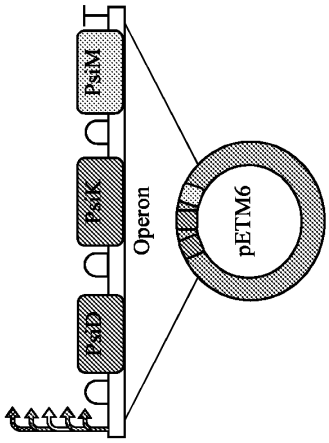


FIG. 1C

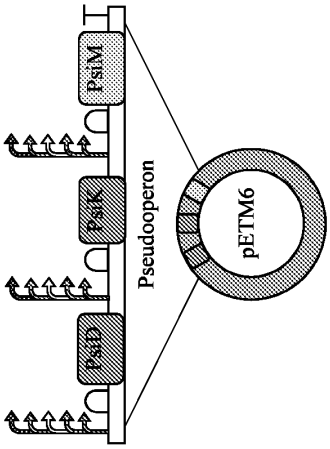


FIG. 1B

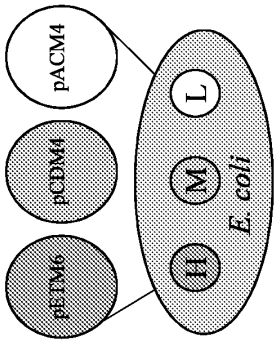


FIG. 1A

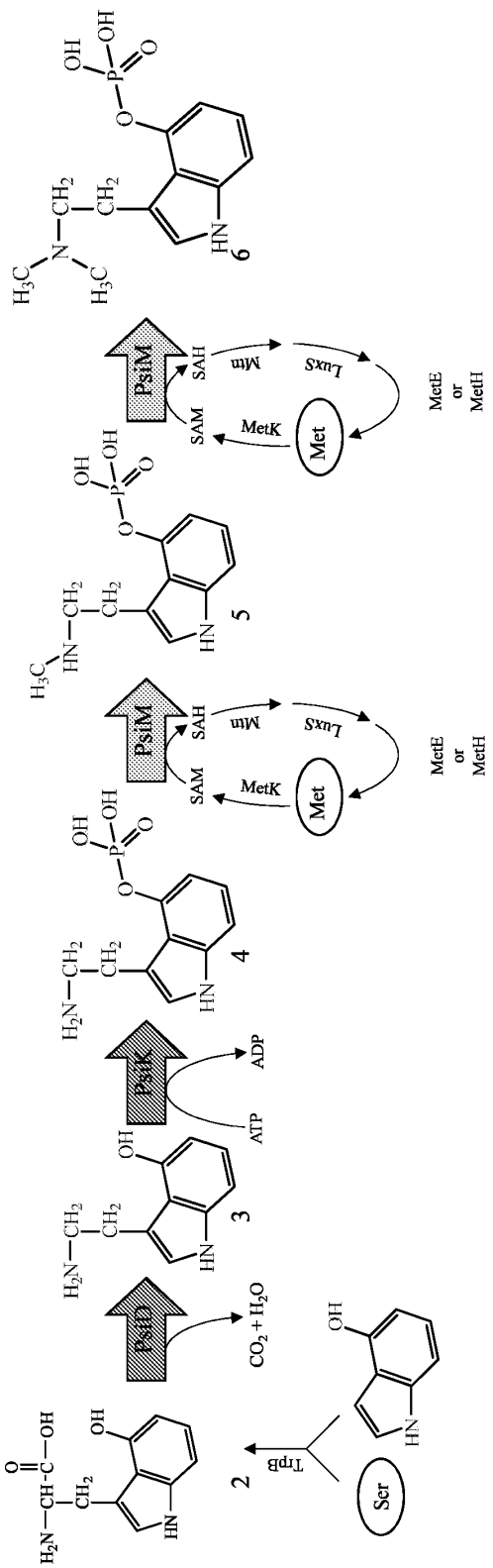

Ser
TrpB
2
$CO_2 + H_2O$
PsiD
3
PsiK
ATP
ADP
4
PsiM
SAM
SAH
Mtn
LuxS
MetK
Met
MetE
or
MetH
5
PsiM
SAM
SAH
Mtn
LuxS
MetK
Met
MetE
or
MetH
6

