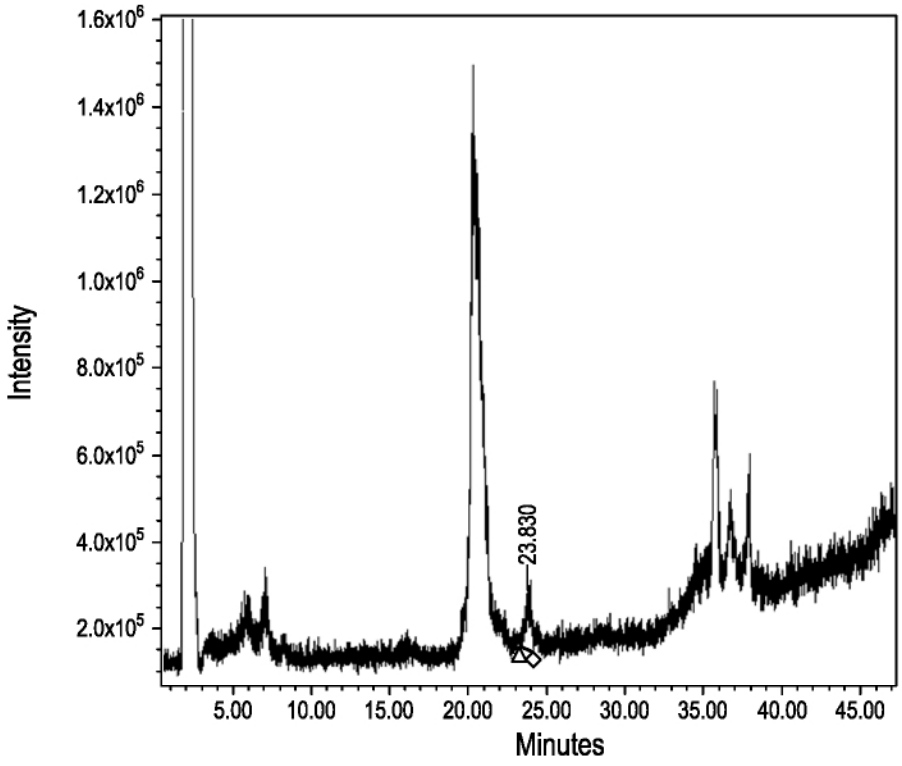

1.6x10^6
1.4x10^6
1.2x10^6
1.0x10^6
8.0x10^5
6.0x10^5
4.0x10^5
2.0x10^5
Intensity
23.830
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
45.00
Minutes