FIG. 1D

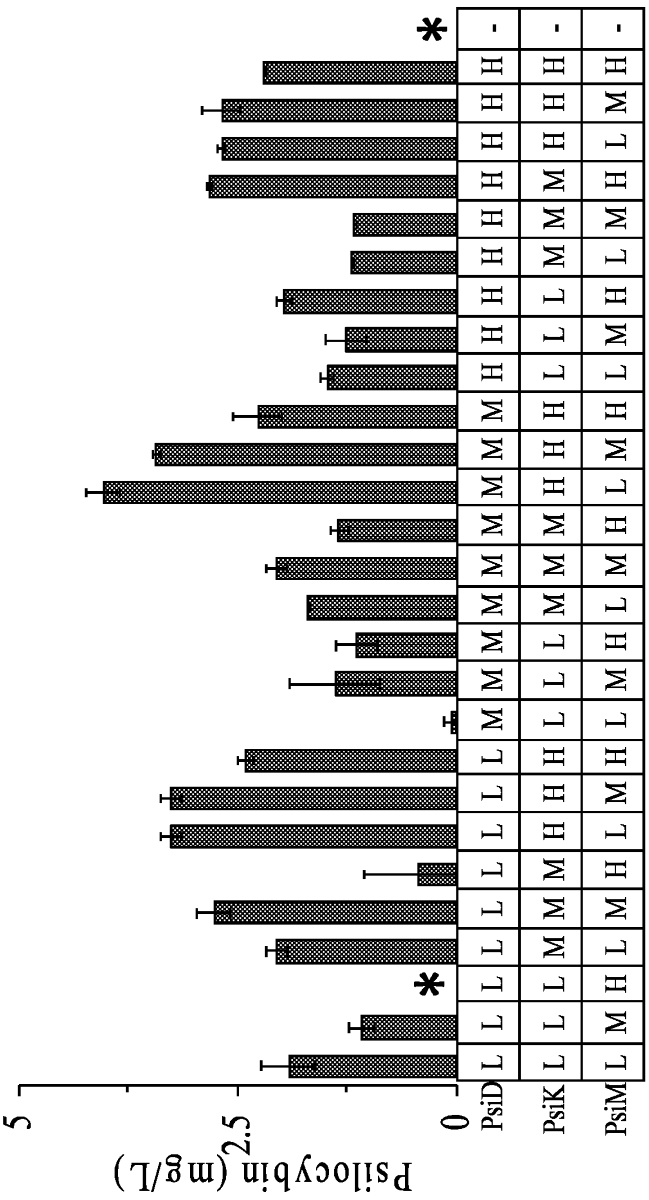


FIG. 2A

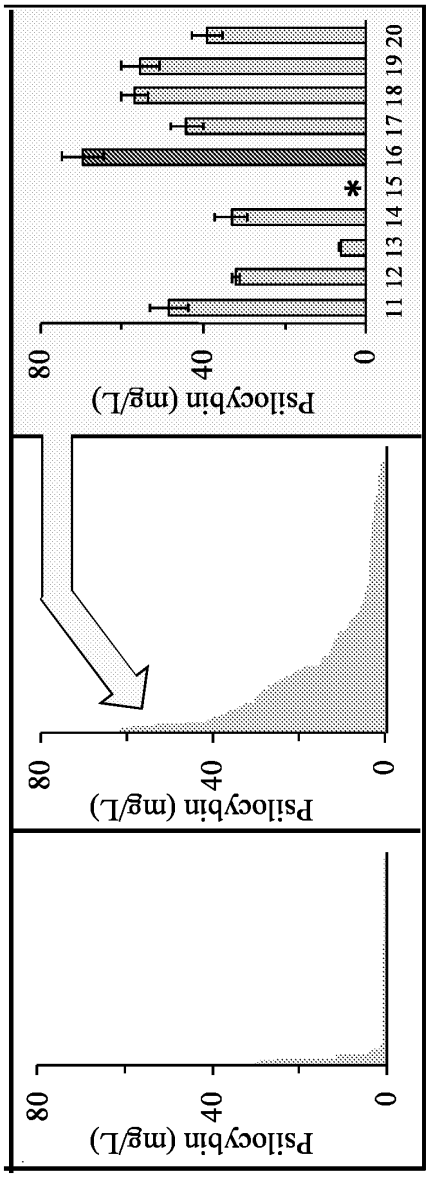


FIG. 2B

FIG. 2C

FIG. 2D

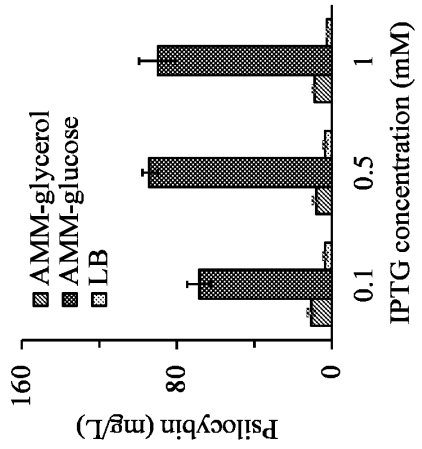

Psilocybin (mg/L)
160
80
0
AMM-glycerol
AMM-glucose
LB
0.1
0.5
1
IPTG concentration (mM)

FIG. 3B

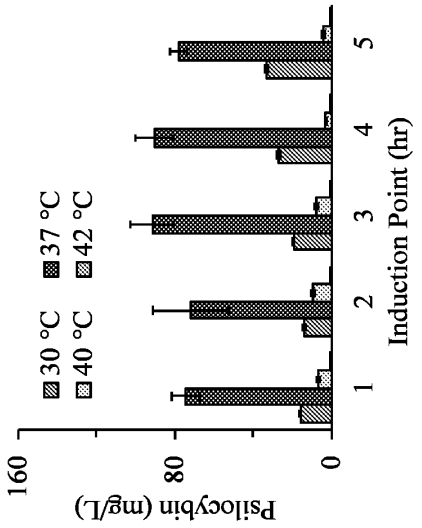

Psilocybin (mg/L)
160
80
0
30 °C
37 °C
40 °C
42 °C
1
2
3
4
5
Induction Point (hr)

FIG. 3A

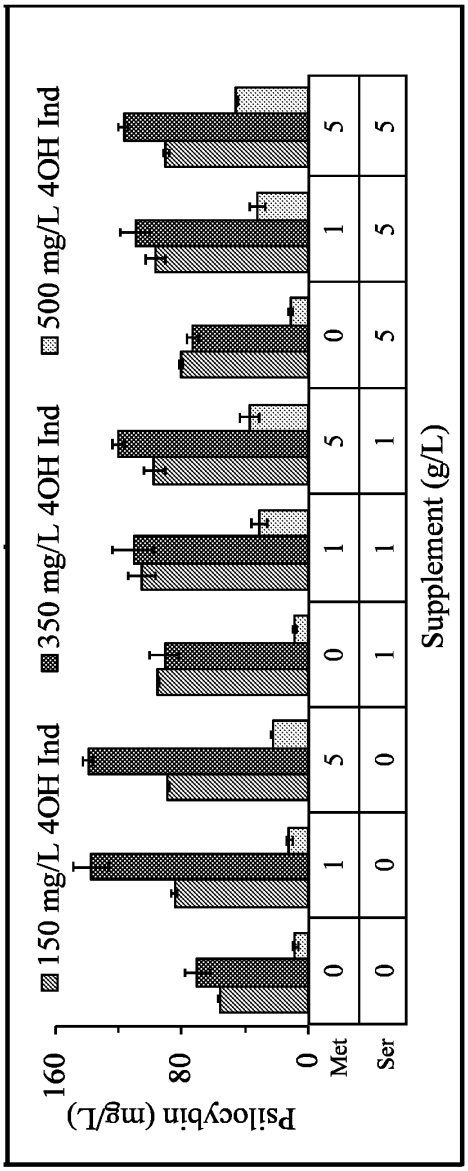

150 mg/L 4OH Ind
350 mg/L 4OH Ind
500 mg/L 4OH Ind
Psilocybin (mg/L)
160
80
0
Met
Ser
0 0 1 0 5 0 0 1 1 1 5 0 1 5 5 5
Supplement (g/L)

FIG. 3C

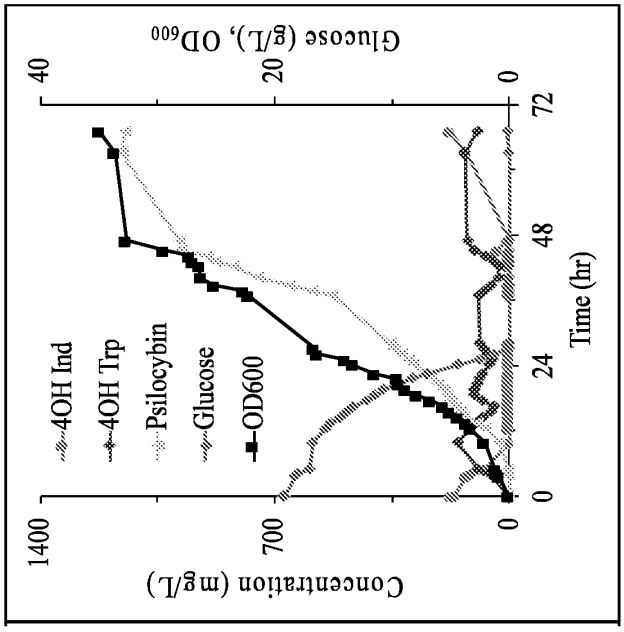

Concentration (mg/L)
1400
700
0
0
24
48
72
Time (hr)
Glucose (g/L), OD600
40
20
0
4OH Ind
4OH Trp
Psilocybin
Glucose
OD600

FIG. 4B

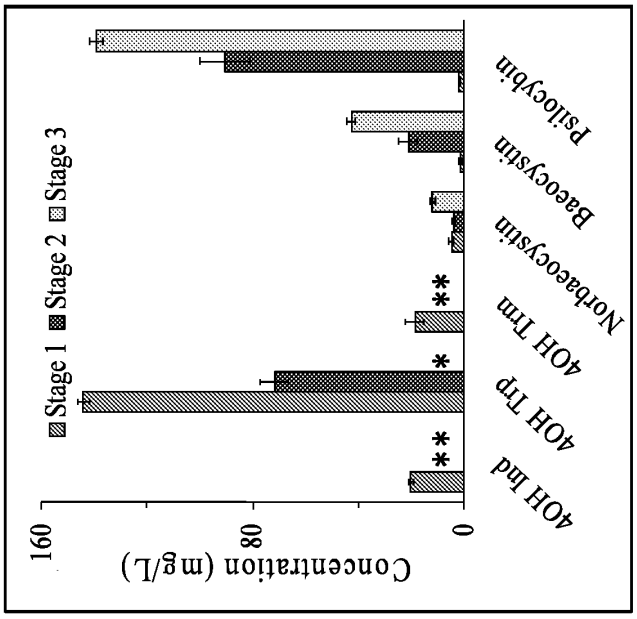

Concentration (mg/L)
160
80
0
Stage 1
Stage 2
Stage 3
4OH Ind
4OH Trp
4OH Trm
Norbaeocystin
Baeocystin
Psilocybin

FIG. 4A

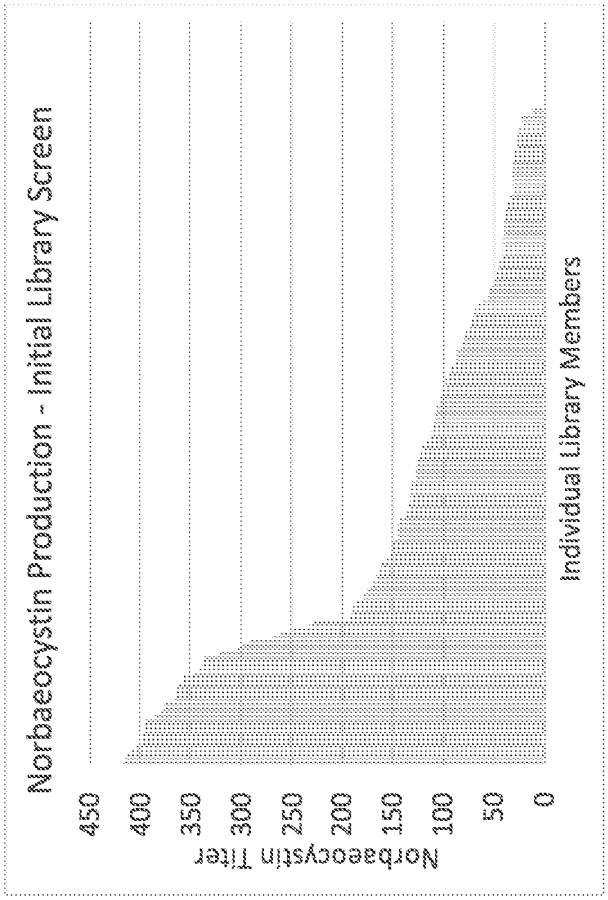

Norbaeocystin Production - Initial Library Screen
Norbaeocystin Titer
450
400
350
300
250
200
150
100
50
0
Individual Library Members

FIG. 5

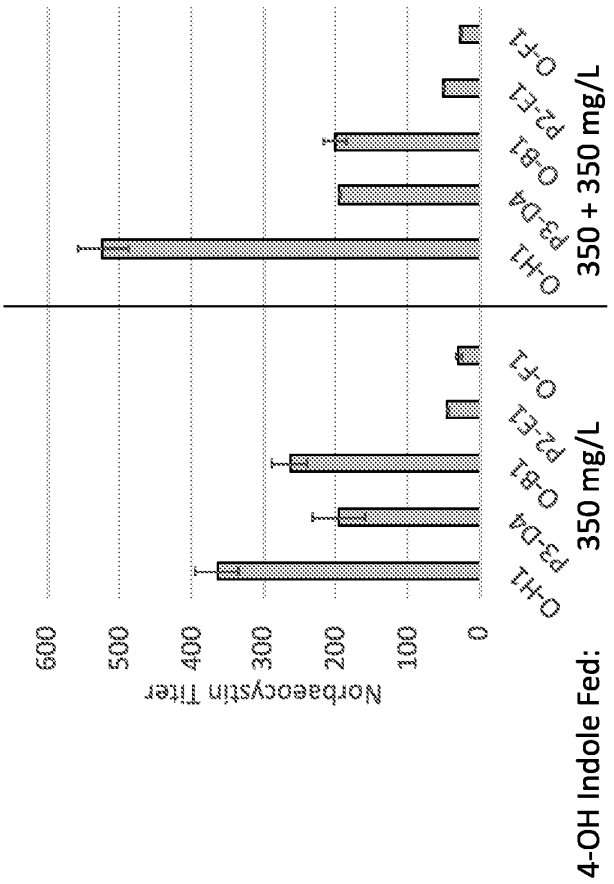

Norbaeocystin Titer
600
500
400
300
200
100
0
O-H1
P3-D4
O-B1
P2-E1
O-F1
350 mg/L
O-H1
P3-D4
O-B1
P2-E1
O-F1
350 + 350 mg/L
4-OH Indole Fed:

FIG. 6

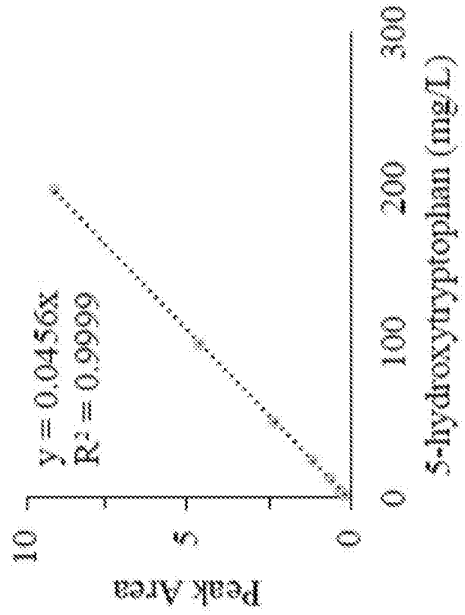

y = 0.0456x
R² = 0.9999
Peak Area
10
5
0
0
100
200
300
5-hydroxytryptophan (mg/L)

FIG. 7B

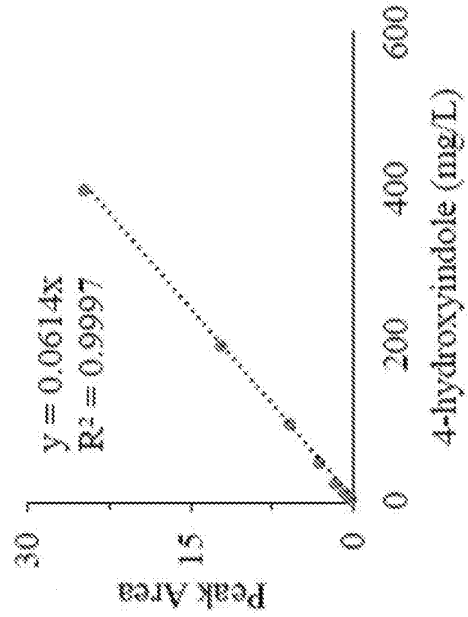

y = 0.0614x
R² = 0.9997
Peak Area
30
15
0
0
200
400
600
4-hydroxyindole (mg/L)

FIG. 7A

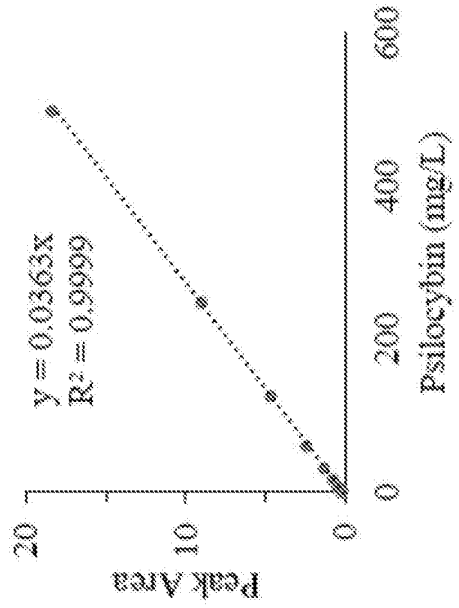

Peak Area
20
10
0
y = 0.0363x
R² = 0.9999
0
200
400
600
Psilocybin (mg/L)

FIG. 7D

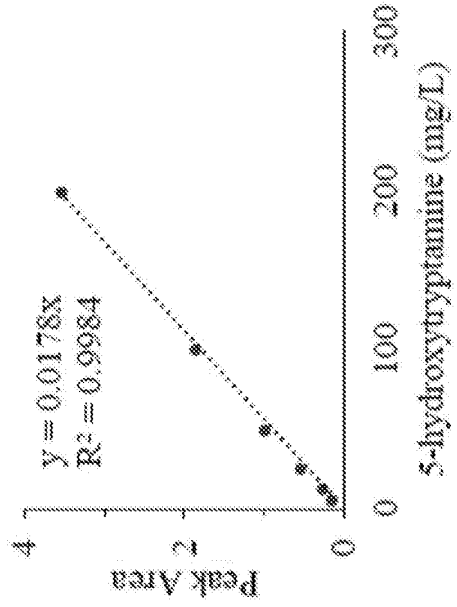

Peak Area
4
2
0
y = 0.0176x
R² = 0.9984
0
100
200
300
5-hydroxytryptamine (mg/L)