FIG. 8

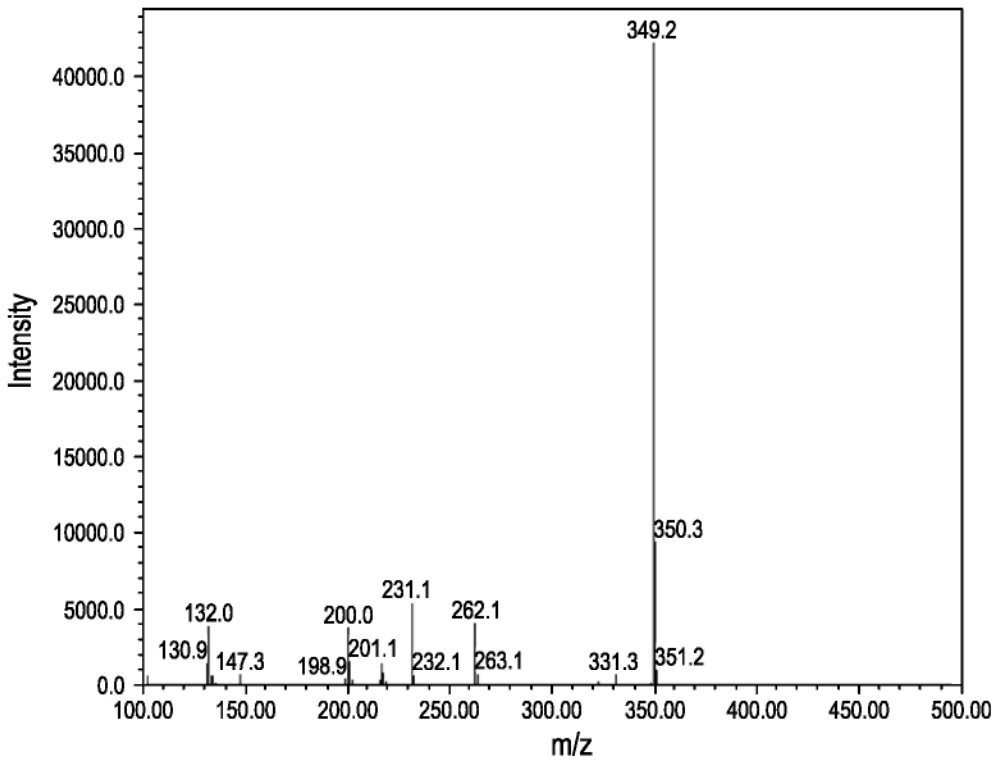


FIG. 8 (continued)

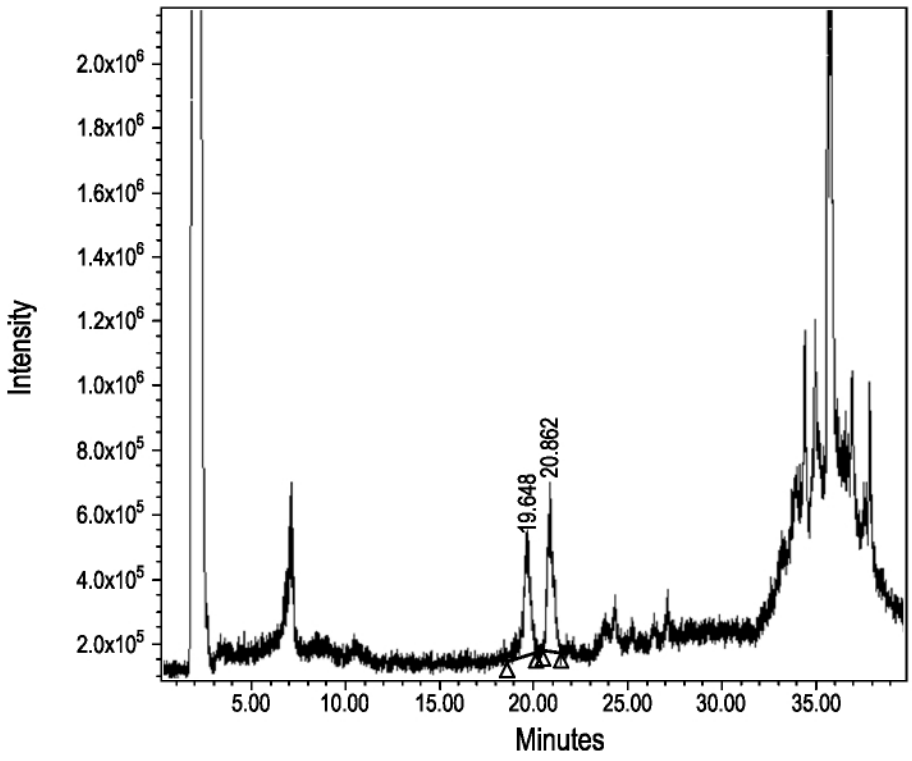

Intensity
2.0x10^6
1.8x10^6
1.6x10^6
1.4x10^6
1.2x10^6
1.0x10^6
8.0x10^5
6.0x10^5
4.0x10^5
2.0x10^5
19.648
20.862
5.00
10.00
15.00
20.00
25.00
30.00
35.00
Minutes

FIG. 9

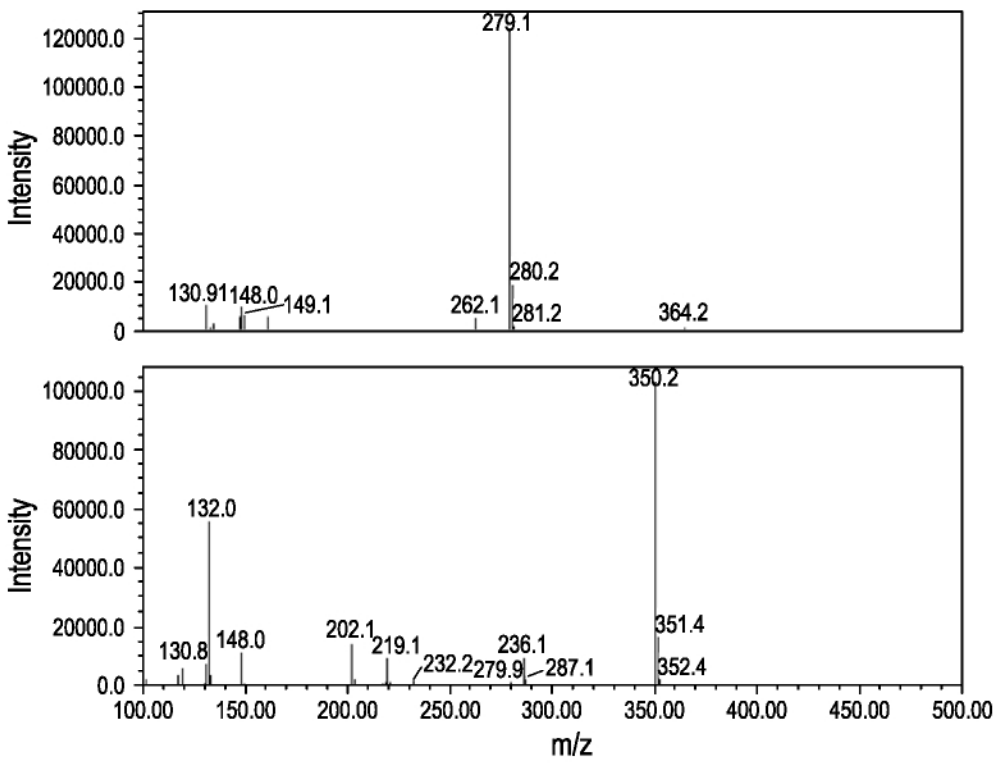


FIG. 9 (continued)