FIG. 7C

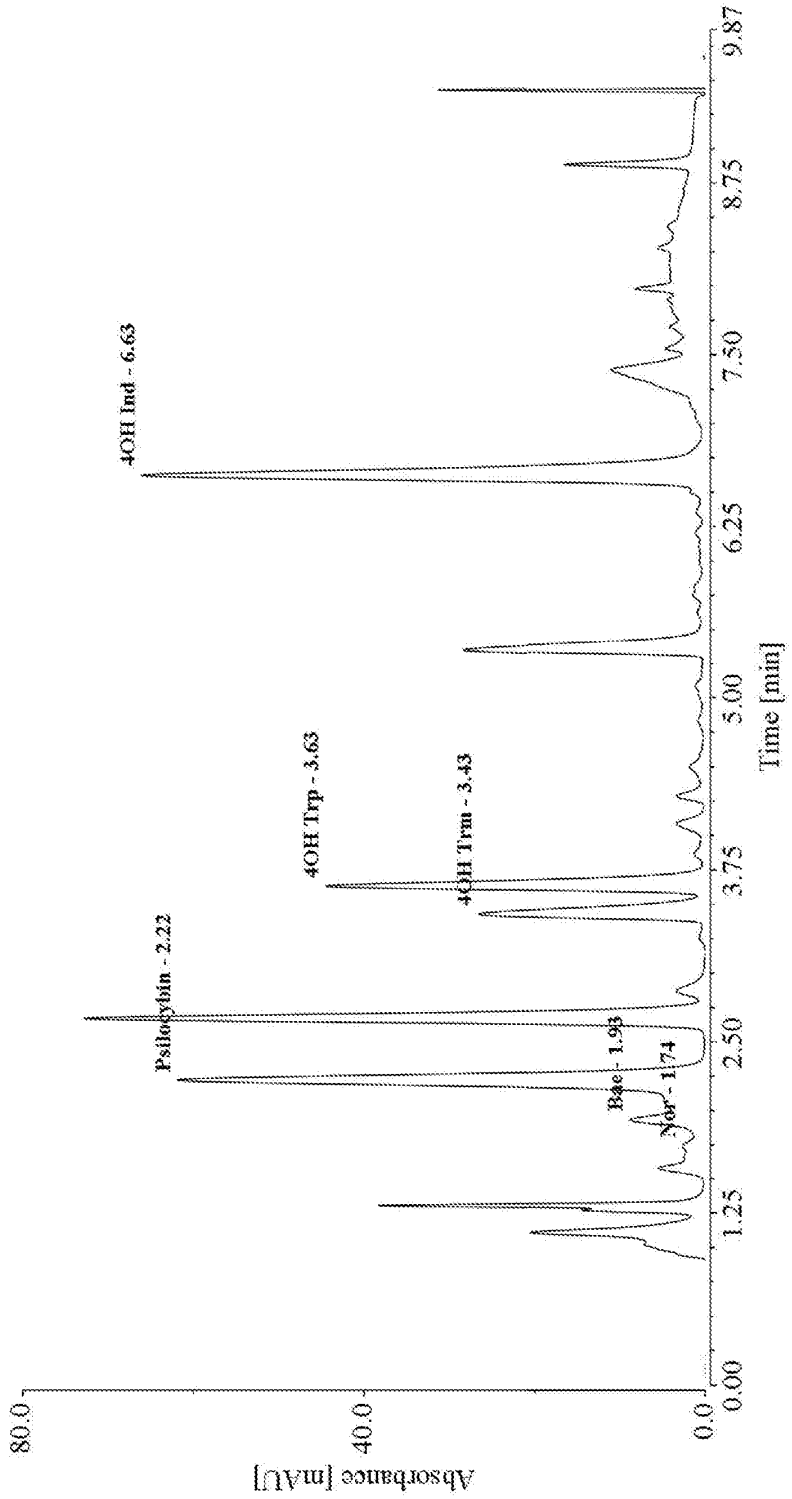

Absorbance [mAU]
80.0
40.0
0.0
0.00
1.25
2.50
3.75
5.00
6.25
7.50
8.75
9.87
Time [min]
4OH Ind - 6.63
4OH Trp - 3.63
4OH Trm - 3.43
Psilocybin - 2.22
Bae - 1.93
Nor - 1.74

FIG. 8

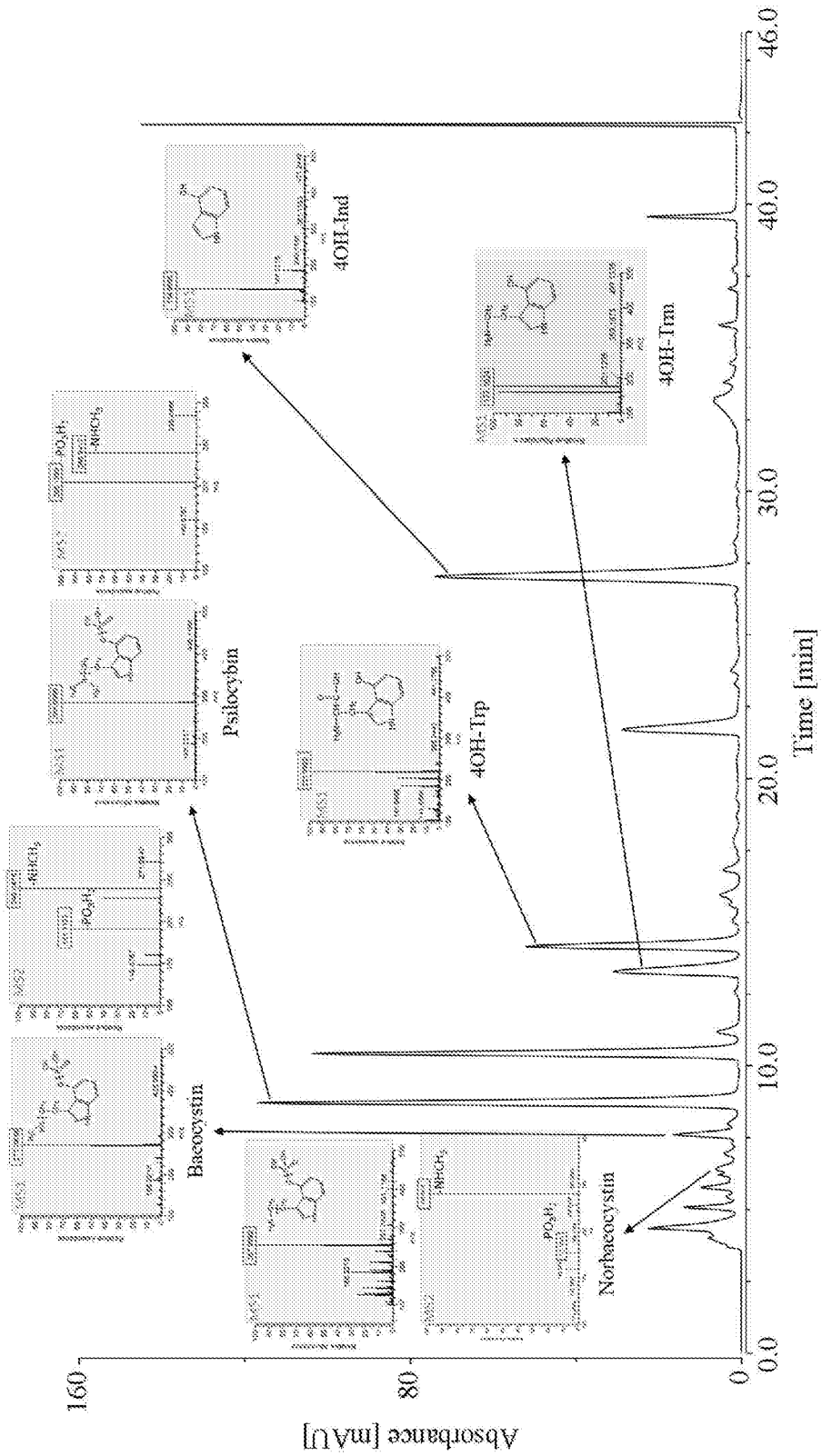

Absorbance [mAU]
160
80
0
0.0
10.0
20.0
30.0
40.0
46.0
Time [min]
Norbaeocystin
Baeocystin
Psilocybin
4OH-Trp
4OH-Tm
4OH-Ind