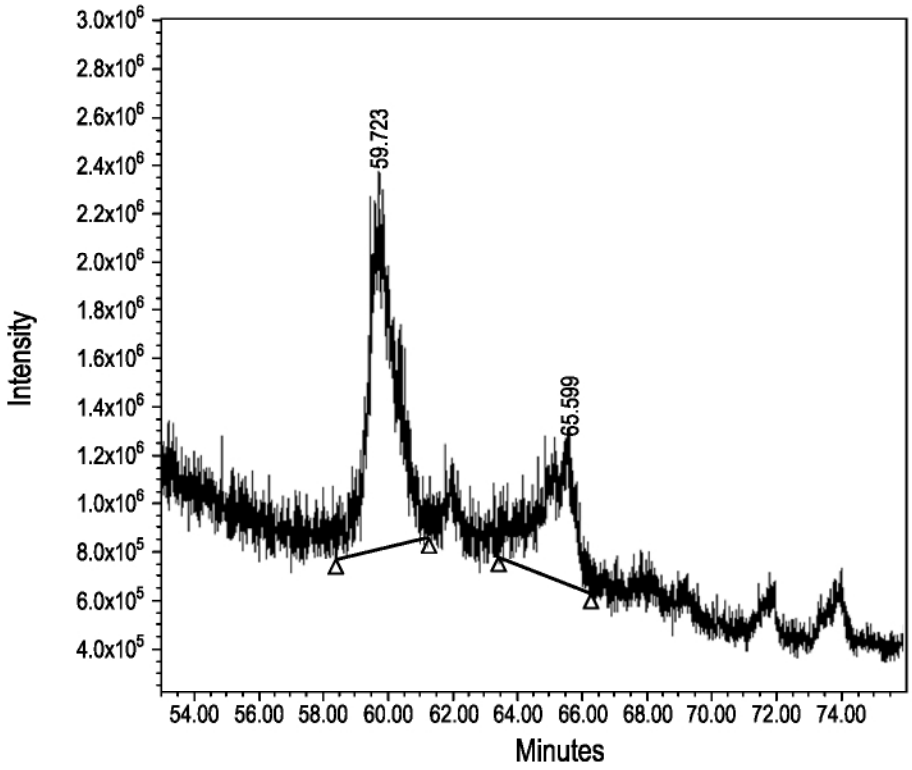

3.0x10^6
2.8x10^6
2.6x10^6
2.4x10^6
2.2x10^6
2.0x10^6
1.8x10^6
1.6x10^6
1.4x10^6
1.2x10^6
1.0x10^6
8.0x10^5
6.0x10^5
4.0x10^5
Intensity
59.723
65.599
54.00 56.00 58.00 60.00 62.00 64.00 66.00 68.00 70.00 72.00 74.00
Minutes

FIG. 10

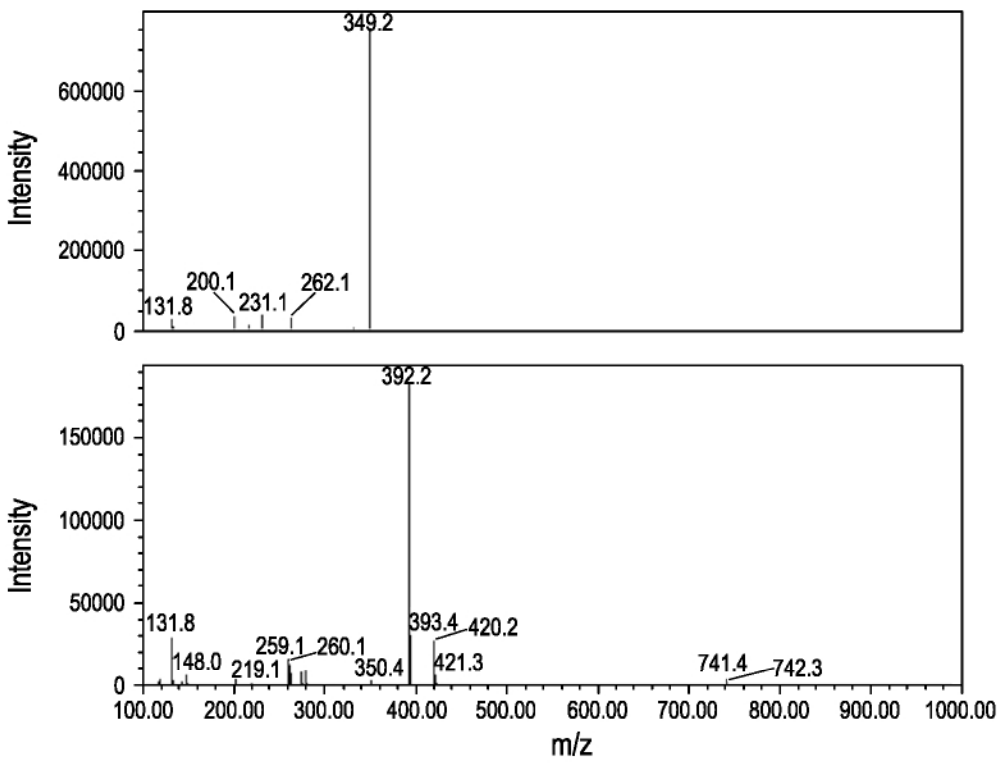


FIG. 10 (continued)