FIG. 9

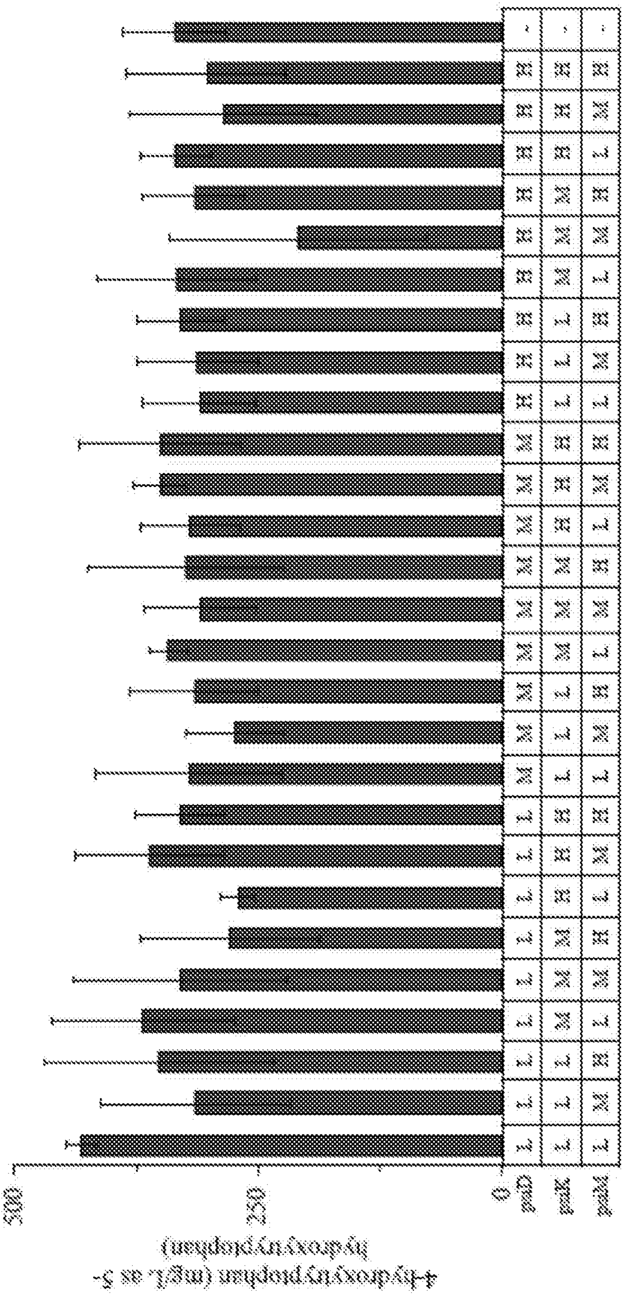


FIG. 10

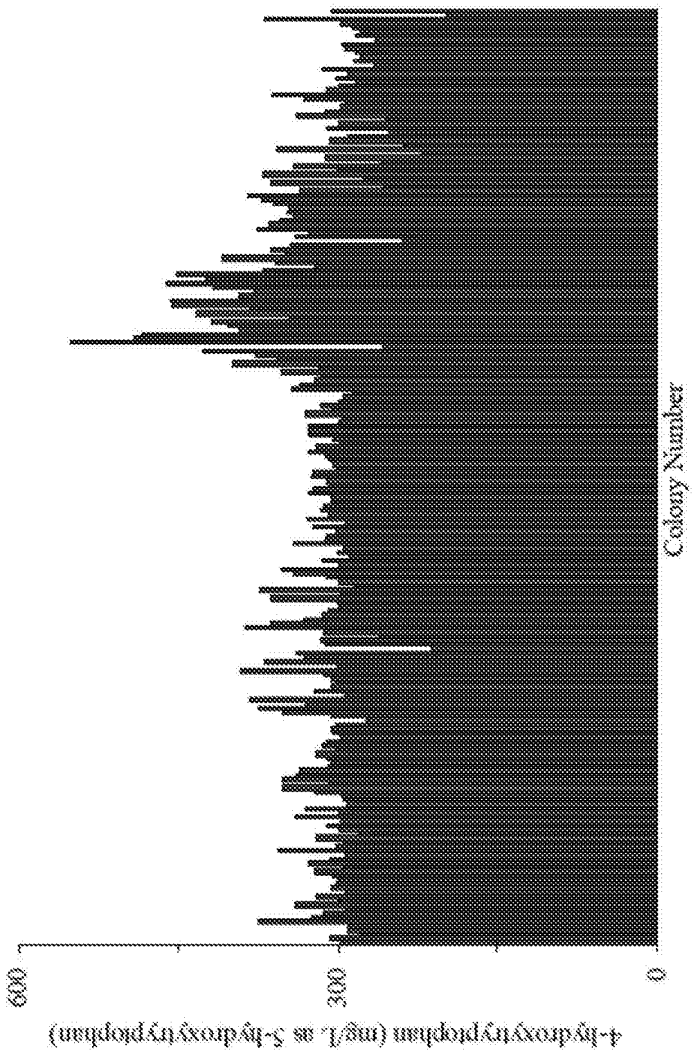

4-hydroxytryptophan (mg/L as 5-hydroxytryptophan)
600
300
0
Colony Number

FIG. 11

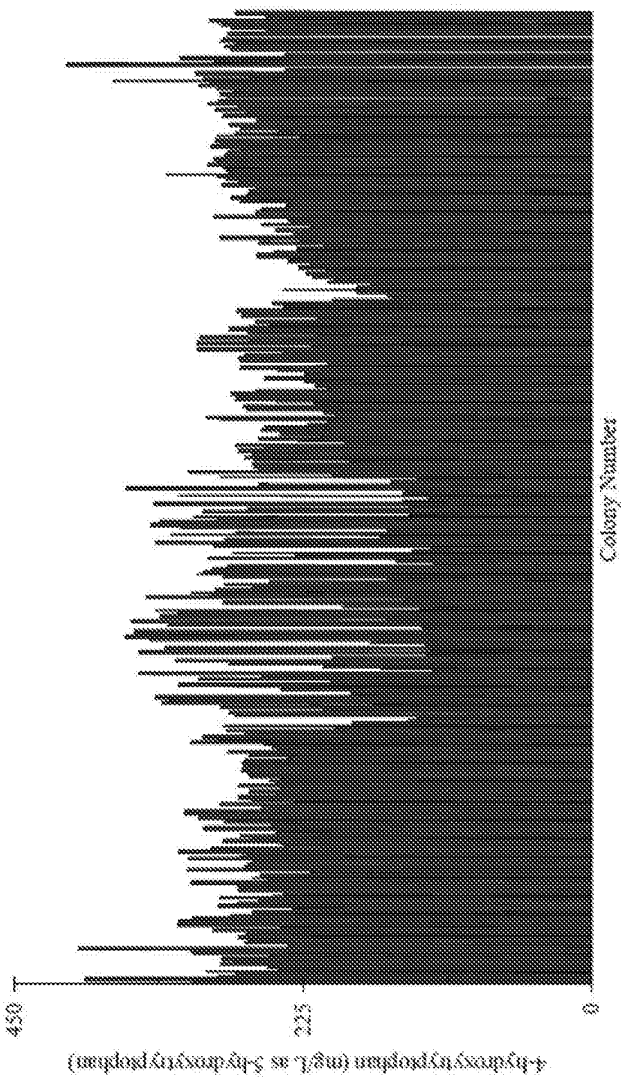

450
225
0
4-hydroxytryptophan (mg/L as 5-hydroxytryptophan)
Colony Number

FIG. 12

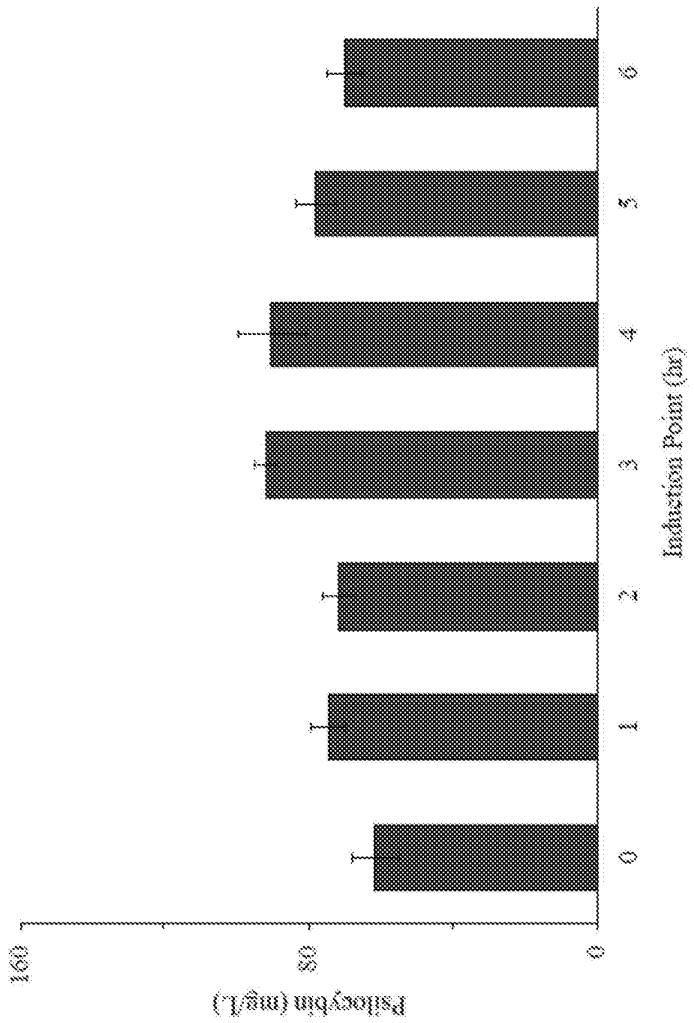


FIG. 13

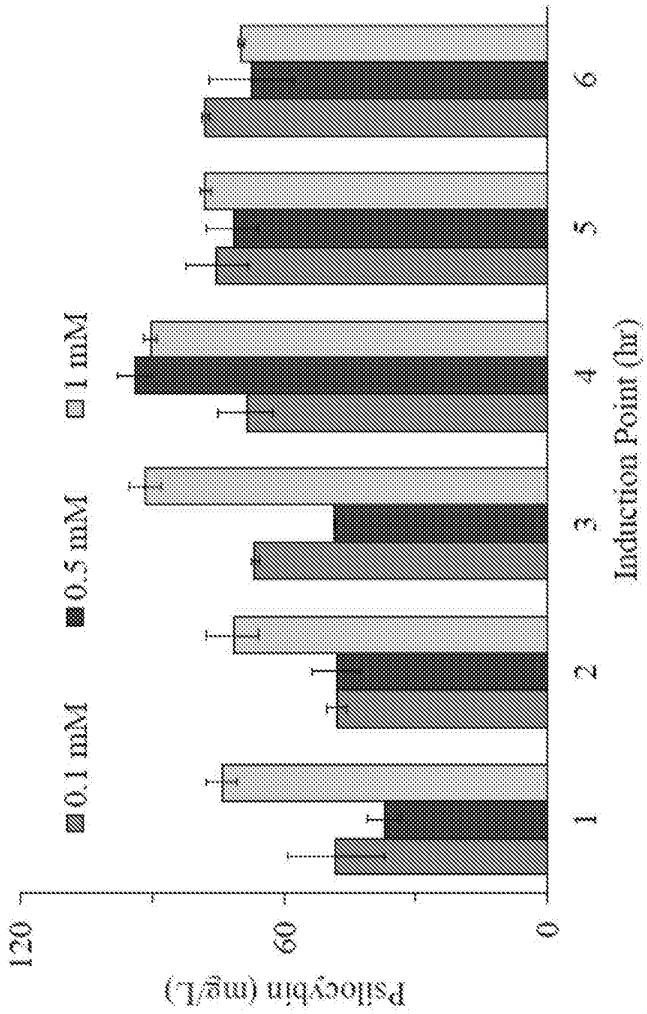

Psilocybin (mg/L)
120
60
0
0.1 mM
0.5 mM
1 mM
1
2
3
4
5
6
Induction Point (hr)

FIG. 14

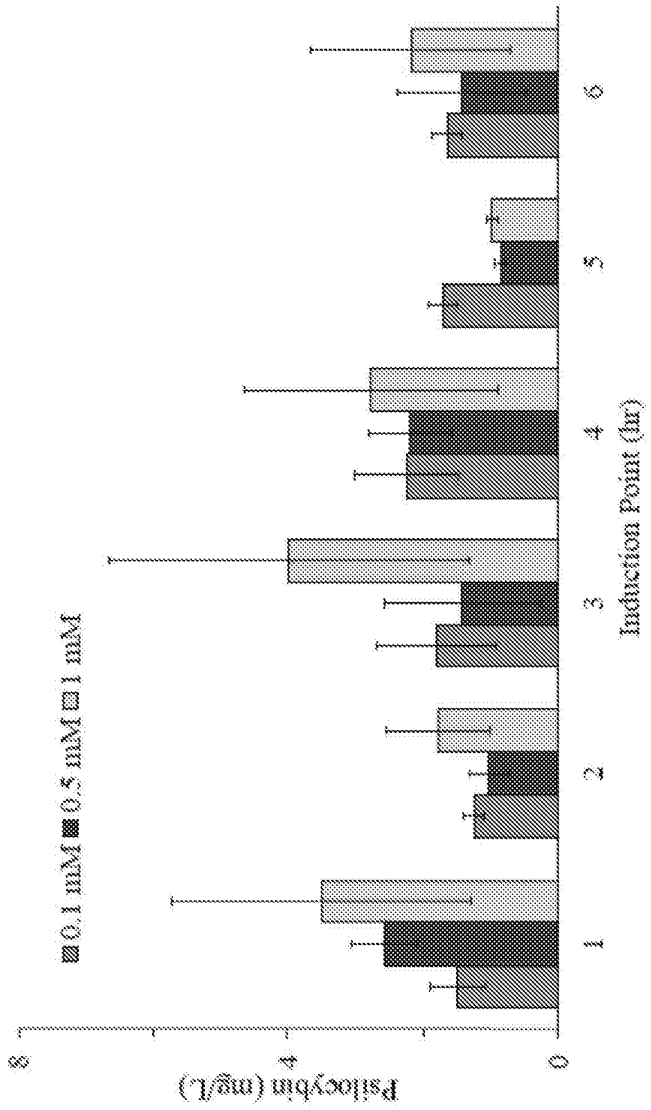


FIG. 15

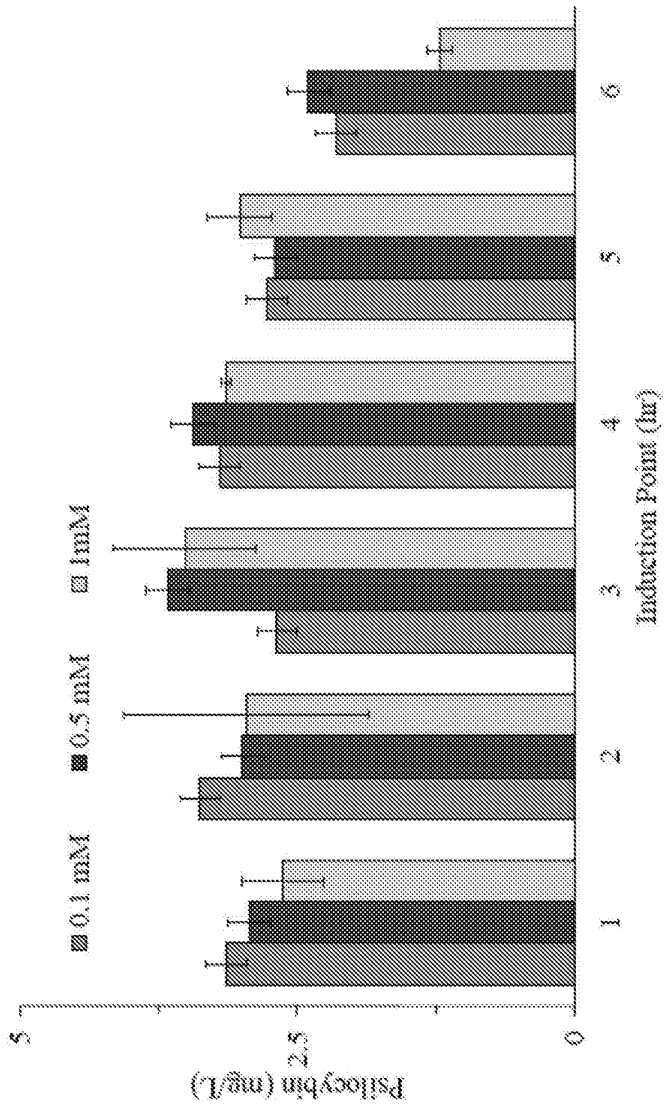

Psilocybin (mg/L)
5
2.5
0
0.1 mM
0.5 mM
1mM
1
2
3
4
5
6
Induction Point (hr)

FIG. 16

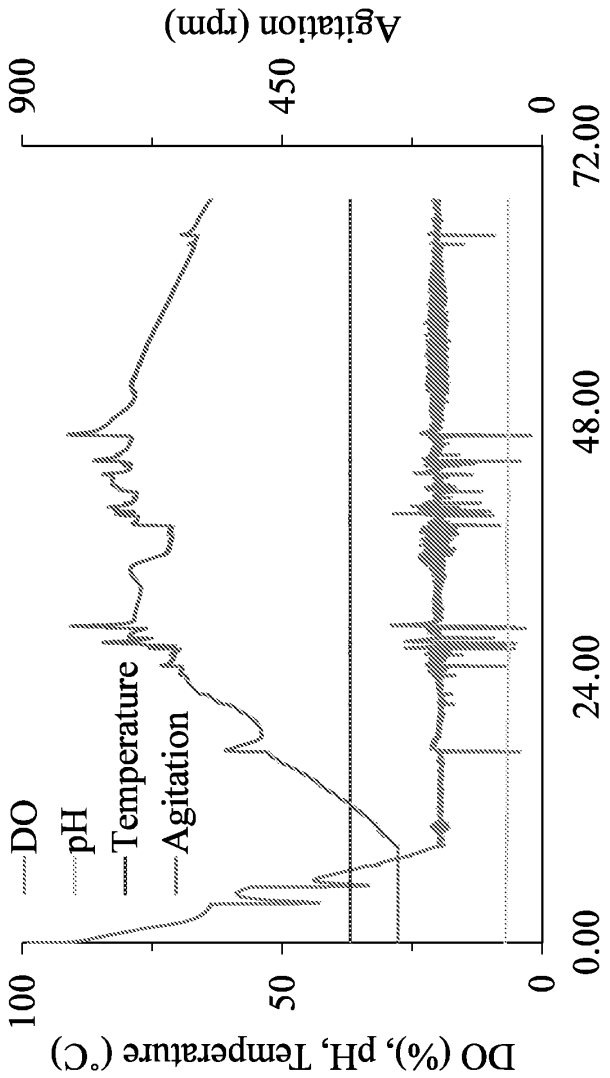

DO (%), pH, Temperature (°C)
100
50
0
0.00
24.00
48.00
72.00
Time (hr)
900
450
0
Agitation (rpm)
DO
pH
Temperature
Agitation

FIG. 17A

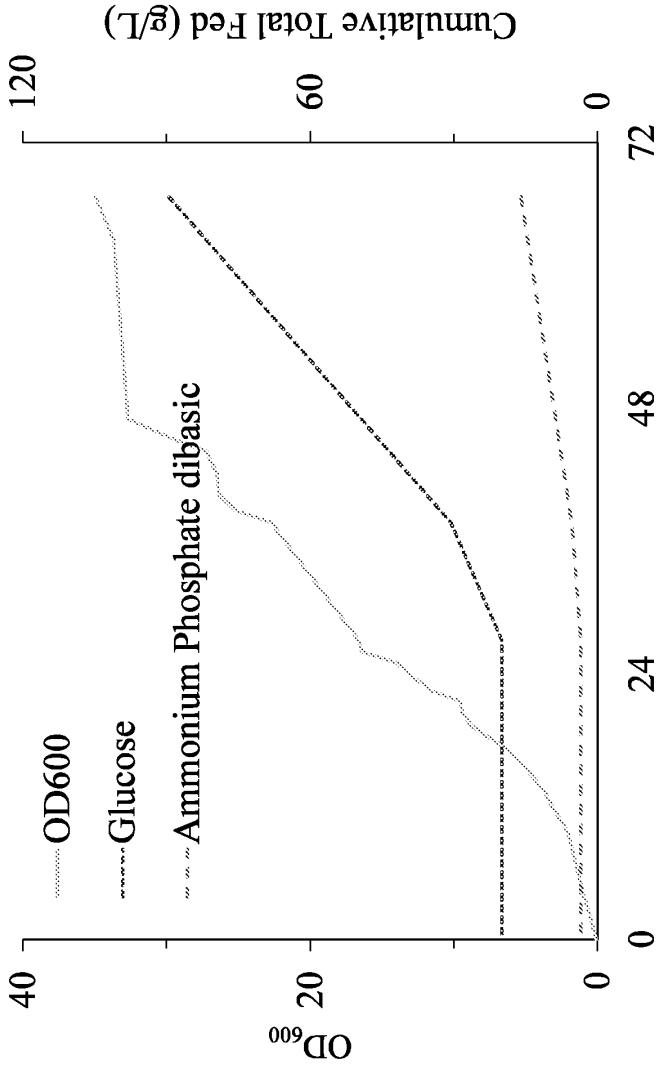

OD600
Glucose
Ammonium Phosphate dibasic
Cumulative Total Fed (g/L)
Time (hr)
0
20
40
0
24
48
72
0
60
120

FIG. 17B

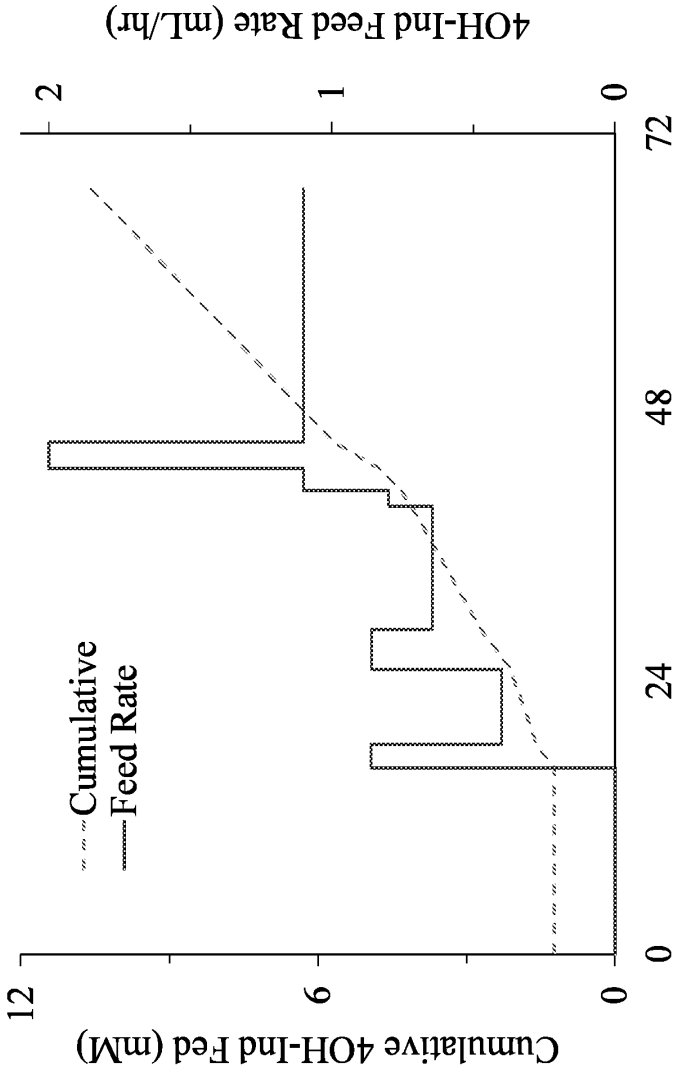

Cumulative 4OH-Ind Fed (mM)
12
6
0
0
24
48
72
Time (hr)
Cumulative
Feed Rate
4OH-Ind Feed Rate (mL/hr)
2
1
0

FIG. 17C

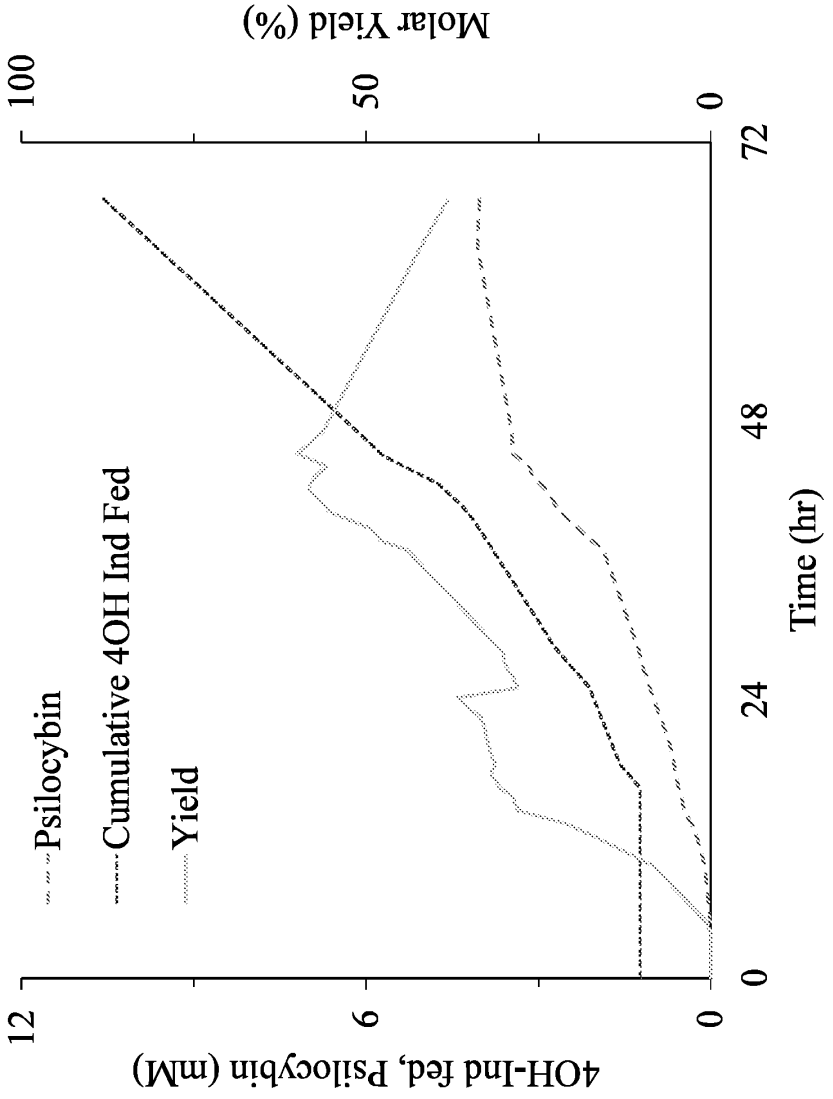

4OH-Ind fed, Psilocybin (mM)
Molar Yield (%)
Time (hr)
Psilocybin
Cumulative 4OH Ind Fed
Yield
0
6
12
0
50
100
0
24
48
72

FIG. 17D

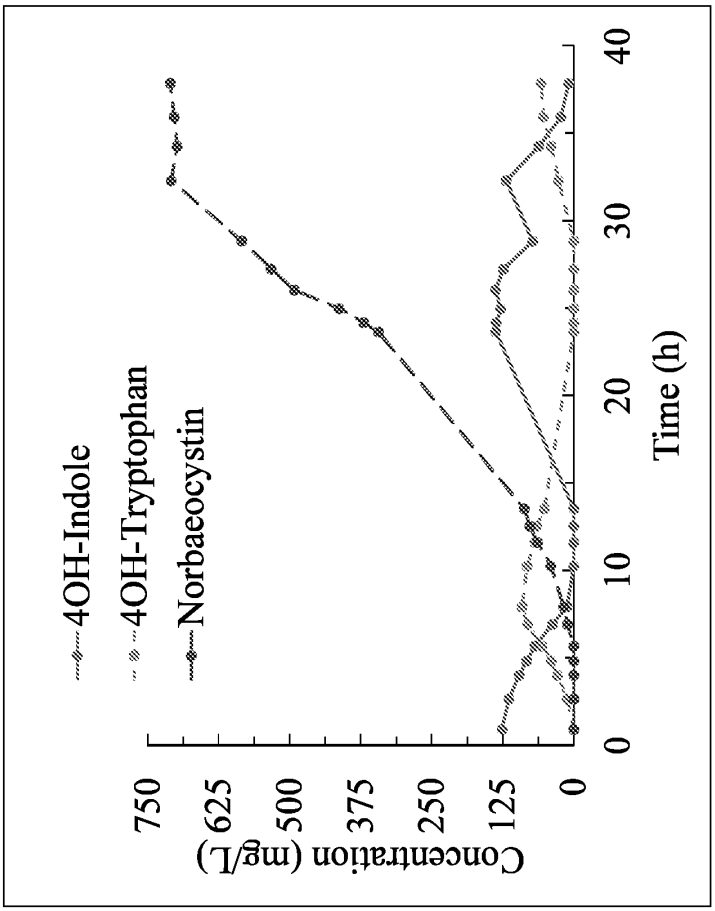

4OH-Indole
4OH-Tryptophan
Norbaeocystin
Concentration (mg/L)
750
625
500
375
250
125
0
0
10
20
30
40
Time (h)

FIG. 18

Norbaeocystin Mass Spectrum
Measured Mass: 257.0675
Actual Mass: 257.0691
Mass Error: 6.2 ppm

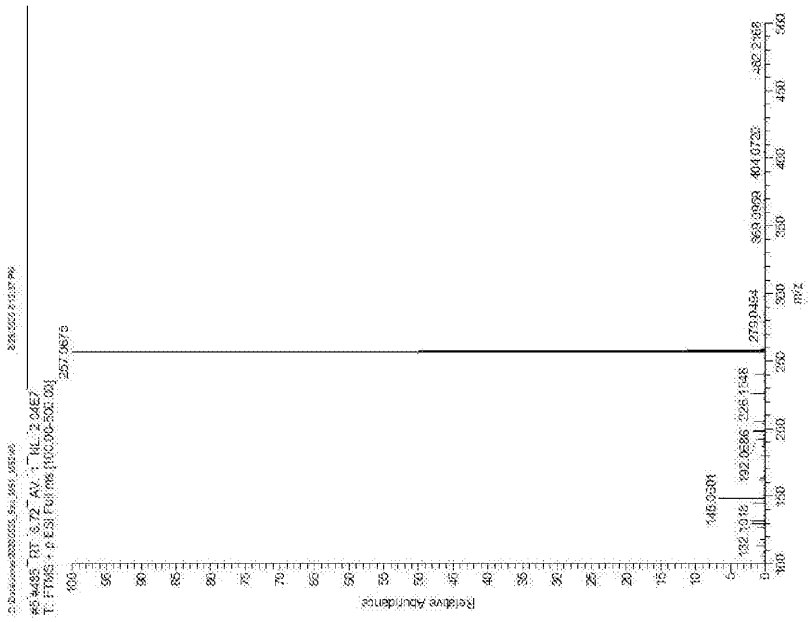


FIG. 19